



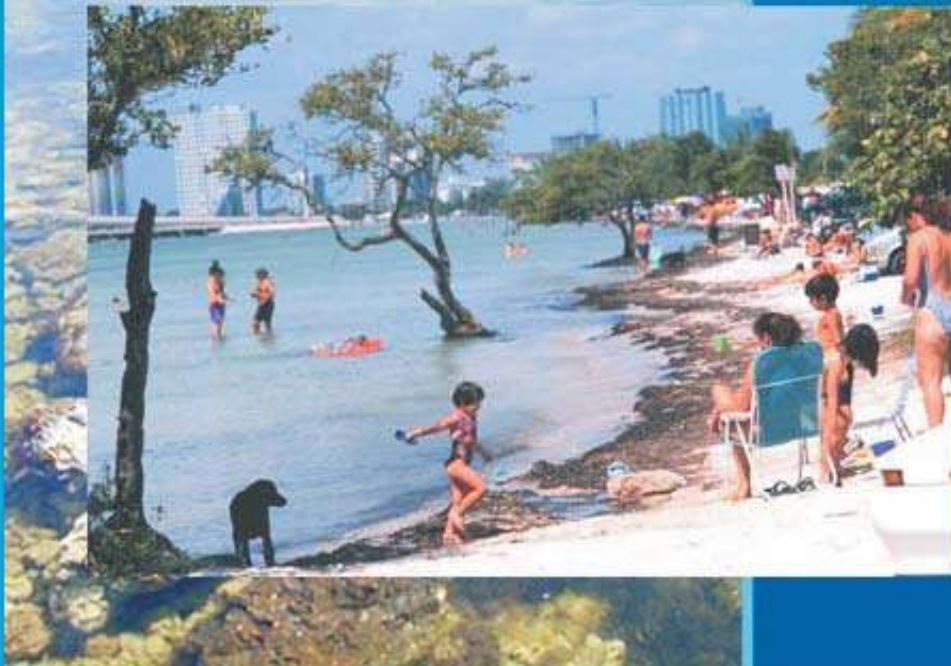
South Florida Water Management District



Biscayne Bay Economic Study

Task 3 Report – Final Biscayne Bay Economic Baseline and Trend Report

April 2005





South Florida Water Management District

Biscayne Bay Economic Study

Task 3 Report – Final Biscayne Bay Economic Baseline and Trend Report

April 2005



April 27, 2005

Ms. Trisha Stone
Staff Environmental Scientist
Coastal Ecosystems Department
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
3301 Gun Club Road
West Palm Beach, Florida 33406

Biscayne Bay Economic Study, C-15869 Task 3
Economic Baseline and Trend Report - Final

Dear Ms. Stone:

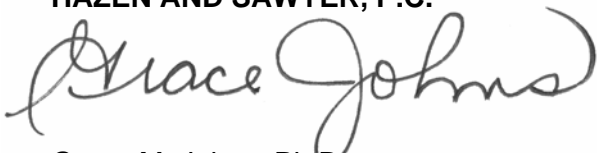
We are pleased to submit the final Task 3 Report titled "Economic Baseline and Trend Report". This document describes the estimated uses and economic contribution of Biscayne Bay and the Miami River to Miami-Dade County, southeast Florida and Florida from 1980 to 2004. The methods and data used to construct these estimates are also provided in this report.

Project team members responsible for this study are myself, as project manager, and economists Dave Sayers, Bill Hutchinson of Planning and Economics Group, Maria Delores Espino, Ph.D. and J. Walter Milon, Ph.D. Rife Market Research provided the survey researchers and the survey team management for this study.

We have enjoyed working with you and the Independent Technical Review Team throughout this project.

Very truly yours,

HAZEN AND SAWYER, P.C.



Grace M. Johns, Ph.D.
Senior Associate and Economist
Project Manager

Enclosure
c: File No. 40507-001

Acknowledgements

Biscayne Bay Economic Study – Economic Baseline and Trends

This project's success was directly attributable to the assistance and support of all those individuals involved in this 18 month long effort.

The Biscayne Bay Regional Restoration Coordination Team (BBRRCT) is part of the Working Group of the South Florida Ecosystem Restoration Task Force created by Congress. Based on recommendations identified through the Biscayne Bay Partnership Initiative, the BBRRCT recommended that this project be funded with State of Florida legislative appropriations for Biscayne Bay. This project was funded by the State and the Florida Inland Navigation District.

Once the Biscayne Bay Economic Study began, the members of this project's Independent Technical Review Team spent significant effort to review the three project deliverables and to provide advice regarding methods and data. They consistently provided meaningful comments and guidance during the three team meetings where interim results were presented. The members are Trisha Stone of the South Florida Water Management District who was also the District's manager for this project; Phil Everingham of the Miami Marine Council; Cynthia Guerra of the Tropical Audubon Society, Frank Herhold of the Marine Industries Association of South Florida; Ken Lipner of Florida International University; Don Pybas of the Miami-Dade County Cooperative Extension Service, University of Florida; and David Roach of the Florida Inland Navigation District. We also recognize Keith Revell who was a member of this team during the early stages of this project and provided meaningful comments during the development of this project's work plan.

The principal investigators and their responsibilities included Grace Johns, Ph.D. of Hazen and Sawyer who served as project manager; Bill Hutchinson of Planning and Economics Group who collected and evaluated the business data and provided GIS support; J. Walter Milon, Ph.D. and Maria Delores Espino, Ph.D. who provided technical oversight, review and guidance during this project and Dave Sayers of Hazen and Sawyer who managed this project's literature collection and review and the survey research data.

We wish to thank Sandy Palmer of Rife Market Research in Miami, Florida for providing and supervising the survey researchers. These survey researchers worked with energy and in earnest to conduct the resident and visitor intercept interviews in Miami-Dade County. Without these individuals, the study of recreational uses and their economic contribution would not have been possible. The survey researchers were Gita Bai, Lourdes Jones, Maria Lichtenberger, Helen Linger, Karla Mejia, Jason Quade, Jeannie Sponza and Robert Sponza. We thank them and all of the residents and visitors who responded to our intercept and mail surveys.

We send a special thanks to all of the owners of the properties used as survey sites who gave us permission to conduct resident and visitor surveys at their locations. The Miami International Airport was an important survey site and we thank Irving Fourcand and Grazyna Stasiulis for their support and effort in allowing our survey researchers access to this site.

We also wish to thank Brett Bibeau of the Miami River Commission, Frances Bohnsack, Ph.D. of the Miami River Marine Group, Professor Jerald S. Ault of the University of Miami Rosenstiel School of Marine and Atmospheric Sciences, and Amy Condon and Breece Robertson of the Trust for Public Land for the advice, publications and data they provided during this study. We thank Diane Camacho at the Port of Miami for sharing the Port's economic information with us for use in estimating the economic contribution of the Port of Miami and Bill Anderson of the Greater Miami Convention and Visitors Bureau for providing important visitor information.

Editor's Note: All readers of this document should read Section 1.0 Introduction before reading the other sections of this report (except the Executive Summary). Section 1.0 includes the definition of terms used in this document and the overall methodology used in this study.

Biscayne Bay Economic Study Economic Baseline and Trend Report Task 3 Report - Final

Table of Contents

Transmittal Letter
Acknowledgements
Editor’s Note
Table of Contents
Executive Summary

Section 1.0 - Introduction

1.1	Project Background.....	1-1
1.2	Project Objectives	1-1
1.3	Study Areas.....	1-2
1.4	Study Period.....	1-3
1.5	Definitions	1-3
1.6	Land Uses in Miami-Dade County	1-5
1.7	Overall Methodology	1-6
1.8	Report Organization.....	1-7

Section 2.0 - Biscayne Bay-Dependent Recreation in 2004

2.1	Biscayne Bay Users Intercept Survey.....	2-2
2.2	General Visitor Intercept Survey	2-6
2.3	General Resident Survey	2-7
2.4	Biscayne Bay-Related Recreational Uses and Expenditures of Visitors and Economic Contribution – Overall Methodology	2-11
2.5	Visitor Person-Trips to Miami-Dade County	2-13
2.6	Visitor Person-Trips for Those Who Used Biscayne Bay for Recreation	2-17
2.7	Visitor Person-Days Spent in Each Recreation Activity	2-18
2.8	Visitor Expenditures to Participate in Bay-Related Recreation ...	2-22
2.9	Visitor Expenditures for “Big-Ticket” Items Needed to Recreate on Biscayne Bay	2-26
2.10	Economic Contribution Associated with Biscayne Bay-Related Expenditures By Visitors	2-29
2.11	Biscayne Bay-Related Recreational Uses and Expenditures of Residents and Economic Contribution – Overall Methodology ...	2-31

2.12	Percent of Miami-Dade County Residents Who Use the Bay for Recreation	2-32
2.13	Resident Person-Days Spent in Each Recreation Activity	2-33
2.14	Resident Expenditures to Participate in Bay-Related Recreation.	2-37
2.15	Resident Expenditures for “Big-Ticket” Items Needed to Recreate on Biscayne Bay	2-42
2.16	Economic Contribution Associated with Biscayne Bay-Related Expenditures By Residents	2-44
2.17	Resident and Visitor Recreational Uses and Economic Contribution of Recreational Expenditures	2-46
2.18	Location of Recreation Activities on Biscayne Bay	2-57
2.19	Demographic Characteristics of Those Who Recreate on Biscayne Bay	2-65
Section 3.0	- Biscayne Bay-Dependent Recreation – Historic	
3.1	Methodology	3-1
3.2	Historic Recreational Uses and Economic Contribution	3-7
Section 4.0	- Biscayne Bay-Dependent Commercial Fishing	
4.1	Methodology	4-1
4.2	Commercial Fish Harvested in Biscayne Bay	4-2
4.3	Biscayne Bay-Dependent Fish Harvest	4-7
4.4	Economic Contribution as Biscayne Bay Supports Commercial Fisheries	4-13
4.5	Trends in Number of Registered Boats for Commercial Use	4-23
Section 5.0	- Miami-Dade County Shipping Industry	
5.1	Introduction.....	5-1
5.2	Methodology	5-2
5.3	Port of Miami Shipping	5-8
5.4	Miami River Shipping	5-50
Section 6.0	- Marine Related Businesses in Miami-Dade County	
Section 7.0	- Uses and Economic Contribution of Biscayne Bay	
7.1	Uses of Biscayne Bay	7-1
7.2	Economic Contribution of Biscayne Bay in 2004	7-12
7.3	Economic Contribution as Biscayne Bay Supports Recreation, 1980 to 2004.....	7-24

7.4	Economic Contribution as Biscayne Bay Supports Commercial Fishing, 1985 to 2002	7-31
7.5	Economic Contribution as Biscayne Bay Supports Shipping Operations, 1980 to 2004.....	7-37
7.6	Identification of Industries That Benefit from Biscayne Bay, 2004	7-48

Section 8.0 - Bibliography

Appendices

A	Biscayne Bay User Survey Residents and Visitors
B	General Visitor Survey
C	2000 Population of Miami-Dade County Residents by Zip Code
D	General Resident Survey
E	2004 Resident and Visitor Expenditures Related to Biscayne Bay Recreation and Economic Contribution of Biscayne Bay Related Expenditures to Southeast Florida and Florida, Itemized by Industry, 2004
F	Landings and Value of Species Reported for the Area Encompassing Biscayne Bay, Card Sound and Barnes Sound and Itemized Economic Contribution of Biscayne Bay Related Commercial Fishing

Tables

2-1-1	Number of Completed Biscayne Bay User Intercept Surveys.....	2-3
2-1-2	Number of Persons Intercepted During Biscayne Bay Users Survey by Interview Site .	2-3
2-1-3	Number of Persons Surveyed, Response Rate and Percent Surveyed at Each Interview Site Biscayne Bay Users Survey	2-5
2-2-1	Number of Completed General Visitor Intercept Surveys.....	2-6
2.2-2	Number of Persons Intercepted, Percent Surveyed by Location During General Visitor Survey by Interview Site.....	2-8
2.3-1	Location of Respondents and Residents in Miami-Dade County	2-10
2.3-2	Proportion of Miami-Dade County Resident Respondents Who Participated in Recreation Activities on Biscayne Bay in Past 12 Months, Overall and By Location	2-10
2.3-3	Ethnicity of Miami-Dade County Residents and General Resident Survey Respondents.....	2-11
2.3-4	Percent of Miami-Dade County Residents who Participated in Biscayne Bay Related Activities, 2004 (From General Resident Mail Survey)	2-12

2.5-1	Number of Visitor Person-Trips To Miami-Dade County in 2004 Using Capacity Utilization Model.....	2-14
2.5-2	Proportion of General Visitor Respondents by Accommodation Miami-Dade County, Florida.....	2-16
2.5-3	Average Number of Days Per Trip by Accommodation By Visitors In Miami-Dade County - 2004 - From General Visitor Survey	2-17
2.5-4	Visitation In Miami-Dade County - 2004.....	2-17
2.6-1	Person Trips of Visitors to Miami Dade County, who used Biscayne Bay for Recreation in 2004	2-18
2.7-1	Calculation of Total Person Days Bay-Using Visitors Spent Visiting Miami-Dade County in Year 2004.....	2-20
2.7-2	Number of Visitor Person-Days Spent Participating in Biscayne Bay-Related Activities, 2004.....	2-21
2.7-3	Average Days Spent Participating in Biscayne Bay Activities in the Past 12 Months for Those Who Participated in the Activity (a)	2-22
2.8-1	Average Itemized Biscayne Bay-Related Expenditures in Miami-Dade County Per Person Per Day by Visitors – 2004.....	2-24
2.8-2	Total Itemized Biscayne Bay-Related Expenditures of Visitors to Miami-Dade County by Recreation Activity – 2004.....	2-26
2.9-1	Visitor Purchases of “Big Ticket” Items in Florida Needed to Participate in Biscayne Bay-Related Activities.....	2-30
2.10-1	Itemization of Visitor Biscayne-Bay Related Expenditures Applied to IMPLAN Model Sectors, 2004.....	2-32
2.10-2	Economic Contribution of Biscayne Bay-Related Expenditures by Visitors to Miami-Dade County, 2004 (a)	2-33
2.12-1	Percent of Miami-Dade County Residents who Participated in Biscayne Bay Related Activities, 2004 (Used in Developing Person-Day Estimates by Activity)	2-35
2.12-2	Confidence Intervals for Percent of Resident Population Participating in Each Activity	2-36
2.13-1	Comparison of Median, Mean and Trimmed Mean Days Participating By Activity in Past 12 Months for Those Who Participated in the Activity – Biscayne Bay User Survey of Residents (Of 610 Completed Surveys)	2-38
2.13-2	Number of Person-Days Residents Spent in Biscayne Bay-Related Recreation Activities, 2004.....	2-39
2.14-1	Average Itemized Biscayne Bay-Related Expenditures in Miami-Dade County Per Person Per Day by Residents – 2004.....	2-41
2.14-2	Total Itemized Biscayne Bay Related Expenditures of Residents to Miami-Dade County by Recreation Activity – 2004	2-43
2.15-1	Resident Purchases of “Big Ticket” Items in Florida q..... Needed to Participate in Biscayne Bay-Related Activities	2-46
2.16-1	Itemization of Resident Biscayne-Bay Related Expenditures Applied to IMPLAN Model Sectors, 2004.....	2-48

2.16-2 Economic Contribution of Biscayne Bay-Related Expenditures by Miami-Dade County Residents, 2004 (a) 2-49

2.17-1 Evaluation of Person Days Recreating on Biscayne Bay, 2004 2-50

2.17-2 Number of Person-Days Spent Participating in Biscayne Bay-Related Activities During 2004..... 2-51

2.17-3 Economic Contribution of Biscayne Bay-Related Expenditures by Residents and Visitors to Miami-Dade County, 2004 (a) 2-52

2.17-4 Economy of Study Areas, 2004 2-53

2.17-5 Economic Contribution of Biscayne Bay As Percent of Study Area Economies, 2004 2-53

2.17-6 Comparison of Bay-Related Recreation Expenditures With Miami-Dade County Gross Sales 2-54

2.17-7 Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures for Biscayne Bay-Related Recreation, 2004 2-55

2.18-1 Location of Recreation Activities on Biscayne Bay by Residents Percent of Days Spent by Activity and Location in the Past 12 Months, Questions 4, 6 and 7 (608 Respondents) 2-62

2.18-2 Location of Recreation Activities on Biscayne Bay by Residents Number of Person Days Spent by Activity and Location in the Past 12 Months 2-63

2.18-3 Location of Recreation Activities on Biscayne Bay by Visitors Percent of Days Spent by Activity and Location in the Past 12 Months, Questions 12, 13 and 15 (309 Respondents) 2-64

2.18-4 (Location of Recreation Activities on Biscayne Bay by Visitors Number of Person Days Spent by Activity and Location in the Past 12 Months 2-65

2.18-5 Location of Recreation Activities on Biscayne Bay by Residents and Visitors Number of Person Days Spent by Activity and Location in the Past 12 Months 2-66

2.18-6 Location of Recreation Activities on Biscayne Bay by Residents and Visitors Percent of Days Spent by Activity and Location in the Past 12 Months 2-67

2.19-1 Demographic Characteristics of Those Who Recreate on Biscayne Bay Resident and Visitor Respondents, 2004 2-68

2.19-2 Years Lived In or Visited Miami-Dade County 2-69

2.19-3 Household Location of Miami-Dade County Residents, 2004..... 2-70

2.19-4 Origin of Visitors Who Recreate on Biscayne Bay, 2004..... 2-71

2.19-5 Origin of United States' Visitors Who Recreate on Biscayne Bay, 2004 2-72

2.19-6 Origin of Florida Visitors Who Recreate on Biscayne Bay, 2004 2-73

3.1-1 Attendance At State and National Parks Along Biscayne Bay Attendance is Number of Persons Entering the Park..... 3-3

3.1-2 Estimated Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 1980 to 2004 3-9

3.2-1...Output Created In Miami-Dade County From Recreational Uses of Biscayne Bay, 1980 to 2004 3-16..... 3-16

3.2-2 Income Created In Miami-Dade County From Recreational Uses of Biscayne Bay, 1980 to 2004 3-17

3.2-3 Indirect Business Taxes Paid In Miami-Dade County From Recreational Uses of Biscayne Bay, 1980 to 2004 3-18

3.2-4 Employment Created In Miami-Dade County From Recreational Uses of Biscayne Bay, 1980 to 2004 3-19

3.2-5 Output Created In Southeast Florida From Recreational Uses of Biscayne Bay, 1980 to 2004 3-23

3.2-6 Income Created In Southeast Florida From Recreational Uses of Biscayne Bay, 1980 to 2004 3-24

3.2-7 Indirect Business Taxes Paid In Southeast Florida From Recreational Uses of Biscayne Bay, 1980 to 2004 3-25

3.2-8 Employment Created In Southeast Florida From Recreational Uses of Biscayne Bay, 1980 to 2004 3-26

3.2-9 Output Created In Florida From Recreational Uses of Biscayne Bay, 1980 to 2004.... 3-27

3.2-10 Income Created In Florida From Recreational Uses of Biscayne Bay, 1980 to 2004... 3-28

3.2-11 Indirect Business Taxes Paid In Florida From Recreational Uses of Biscayne Bay, 1980 to 2004 3-29

3.2-12 Employment Created In Florida From Recreational Uses of Biscayne Bay, 1980 to 2004 3-30

4.2-1 Commercial Landings and Value of Fish Caught in Biscayne Bay, 1986 to 2002 4-3

4.3-1 Historic Exvessel Value of Commercial Fish, Shellfish and Marine Life Landings in Miami-Dade and Monroe Counties for Species Dependent on Biscayne Bay Exvessel Value of Commercial Fish, Shellfish and Marine Life Landings in Miami-Dade County for Species Dependent on Biscayne Bay Itemized By Location of Catch..... 4-5

4.3-2 Exvessel Value of Commercial Fish, Shellfish and Marine Life Landings in Miami-Dade County for Species Dependent on Biscayne Bay Itemized By Location of Catch 4-6

4.4-1...Estimated Annual Sales Generated from Commercial Fishing Vessel Purchases and Refurbishments 4-8

4.5-1 Distribution of Biscayne Bay Related Commercial Marine Landings by Species, 2002 4-9

4.5-.2 Annual Exvessel Values for Bay-Related Commercial Marine Landings and Associated Estimated Marketing Margins, 2004 Dollars..... 4-10

4.6-1 Sales of Commercial Fish, Shellfish and Marine Life Landings Of Species Dependent or Caught on Biscayne Bay , 2004 Dollars..... 4-11

4.6-2 Current and Historic Economic Contribution to Miami-Dade County As Biscayne Bay is Used for Commercial Fishing (a) 4-12

4.6-3 Current and Historic Economic Contribution to Southeast Florida As Biscayne Bay is Used for Commercial Fishing (a) 4-13

4.6-4 Current and Historic Economic Contribution to Florida As Biscayne Bay is Used for Commercial Fishing (a)..... 4-14

4.6-5 Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004..... 4-17

4.7-1 Number of Registered Boats for Commercial Uses in Study Areas, 1964 to 2002..... 4-24

5.2-1 Economic Benefits of Biscayne Bay and The Miami River As They Are Used for Shipping 5-4

5.2-2 Estimated Sales in Miami-Dade County of Businesses That Directly Benefit from Miami-Dade County’s Shipping Ports in 2004, 2004 Dollars5-5

5.2-3 Estimated Sales in Southeast Florida and Florida of Businesses That Directly Benefit from Miami-Dade County’s Shipping Ports in 2004, 2004 Dollars5-6

5.2-4 Port Related Construction Expenditures at the Port of Miami and Miami River in 2004, 2004 dollars5-9

5.2-5 Miami-Dade County Produced Exports by IMPLAN Sector That Are Shipped Via Water Or Are Dependent on Water Transportation, 20005-10

5.2-6 Hypothesized Reasons for Miami-Dade County Business Location by Exporting Industry5-12

5.2-7 Southeast Florida Produced Exports by IMPLAN Sector That Are Shipped Via Water Or Are Dependent on Water Transportation, 20005-15

5.2-8 IMPLAN Code Assignments.....5-16

5.3-1 Economic Contribution of the Port of Miami as it is Used for Shipping, 2004 (a)5-18

5.3-2 Economy of Study Areas, 2003 5-18

5.3-3 Economic Contribution of the Port of Miami As a Percent of the Study Area Economies, 2004..... 5-18

5.3-4 Estimated Economic Contribution of Port of Miami by Type of Impact and Study Area 5-19

5.3-5 Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004.....5-20

5.3-6 Economic Contribution of Port of Miami Shipping Activities to Southeast Florida by Benefiting Industry Type, 2004 5-25

5.3-7 Economic Contribution of Port of Miami Shipping Activities to Florida by Benefiting Industry Type, 2004..... 5-30

5.3-8 Annual Data on Port of Miami Operations, 1979 to 20035-37

5.3-9 Historic Economic Contribution of Port of Miami Shipping To Miami-Dade County, 1980 to 2004 Output in 2004 Dollars5-27

5.3-10 Historic Economic Contribution of Port of Miami Shipping To Miami-Dade County, 1980 to 2004 Income in 2004 Dollars5-39

5.3-11 Historic Economic Contribution of Port of Miami Shipping To Miami-Dade County, 1980 to 2004 Indirect Business Taxes in 2004 Dollars5-40

5.3-12 Historic Economic Contribution of Port of Miami Shipping To Miami-Dade County, 1980 to 2004 Employment, Number of Full- and Part-Time Jobs5-41

5.3-13 Historic Economic Contribution of Port of Miami Shipping To Southeast Florida, 1980 to 2004 Output in 2004 Dollars5-42

5.3-14 Historic Economic Contribution of Port of Miami Shipping To Southeast Florida, 1980 to 2004 Income in 2004 Dollars5-43

5.3-15 Historic Economic Contribution of Port of Miami Shipping To Southeast Florida, 1980 to 2004 Indirect Business Taxes in 2004 Dollars5-44

5.3-16 Historic Economic Contribution of Port of Miami Shipping To Southeast Florida, 1980 to 2004 Employment, Number of Full- and Part-Time Jobs 5-45

5.3-17 Historic Economic Contribution of Port of Miami Shipping To Florida, 1980 to 2004 Output in 2004 Dollars 5-46

5.3-18 Historic Economic Contribution of Port of Miami Shipping To Florida, 1980 to 2004 Income in 2004 Dollars 5-47

5.3-19 Historic Economic Contribution of Port of Miami Shipping To Florida, 1980 to 2004 Indirect Business Taxes in 2004 Dollars 5-48

5.3-20 Historic Economic Contribution of Port of Miami Shipping To Florida, 1980 to 2004 Employment, Number of Full- and Part-Time Jobs 5-49

5.4-1 Economic Contribution of the Miami River as it is Used for Shipping, 2004 (a) 5-50

5.4-2 Economy of Study Areas, 2003 5-50

5.4-3 Economic Contribution of the Miami River As a Percent of the Study Area Economies, 2004 5-50

5.4-4 Economic Contribution of Miami River Shipping by Type of Impact and Study Area 5-51

5.4-5 Economic Contribution of Miami River Shipping to Miami-Dade County, 2004 5-52

5.4-6 Economic Contribution of Miami River Shipping to Southeast Florida 2004 5-62

5.4-7 Economic Contribution of Miami River Shipping to Florida 2004..... 5-66

5.4-8 Short Tons of Imports and Exports Through the Miami River, 1979 to 2002..... 5-68

5.4-9 Historic Economic Contribution of Miami River Shipping to Miami-Dade County, 1980 to 2004 Output in 2004 Dollars 5-69

5.4-10 Historic Economic Contribution of Miami River Shipping to Miami-Dade County, 1980 to 2004 Income in 2004 Dollars 5-70

5.4-11 Historic Economic Contribution of Miami River Shipping to Miami-Dade County, 1980 to 2004 Indirect Business Taxes in 2004 Dollars 5-71

5.4-12 Historic Economic Contribution of Miami River Shipping to Miami-Dade County, 1980 To 2004, Number of Full and Part-Time Jobs 5-72

5.4-13 Historic Economic Contribution of Miami River Shipping to Southeast Florida, 1980 to 2004 Output in 2004 Dollars 5-73

5.4-14 Historic Economic Contribution of Miami River Shipping to Florida 1980 to 2004 Income in 2004 Dollars 5-74

5.4-15 Historic Economic Contribution of Miami River Shipping to Florida 1980 to 2004 Indirect Business Taxes in 2004 Dollars 5-75

5.4-16 Historic Economic Contribution of Miami River Shipping to Southeast Florida 1980 to 2004 Employment, Number of Full- and Part-Time Jobs 5-76

5.4-17 Historic Economic Contribution of Miami River Shipping to Southeast Florida, 1980 to 2004 Output in 2004 Dollars 5-77

5.4-18 Historic Economic Contribution of Miami River Shipping to Florida, 1980 to 2004
Income in 2004 Dollars5-78

5.4-19 Historic Economic Contribution of Miami River Shipping to Florida 1980 to
Indirect Business Taxes in 2004 Dollars5-79

6-1 Words Used to Select Marine Related Standard Industrial Classification
Codes (SICs) 6-3

6-2 Marine Related Business Sectors by Standard Industrial Classification (SIC)
and Groups 6-3

6-3 Summary of Marine-Related Businesses in Miami-Dade County and Local
Study Area, 2004 6-5

6-4 Marine Related Businesses, Employees, and Sales by Standard Industrial Classification
(SIC) for Miami-Dade County and Local Study Area, 2004..... 6-8

6-5 Summary of Marine-Related Businesses Dependent on Biscayne Bay and Miami River
Number of Businesses, Sales and Employment, 2004..... 6-13

6-6 Marine Related Businesses, Employees, and Sales by Standard Industrial Classification
(SIC) for the Miami River and Biscayne Bay Subareas, 2004 6-14

7.1-1 Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 2004 7-2

7.1-2 Demographic Characteristics of Those Who Recreate on Biscayne Bay Resident and Visitor
Respondents, 2004 7-4

7.1-3 Exvessel Value of Commercial Fish, Shellfish and Marine Life Landings in Miami-Dade
County for Species Dependent on or Caught in Biscayne Bay Itemized By Location
of Catch..... 7-6

7.1-4 Sales of Commercial Fish, Shellfish and Marine Life Landings Of Species Dependent
or Caught on Biscayne Bay , 2004 Dollars..... 7-8

7.1-5 Estimated Uses and Direct Sales Associated with Port of Miami and Miami River Shipping,
Businesses, 2004 7-9

7.2-1 Total Economic Contribution of Biscayne Bay to Miami-Dade County in 2004 7-13

7.2-2 Economy of Study Areas, 2003 7-14

7.2-3 Total Economic Contribution of Biscayne Bay as a Percent of the Miami-Dade County
Economy in 2004 7-14

7.2-4 Total Economic Contribution of Biscayne Bay to Southeast Florida in 2004..... 7-15

7.2-5 Total Economic Contribution of Biscayne Bay as a Percent of the Southeast Florida
Economy in 2004 7-15

7.2-6 Total Economic Contribution of Biscayne Bay to Florida in 2004 7-16

7.2-7 Total Economic Contribution of Biscayne Bay as a Percent of the Florida Economy in
2004..... 7-17

7.2-8 Economic Contribution of Biscayne Bay to Miami-Dade County by Activity and Type of
Economic Impact 7-18

7.2-9 Economic Contribution of Biscayne Bay to Southeast Florida by Activity and Type of
Economic Impact 7-19

- 7.2-10 Economic Contribution of Biscayne Bay to Florida by Activity and Type of Economic Impact 7-20
- 7.6.1 Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures for Biscayne Bay-Related Recreation, 2004 7-49
- 7.6.2 Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004 7-54
- 7.6-3 Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004 7-59
- 7.6-4 Economic Contribution of Miami River Shipping to Miami-Dade County, 2004 7-64

Figures

3.1-1 Attendance at Biscayne National Park and State Parks Along Biscayne Bay
Attendance is Number of Persons Entering the Parks 3-2

3.1-2 Total Number of Visitor Days at Biscayne National Park and Three State
Parks Along Biscayne Bay 3-4

3.1-3 Number of Marine Inland Recreational Fishing Trips (Person Days) in
Eastern Florida and Florida, 1981 – 2002..... 3-5

3.1-4 Number of Registered Boats for Recreation in Miami-Dade and Broward
Counties 3-6

3.1-5 Population of Miami-Dade and Broward Counties 1980 – 2004 3-6

3.1-6 Number of Overnight Visitors to Miami-Dade County, 1992 to 2003.... 3-7

3.1-7 Number of Visiting Cars Entering Virginia Key and Key Biscayne
Through the Rickenbacker Causeway, 1999 to 2004 3-7

3.2-1 Biscayne Bay Recreation, Number of Person-Days, 1980 to 2004 3-8

3.2-2 Values of Miami-Dade County Produced Goods and Services Generated by
Biscayne Bay Recreation, 1980 to 2004..... 3-14

3.2-3 Income to Miami-Dade County Residents Generated by Biscayne Bay
Recreation, 1980 to 2004 3-14

3.2-4 Tax Revenues Collected in Miami-Dade County Generated by Biscayne Bay
Recreation, 19180 to 2004 3-15

3.2-5 Employment in Miami-Dade County Generated by Biscayne Bay Recreation,
1980 to 2004 3-15

3.2-6 Values of Output Produced in Miami-Dade County, Southeast Florida and
Florida Generated at Biscayne Bay Recreation, 1980 to 2004 3-20

3.2-7 Income to Residents in Miami-Dade County, Southeast Florida and Florida
Generated by Biscayne Bay Recreation, 1980 to 2004 3-21

3.2-8 Tax Revenues Collected in Miami-Dade County, Southeast Florida and
Florida Generated by Biscayne Bay Recreation, 1980 to 2004..... 3-21

3.2-9 Employment in Miami-Dade County, Southeast Florida and Florida Generated by Biscayne Bay Recreation, 1980 to 2004 3-22

4.2-1 Commercial Landings of Fish and Shellfish caught in Biscayne Bay, Barnes Sound, and Card Sound in pounds, 1986 to 2002..... 4-4

4.2-2 Exvessel Value of Commercial Fish, Shellfish and Marine Life Landings in Miami-Dade and Monroe Counties for Species Dependent on Biscayne Bay, 1985 to 2002, 2004 Dollars..... 4-4

4.3-1 Commercial Exvessel Value of Fish, Shellfish and Marine Life of Species Dependent on Biscayne Bay Landed in Miami-Dade County (excludes species caught in Bay), 1986 to 2002 in 2004 Dollars 4-7

4.6-1 Sales Associated with the Biscayne Bay-Related Commercial Fishery 4-12

4.6-2 Output Generated from Biscayne Bay-Related Commercial Fishing.... 4-15

4.6-3 Income Generated from Biscayne Bay-Related Commercial Fishing... 4-15

4.6-4 Employment Generated from Biscayne Bay-Related Commercial Fishing 4-16

4.6-5 Tax Revenues Generated from Biscayne Bay-Related Commercial Fishing 4-16

4.7-1 Number of Registered Boats for Commercial Use in Miami-Dade and Monroe Counties, 1985 to 2002 4-22

4.7-2 Number of Registered Boats for Commercial Use in Miami-Dade and Monroe Counties, 1964 to 2002 4-23

4.7-3 Number of Registered Boats for Commercial Use in Southeast Florida And Florida, 1964 to 2002 4-23

5.3-1 Historic Ship and Cruise Activities at the Port of Miami, 1979 to 20035-36

5.4-1 Historic Short Tons of Imports and Exports Through the Miami River, 1979 to 2002 5-67

7.1-1 Percent Distribution of Biscayne Bay Recreation Activities 2004..... 7-3

7.1-2 Biscayne Bay Recreation, Number of Person-Days, 1980 to 2004 7-5

7.1-3 Exvessel Value of Bay Dependent and Bay Caught Species
by Year, 2004 Dollars 7-7

7.1-4 Sales Associated with the Biscayne Bay Related Commercial Fishery .. 7-8

7.1-7 Historic Ship and Cruise Activities at the Port of Miami, 1979 to
2003..... 7-12

7.1-8 Imports and Exports Through the Miami River, 1979 to 2002 7-12

7.2-1 Economic Contribution to Miami-Dade County of Activities On or
Related to Biscayne Bay, 1980 to 2004..... 7-21

7.2-2 Economic Contribution to Southeast Florida of Activities On or
Related to Biscayne Bay, 1980 to 2004..... 7-22

7.2-3 Economic Contribution to Florida of Activities On or
Related to Biscayne Bay, 1980 to 2004..... 7-22

7.2-4 Economic Contribution of Activities On or Related To Biscayne Bay
As a Percent of the Miami-Dade County Economy, 1980 to 2004 7-23

7.2-5 Economic Contribution of Activities On or Related To Biscayne Bay
As a Percent of the Southeast Florida Economy, 1980 to 2004 7-24

7.2-6 Economic Contribution of Activities On or Related To Biscayne Bay
As a Percent of the Southeast Florida Economy, 1980 to 2004 7-25

7.3-1 Values of Output Produced in Miami-Dade County, Southeast Florida
And Florida Generated by Biscayne Bay Recreation 1980 to 2004..... 7-26

7.3-2 Income to Residents in Miami-Dade County, Southeast Florida and
Florida Generated by Biscayne Bay Recreation, 1980 to 2004..... 7-27

7.3-3 Tax Revenues Collected in Miami-Dade County, Southeast Florida and
Florida Generated by Biscayne Bay Recreation, 1980 to 2004..... 7-28

7.3-4 Employment in Miami-Dade County, Southeast Florida and Florida
Generated by Biscayne Bay Recreation, 1980 to 2004 7-29

7.3-5 Economic Contribution of Biscayne Bay Recreation As a Percent of Miami-Dade County Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects 7-30

7.3-6 Economic Contribution of Biscayne Bay Recreation As Percent of Southeast Florida Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects 7-31

7.3-7 Economic Contribution of Biscayne Bay Recreation As Percent of Florida’s Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects 7-31

7.4-1 Output Generated from Biscayne Bay-Related Commercial Fishing.... 7-32

7.4-2 Income Generated from Biscayne Bay-Related Commercial Fishing... 7-33

7.4-3 Employment Generated from Biscayne Bay-Related Commercial Fishing 7-34

7.4-4 Tax Revenue Generated from Biscayne Bay-Related Commercial Fishing 7-35

7.4-5 Economic Contribution of Biscayne Bay-Related Commercial Fishing As Percent of Miami-Dade County Economy, 1985 to 2004 Includes Direct, Indirect and Induced Effects 7-36

7.4-6 Economic Contribution of Biscayne Bay-Related Commercial Fishing As Percent of Southeast Florida Economy, 1985 to 2004 Includes Direct, Indirect and Induced Effects 7-36

7.4-7 Economic Contribution of Biscayne Bay-Related Commercial Fishing As Percent of Florida’s Economy, 1985 to 2004 Includes Direct, Indirect and Induced Effects 7-37

7.5-1 Values of Goods and Services Produced in Miami-Dade County, Southeast Florida and Generated by Port of Miami Shipping, 1980 to 2004 (direct, indirect and induced effects..... 7-38

7.5-2 Income to Residents in Miami-Dade County, Southeast Florida and Florida Generated by Port of Miami Shipping, 1980 to 2004 (direct, indirect and induced effects) 7-38

7.5-3 Tax Revenues Collected in Miami-Dade County, Southeast Florida Generated by Port of Miami Shipping, 1980 to 2004 (direct, indirect and induced effects) 7-39

7.5-4 Employment in Miami-Dade County, Southeast Florida and Florida Generated by Port of Miami Shipping, 1980 to 2004 (direct, indirect and induced effects) 7-40

7.5-5 Economic Contribution of Port of Miami Shipping Activities As Percent of Miami-Dade County Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects..... 7-41

7.5-6 Economic Contribution of Port of Miami Shipping Activities As Percent of Southeast Florida Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects..... 7-41

7.5-7 Economic Contribution of Port of Miami Shipping Activities As Percent of Florida’s Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects..... 7-42

7.5-8 Values of Goods and Services Produced in Miami-Dade County, Southeast Florida and Florida Generated by Miami River Shipping, 1980 to 2004 (direct, indirect and induced effects) 7-43

7.5-9 Income to Residents in Miami-Dade County, Southeast Florida and Florida Generated by Miami River Shipping, 1980 to 2004 (direct, indirect and induced effects)..... 7-43

7.5-10 Tax Revenues Collected in Miami-Dade County, Southeast Florida Generated by Port of Miami Shipping, 1980 to 2004 (direct, indirect and induced effects) 7-44

7.5-11 Employment in Miami-Dade County, Southeast Florida and Florida Generated by Miami River Shipping, 1980 to 2004 (direct, indirect and induced effects) 7-45

7.5-12 Economic Contribution of Miami River Shipping Activities As Percent of Miami-Dade County Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects..... 7-46

7.5-13 Economic Contribution of Miami River Shipping Activities As Percent of Florida’s Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects..... 7-46

7.5-14 Economic Contribution of Miami River Shipping Activities As Percent of Florida’s Economy, 1980 to 2004 Includes Direct, Indirect and Induced Effects..... 7-47

Executive Summary

Biscayne Bay is a large, shallow tropical saline lagoon surrounded by the large and diverse metropolitan area of Greater Miami and Miami Beach. Biscayne Bay is the most prominent feature in Miami-Dade County's landscape, extending for almost the entire length of the county from Haulover Inlet in the north to the upper reaches of Key Largo in the south. Biscayne Bay is an important component of the county's quality of life and economy. However, there is very little definitive understanding of the magnitude or extent of the Bay's economic contribution to the community. This study is the first to assess the current and historic uses and economic contribution of the Bay that provides baseline information to evaluate the impact of Bay management on the local economy.

Biscayne Bay supports a wide variety of recreational and economic uses. They include:

- Recreational fishing, swimming, boating, sailing and other activities
- Commercial Fishing
- Shipping operations at the Port of Miami and the Miami River
- Cruise Ship Operations at the Port of Miami

These activities were the focus of this study. The objectives of this project were to:

- (1) Estimate the intensity of Biscayne Bay uses from 1980 to 2004; and,
- (2) Estimate the economic contribution of Biscayne Bay uses to the economies of Miami-Dade County, southeast Florida and Florida from 1980 to 2004 in terms of the direct, indirect and induced sales, income, employment and tax revenues generated by the uses of the Bay.

Biscayne Bay provides other benefits to the community in addition to those evaluated during this study. The aesthetic qualities of Biscayne Bay contribute to the market values of real estate surrounding the Bay and its use as scenery for movies, television and print media. The annual Miami International Boat Show benefits from the easy access that the Bay provides for the transport of boats to the show site and public access to boaters who attend the event. These benefits were not valued during this study.

Recreational users of Biscayne Bay receive non-monetary benefits beyond what they spend to use the Bay. This "wellbeing" generated from recreational uses can be measured in monetary terms. Also, those who do not use the Bay for recreation benefit from knowing that the Bay exists and some value the Bay because it is available to future generations. These values were not estimated during this study.

This study provides a wealth of information regarding the uses and economic contribution of Biscayne Bay. All values and numbers are estimates based on the best available information at the time this study was prepared. Some of the conclusions of this study are as follows.

- Miami-Dade County residents and visitors spent 65.5 million person-days participating in a wide-variety of recreation activities on or at Biscayne Bay in 2004. A person-day is one person participating in a primary recreation activity for all or part of one day. Of the many activities that are enjoyed by recreators during a day, only one “primary” activity is counted per day.
- The four most popular recreation activities on Biscayne Bay were: (1) viewing the Bay from shore while dining, shopping, jogging or strolling (25 percent); (2) swimming from shore (17 percent); (3) fishing from a boat (13 percent); and (4) sailing (9 percent).
- In 2004, the expenditures made to recreate on or at Biscayne Bay generated \$3.8 billion in additional county production; provided \$2.1 billion in income to county residents, created 57,100 jobs and produced \$257 million in tax revenues.
- Biscayne Bay-related recreation contributes to 3.4 percent of Miami-Dade County’s economy, 1.3 percent of the southeast Florida economy and 0.5 percent of Florida’s economy as measured by its relative contribution to income.
- Biscayne Bay-related recreation use intensity and its economic contribution grew steadily since 1980 with the exception of 1992 and 1993. Recreation activity fell during these two years after Hurricane Andrew struck the county on August 24, 1992. By 1995, Bay-related recreation use intensity had completely recovered.
- In 2002, the \$13.2 million in sales associated with commercial marine landings related to Biscayne Bay generated \$28 million in additional county production, provided \$17 million in income to Miami-Dade County residents, created 470 jobs and produced \$1.8 million in tax revenues. The Biscayne Bay-related commercial fishery represents 0.03 percent of the Miami-Dade County economy.
- The value of commercial marine species caught in Biscayne Bay has increased significantly since 1980. Meanwhile, the harvested value of species dependent on Biscayne Bay for survival and caught outside of the Bay has declined significantly since 1993.
- The value of cargo shipped into and out of the Miami River is about \$4 billion while the value through the Port of Miami is about \$17 billion. This \$21 billion worth of goods represents about 42 percent of the value of all cargo passing through Florida’s seaports. Of this 42 percent, 34 percent represents the Port of Miami and 8 percent represents the Miami River. About 4 million people boarded cruise ships at the Port of Miami in 2003 which is 29 percent of all cruise ship passengers using Florida’s seaports.
- The \$3.9 billion in sales of businesses that directly depend on the Port of Miami generated \$8.2 billion in additional county production; provided \$3.9 billion in

- income to county residents, created 74,000 jobs and produced \$331 million in tax revenues.
- The Port of Miami contributes to 6.2 percent of Miami-Dade County's economy, 2.5 percent of the southeast Florida economy and 0.9 percent of Florida's economy as measured by its relative contribution to income.
 - Cargo shipping and cruise ship services through the Port of Miami and their associated economic contributions have grown steadily and significantly since 1980.
 - The \$353 million in sales of businesses that directly depend on the Miami River generated \$683 million in additional county production; provided \$339 million in income to county residents, created 6,100 jobs and produced \$37 million in tax revenues.
 - The Miami River contributes to 0.6 percent of Miami-Dade County's economy, 0.2 percent of the southeast Florida economy and 0.09 percent of Florida's economy as measured by its relative contribution to income.
 - Cargo shipping services through the Miami River and their associated economic contributions grew steadily from 1980 to 1995 and has since fallen and become cyclical through 2002.
 - Overall, the activities on Biscayne Bay in 2004 contributed \$12.7 billion in output, \$6.3 billion in income, 137,600 jobs and \$627 million in tax revenue to Miami-Dade County. These values represent 10 percent of all income earned in the county, 11 percent of employment in the county and 11 percent of all excise taxes, property taxes, fees, licenses, and sales tax revenues collected in the county.

The remainder of this Executive Summary provides an overview of the results of this study. A wealth of additional information also exists in Section 7.0, Uses and Economic Contribution of Biscayne Bay, and in the other sections of this report.

Use Intensity of Biscayne Bay

Recreation. Survey research and recreational modeling found that residents and visitors spent 65.5 million person-days participating in Biscayne Bay-related recreation activities in 2004. These activities included fishing, swimming, sailing, snorkeling, picnicking and viewing the Bay from shore. A person-day is one person participating in a recreation activity for all or part of one day. About 36 million of these person-days were spent by visitors to Miami-Dade County and 30 million person-days were spent by county residents.

The number of person-days by primary activity is provided in Table ES-1. A person-day is attributed to an activity only if it was the “primary” activity that day even though people may participate in several activities during a day. The distribution of person-days by activity is provided in Figure ES-1.

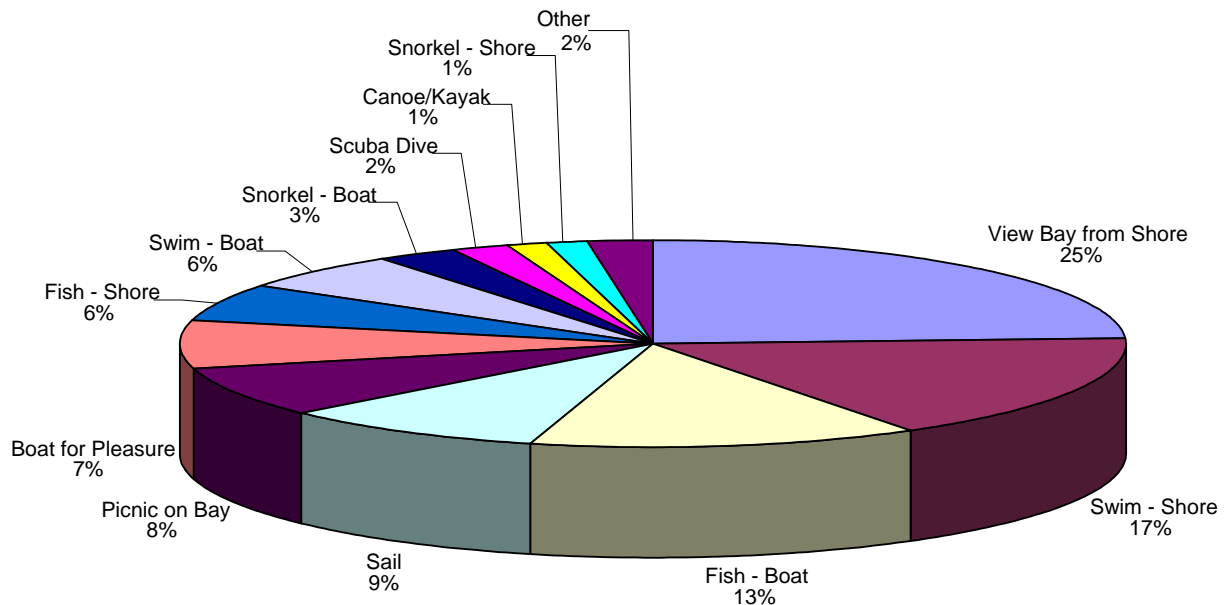
The four most popular recreation activities on Biscayne Bay were (1) viewing the Bay from shore while dining, shopping, jogging or strolling; (2) swimming from shore; (3) fishing from a boat; and (4) sailing. County residents and visitors spent 15.9 million person-days viewing the Bay from shore which is 25 percent of all Bay-related recreational person-days. About 10.9 million person-days were spent swimming from shore which comprised 17 percent of all person-days. Fishing from a power boat comprised 8.7 million person-days or 13 percent of all Bay-related person-days. Sailing on the Bay comprised nine percent of all Bay-related recreation days with 6.0 million person-days.

Table ES-1
Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 2004

Primary Activity (a)	Visitors to Miami-Dade County	Residents of Miami-Dade County	Total
Fishing – From Shore	505,000	3,349,000	3,854,000
Fishing – From Boat	5,139,000	3,541,000	8,680,000
Snorkeling – From Shore	293,000	606,000	899,000
Snorkeling – From Boat	835,000	992,000	1,827,000
Scuba Diving	500,000	736,000	1,236,000
Swimming – From Shore	6,198,000	4,742,000	10,940,000
Swimming – From Boat	1,646,000	2,121,000	3,767,000
Boating for Pleasure/Partying	2,668,000	2,151,000	4,819,000
Water-skiing	28,000	187,000	215,000
Parasailing	19,000	7,000	26,000
Windsurfing	8,000	137,000	145,000
Kite Sailing	17,000	233,000	250,000
Personal Watercraft (jet skis, etc.)	114,000	249,000	363,000
Sailing	3,986,000	2,054,000	6,040,000
Canoeing / Kayaking	239,000	725,000	964,000
Viewing Bay from Shore while dining, shopping, jogging and strolling	10,591,000	5,265,000	15,856,000
Sunset Cruise	333,000	143,000	476,000
Glass Bottom Boat Tour	3,000	3,000	6,000
Picnicking on Biscayne Bay	2,547,000	2,558,000	5,105,000
Total	35,668,000	29,799,000	65,467,000

(a) A person-day is one person participating in a recreational activity for all or a portion of a day. A person-day is attributed to an activity only if it was the “primary” activity that day even though people usually participate in several activities during a day. Sailing is any activity conducted on a sail boat.

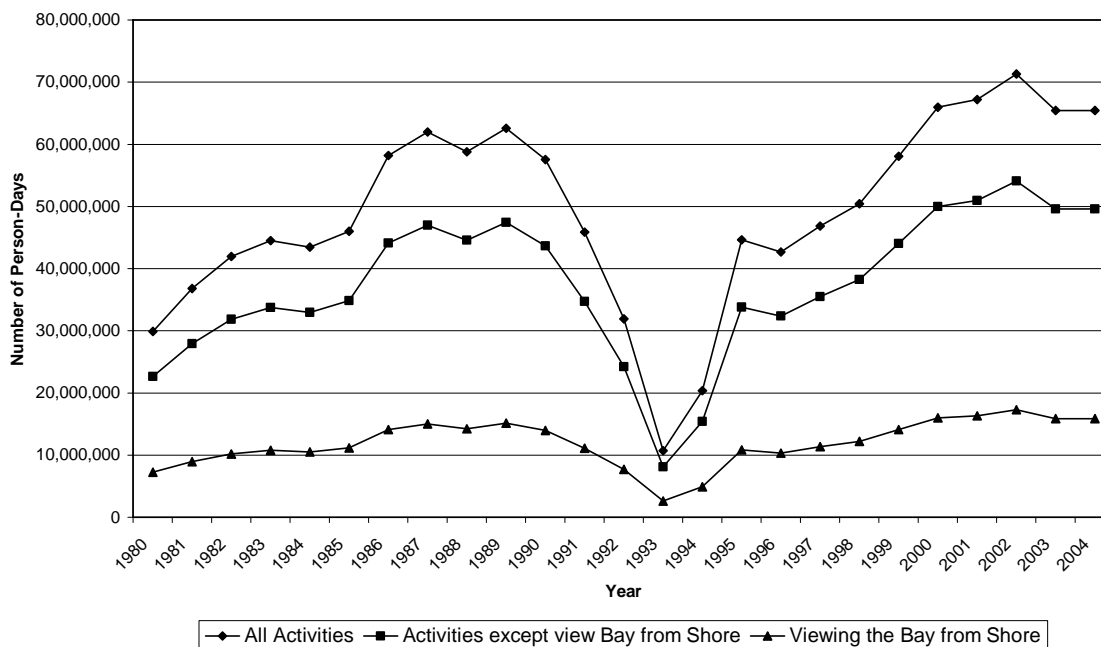
Figure ES-1
Percent Distribution of Biscayne Bay Recreation Activities 2004



Other popular recreation activities included picnicking on the Bay with 8 percent of all person-days, pleasure boating on the Bay with 7 percent of all person-days, and fishing from shore and swimming from a power boat, each with six percent of all person-days.

The historic recreational uses of Biscayne Bay are summarized in the graph provided in Figure ES-2. The historic number of person-days in all activities, in all activities except viewing the Bay from shore, and viewing the Bay from shore are provided from 1980 to 2004. The numbers of person-days in all activities show a strong upward trend from 1980 through 1989. The steep reduction in person-days observed from 1992 through 1993 is due to the effects of Hurricane Andrew which struck Miami-Dade County on August 24, 1992. It affected Bay-related recreation through the end of 1992 and for all of calendar year 1993. In 1994, recreation activity-days began a recovery. By 2000, the number of recreation person-days exceeded the level of 1989, the previous peak year. Recreation use continued to grow in 2001 and 2002 and fell a bit in 2003.

Figure ES-2
Biscayne Bay Recreation, Number of Person-Days, 1980 to 2004



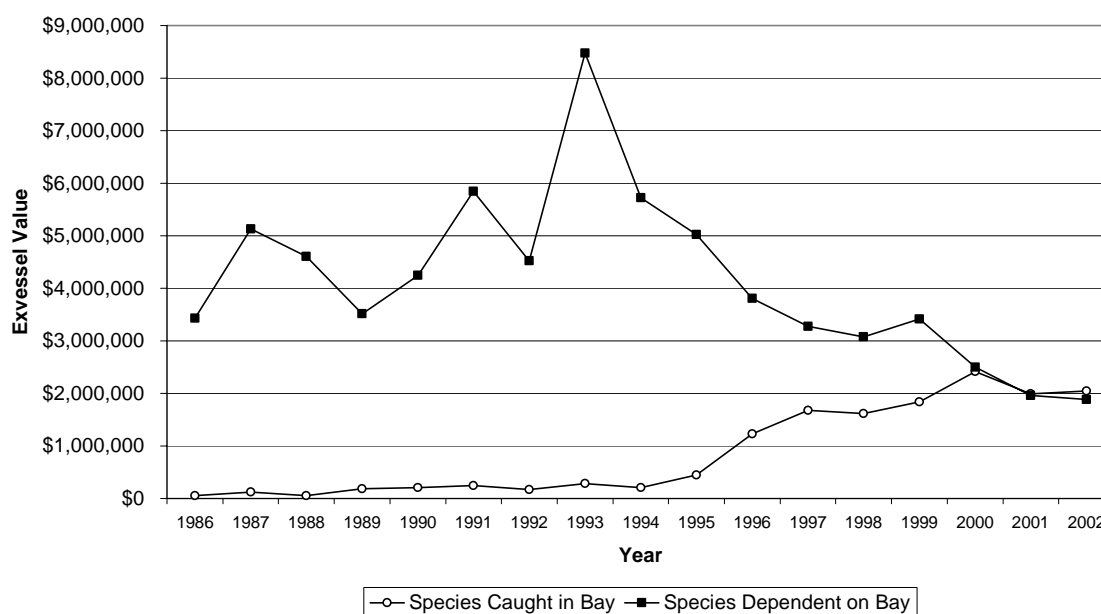
Commercial Fishing. The contribution of Biscayne Bay to commercial fishing is two-fold. First, commercial fishing takes place in the Bay for the harvest of fish and shellfish, particularly pink shrimp. Second, Biscayne Bay and Florida Bay are very important grounds for the lifecycle of many fish species that are commercially harvested in Miami-Dade County. These species are ballyhoo, barracuda, goggle-eye, several grouper species (black, gag and red), grunts, hog snapper, several species of jack (almaco, crevalle, yellow), mullet, parrotfish, snapper (all species), white snapper, spiny lobster, live marine life, bait shrimp, pink shrimp and white shrimp. Both Biscayne Bay and Florida Bay are essential habitats for these species, so their values are attributable to both bays. Other commercial fishing areas of Florida may also benefit from species dependence on these Bays. However, insufficient information was available to allocate the percent of these species harvested in other areas that migrated from these Bays so these areas were not included in the evaluation.

The exvessel values¹ of Biscayne Bay-dependent and Bay-caught commercial fish species from 1985 through 2002 are plotted in Figure ES-3 and are in 2004 dollars. Values prior to 1985 and after 2002 were not available for Bay-dependent species and values prior to 1986 and after 2002 were not available for Bay-caught species.

¹ Exvessel value means the value of the fish at dockside (just off the boat).

In 1986, commercial species harvested in Biscayne Bay were valued at \$51,000 and Bay-dependent commercial species were valued at \$3.4 million. Since 1986, the exvessel value of commercially harvested Bay-dependent fish species peaked in 1993 at \$8.5 million and then declined to its current low of \$1.9 million. This reflects the volume of fish harvested, not their per unit values. Meanwhile, the value of fish caught in Biscayne Bay increased steadily over time to \$2.1 million in 2002. Most of this increase in value is due to increases in blue crab and pink shrimp landings.

Figure ES-3
Exvessel Value of Bay Dependent and Bay Caught Species by Year,
2004 Dollars



Miami-Dade County Shipping Industry. The Port of Miami and the Miami River comprise the Miami-Dade County shipping industry. Both ports provide inbound and outbound cargo shipping services. The Port of Miami also provides cruise ship services. While the Port of Miami supports large deep draft ships, the Miami River provides services to the smaller ships coming from and going to Caribbean ports that tend to accommodate only shallow draft ships.

The intensity of uses at the Port of Miami and the Miami River are provided in Table ES-2. The value of cargo shipped into and out of the Miami River is about \$4 billion while the value through the Port of Miami is about \$17 billion. This \$21 billion worth of goods represents about 42 percent of the value of all cargo passing through Florida's seaports. Of this 42 percent, 34 percent represents the Port of Miami and 8 percent represents the Miami River. About 4 million people boarded cruise ships at the Port of Miami in 2003 which is 29 percent of all cruise ship passengers using Florida's seaports.

The estimated 2004 sales associated with the businesses that benefit from the Port of Miami and the Miami River shipping industry is also provided in Table ES-2. The estimated sales of shipping and cruise operations which includes water transportation, related air transportation, arrangement of passenger transportation, ship building and repairing, and port construction activities, was estimated to be \$3.5 billion. Of this value, \$3.3 billion was attributed to the Port of Miami and \$192 million was attributed to the Miami River shipping operations.

Table ES-2
Estimated Uses and Direct Sales Associated
With Port of Miami and Miami River Shipping Businesses, 2004

Economic Generator	Total	Port of Miami	Miami River
Port Uses:			
Value of Cargo through Port, 2003	\$21,000,000,000	\$17,000,000,000	\$4,000,000,000
Value of Cargo as % of Florida Seaports	42%	34%	8%
Number of Cruise Ship Passengers	4,000,000	4,000,000	0
Cruise Ship Passengers as % of Florida Seaports	29%	29%	0%
Estimated Sales, 2004 Dollars:			
Shipping and Cruise Operations (a)	\$3,447,569,026	\$3,255,805,147	\$191,763,878
Passenger and Crew Expenditures in County (b)	\$323,824,232	\$323,824,232	\$0
Export Contribution from Shipping (c)			
Exports by Miami-Dade County businesses	\$379,052,743	\$256,272,621	\$122,780,122
Exports by Southeast Florida businesses	\$499,075,743	\$337,421,621	\$161,654,122
Exports by Florida businesses	\$499,075,743	\$337,421,621	\$161,654,122
Total Sales in Miami-Dade County	\$4,150,446,000	\$3,835,902,000	\$314,544,000
Total Sales in Southeast Florida and Florida	\$4,270,469,000	\$3,917,051,000	\$353,418,000

- (a) Businesses involved in Water Transportation, related Air Transportation, Arrangement of Passenger Transportation, Ship Building and Repairing, and port construction activities.
- (b) Businesses in Miami-Dade County that sell goods and services to cruise passengers prior to embarkation and during ports of call and crew members who temporarily leave the ship.
- (c) Increased value of exports produced in the area due to the Port's existence.

The estimated expenditure values of cruise passengers and crew members as they spend money in Miami-Dade County prior to embarkation and during ports of call is \$324 million all of which is attributed to the Port of Miami.

The export contributions from shipping are the values of exports that are produced in Miami-Dade County, in southeast Florida, and Florida because the Port of Miami and the Miami River exist. They are order-of-magnitude estimates based on specific assumptions described in Section 5.0 of this report. They reflect the additional sales to local export businesses generated because they have a nearby port from which to ship their goods. In 2004, this additional export sales (or value) to Miami-Dade County businesses was

estimated to be \$379 million of which \$256 million is attributed to the Port of Miami and \$123 million is attributed to the Miami River.

The value of additional export sales to southeast Florida businesses was estimated to be \$499 million of which \$337 million is attributed to the Port of Miami and \$161 million is attributed to the Miami River. The value of export sales to Florida businesses is equal to that for southeast Florida businesses because it was assumed that all of the affected exports would be produced relatively close to Miami-Dade County.

Overall, the direct sales in Miami-Dade County associated with the Port of Miami and the Miami River was estimated to be \$4.1 billion of which \$3.8 billion was attributed to the Port of Miami and \$315 million was attributed to the Miami River. The total direct sales in southeast Florida and Florida associated with the Port of Miami and the Miami River was estimated to be \$4.3 billion of which \$3.9 billion was attributed to the Port of Miami and \$353 million was attributed to the Miami River.

The historic uses at the Port of Miami from 1979 to 2003 are graphed in Figure ES-4. The Port's operating revenue, the short tons of imports and exports shipped through the Port, and the number of cruise ship passengers using the Port are provided. All three measures of use have grown steadily since 1979, with Port operating revenue and weight of goods shipped increasing significantly. In 1979, 2.3 million short tons of exports and imports were shipped through the Port. By 2003, 9.0 million short tons were shipped. In 1979, 1.3 million cruise ship passengers passed through the Port. This value grew to 4.0 million by 2003. In 1979, Port operating revenue was \$12.6 million in 2004 dollars and grew to \$83.4 million by 2003.

The historic short tons of imports and exports through the Miami River from 1979 through 2002 are graphed in Figure ES-5. Tons shipped increased steadily from 1979 through 1993 from 368,000 short tons to 739,000 short tons. They fell to 615,000 short tons in 1994, then increased to the peak of 884,000 short tons in 1995. Tons shipped has been cyclical since 1995. In 2002, 506,000 short tons were shipped through the Miami River.

Figure ES-4
Historic Ship and Cruise Activities at the Port of Miami, 1979 to 2003

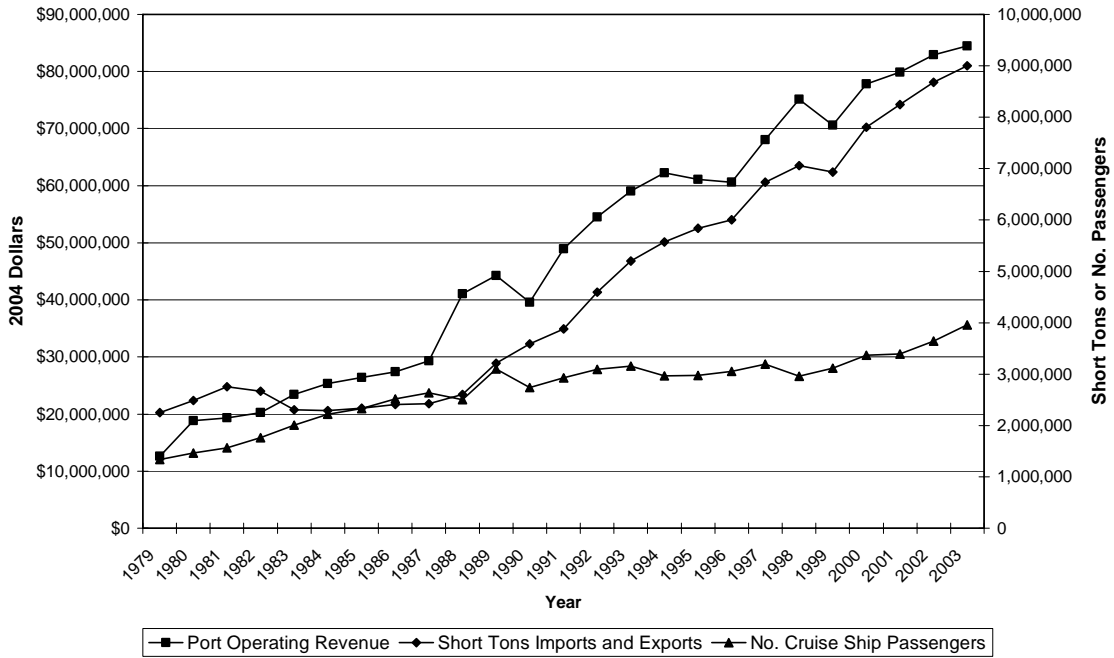
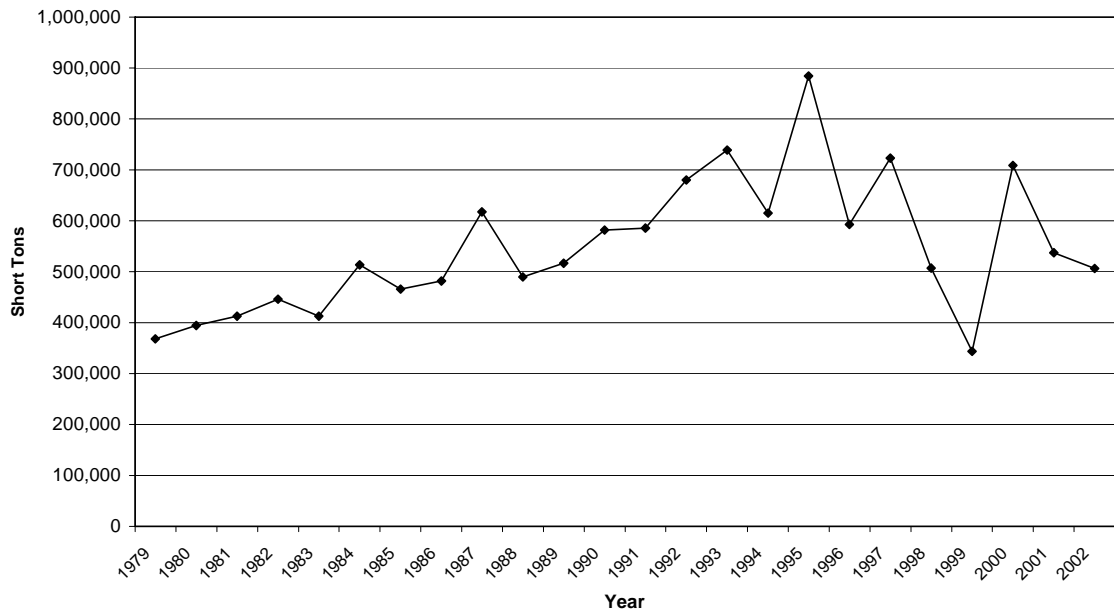


Figure ES-5
Imports and Exports Through the Miami River, 1979 to 2002



Economic Contribution of Biscayne Bay

This section summarizes the economic contribution to Miami-Dade County, southeast Florida and Florida as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce, and cruise ship services from 1980 to 2004.

2004 Economic Contribution to Miami-Dade County. A summary of the output, income, employment and tax revenue created in Miami-Dade County in 2004 as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce and cruise ship services is provided in Table ES-3. The economic contribution of Biscayne Bay-related activities as a percent of the overall Miami-Dade County economy is provided in Table ES-4.

Overall, the activities on Biscayne Bay in 2004 contributed \$12.7 billion in output, \$6.3 billion in income, 137,600 jobs and \$627 million in tax revenue to Miami-Dade County. These values represent 15 percent of total output produced in the county, 10 percent of all income earned in the county, 11 percent of employment in the county and 11 percent of all excise taxes, property taxes, fees, licenses, and sales tax revenues collected in the county.

The recreation component of this economic contribution generated about \$3.8 billion in output, \$2.1 billion in income, 57,100 jobs and \$257 million in tax revenues in Miami-Dade County. Recreation represents about 3.4 percent of the county's economy as measured by the percent of income generated in the county. Bay-related commercial fishing generated \$28 million in output, \$17.4 million in income, 469 jobs and \$1.8 million in tax revenue and represents about 0.03 percent of the county's economy.

Waterborne commerce and cruise ship services at the Port of Miami generated \$8.2 billion in output, \$3.9 billion in income, 74,000 jobs and \$331 million in tax revenues and represents about 6.2 percent of the county's economy. Waterborne commerce at the Miami River generated \$683 million in output, \$339 million in income, 6,100 jobs and \$37 million in tax revenues and represents about 0.6 percent of the county's economy.

Table ES-3
Total Economic Contribution of Biscayne Bay to Miami-Dade County in 2004

Activity	Direct, Indirect and Induced Economic Contribution (a)			
	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Recreation	\$3,789,000,000	\$2,112,000,000	57,100	\$257,000,000
Commercial Fishing (f)	\$28,336,000	\$17,404,000	469	\$1,837,000
Port of Miami Shipping	\$8,231,254,000	\$3,857,275,000	73,958	\$331,011,000
Miami River Shipping	\$682,539,000	\$338,889,000	6,106	\$37,347,000
Total	\$12,731,129,000	\$6,325,568,000	137,633	\$627,195,000

^a Includes direct, indirect and induced effects in 2004 dollars.

^b Output is defined as the value of the goods and services produced in the study area due to the activity.

^c Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the activity. It is the sum of labor income and other property type income.

^d Employment includes the number of full-time and part-time jobs created due to the activity.

^e Tax revenue is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected due to the activity. It excludes taxes on profit and income.

^f Commercial fishing values represent the year 2002. Data for 2003 and 2004 were not available.

Table ES-4
Total Economic Contribution of Biscayne Bay as a Percent of the Miami-Dade County Economy in 2004

Activity	Direct, Indirect and Induced Economic Contribution			
	Output	Income	Employment	Tax Revenue
Recreation	4.44%	3.40%	4.42%	4.33%
Commercial Fishing	0.03%	0.03%	0.04%	0.03%
Port of Miami Shipping	9.66%	6.22%	5.72%	5.58%
Miami River Shipping	0.80%	0.55%	0.47%	0.63%
Total	14.93%	10.20%	10.64%	10.57%

2004 Economic Contribution to Southeast Florida. A summary of the output, income, employment and tax revenue created in southeast Florida in 2004 as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce and cruise ship services is provided in Table ES-5. The economic contribution of Biscayne Bay-related activities as a percent of the overall southeast Florida economy is provided in Table ES-6.

Overall, the activities on Biscayne Bay in 2004 contributed \$14 billion in output, \$7 billion in income, 143,000 jobs and \$686 million in tax revenue to southeast Florida. These values represent 6 percent of total output produced in southeast Florida, 4 percent of all income earned in southeast Florida, 5 percent of the employment in southeast Florida and 5 percent of all excise taxes, property taxes, fees, licenses, and sales tax revenues collected in southeast Florida.

The recreation component of this economic contribution generated about \$4.0 billion in output, \$2.2 billion in income, 58,800 jobs and \$272 million in tax revenues to southeast Florida. Recreation on Biscayne Bay represents about 1.3 percent of the southeast Florida economy as measured by the percent of income generated in southeast Florida. Bay-related commercial fishing generated \$30 million in output, \$18 million in income, 473 jobs and \$2.0 million in tax revenue and represents about 0.01 percent of the southeast Florida economy.

Waterborne commerce and cruise ship services at the Port of Miami generated \$8.9 billion in output, \$4.3 billion in income, 77,000 jobs and \$368 million in tax revenues and represents about 2.5 percent of the southeast Florida economy. Waterborne commerce at the Miami River generated \$805 million in output, \$406 million in income, 6,700 jobs and \$44 million in tax revenues and represents about 0.24 percent of the southeast Florida economy.

Table ES-5
Total Economic Contribution of Biscayne Bay to Southeast Florida in 2004

Activity	Direct, Indirect and Induced Economic Contribution (a)			
	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Recreation	\$3,992,000,000	\$2,243,000,000	58,800	\$272,000,000
Commercial Fishing (f)	\$29,859,000	\$18,234,000	473	\$1,954,000
Port of Miami Shipping	\$8,894,946,000	\$4,259,185,000	77,048	\$368,385,000
Miami River Shipping	\$804,807,000	\$406,395,000	6,741	\$43,911,000
Total	\$13,721,612,000	\$6,926,814,000	143,062	\$686,250,000

Note: See Table ES-3 for footnote explanations.

Table ES-6
Total Economic Contribution of Biscayne Bay as a Percent of the Southeast Florida Economy in 2004

Activity	Direct, Indirect and Induced Economic Contribution			
	Output	Income	Employment	Tax Revenue
Recreation	1.80%	1.31%	2.01%	1.91%
Commercial Fishing	0.01%	0.01%	0.02%	0.01%
Port of Miami Shipping	4.01%	2.48%	2.64%	2.59%
Miami River Shipping	0.36%	0.24%	0.23%	0.31%
Total	6.18%	4.03%	4.89%	4.83%

2004 Economic Contribution to Florida. A summary of the output, income, employment and tax revenue created in Florida in 2004 as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce and cruise ship services is provided in Table ES-7. The economic contribution of Biscayne Bay-related activities as a percent of the overall Florida economy is provided in Table ES-8. Overall, the activities on Biscayne Bay in 2004 contributed \$14.7 billion in output, \$7.5 billion in income, 157,600 jobs and \$732 million in tax revenue to Florida. These values represent 2.3 percent of total sales in Florida, 1.5 percent of all income earned in Florida, 1.7 percent of the employment in Florida and 1.9 percent of all excise taxes, property taxes, fees, licenses, and sales tax revenues collected in Florida.

The recreation component of this economic contribution generated about \$4.6 billion in output, \$2.6 billion in income, 65,300 jobs and \$305 million in tax revenues in Florida. Recreation on Biscayne Bay represents about 0.5 percent of the Florida economy as measured by the percent of income generated in Florida. Bay-related commercial fishing generated \$31 million in output, \$19 million in income, 500 jobs and \$2.0 million in tax revenue and represents about 0.004 percent of Florida's economy.

Waterborne commerce and cruise ship services at the Port of Miami generated \$9.2 billion in output, \$4.4 billion in income, 84,300 jobs and \$380 million in tax revenues and represents about 1.5 percent of Florida's economy. Waterborne commerce at the Miami River generated \$842 million in output, \$427 million in income, 7,500 jobs and \$45 million in tax revenues and represents about 0.09 percent of Florida's economy.

Table ES-7
Total Economic Contribution of Biscayne Bay to Florida in 2004

Activity	Direct, Indirect and Induced Economic Contribution (a)			
	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Recreation	\$4,567,000,000	\$2,565,000,000	65,300	\$305,000,000
Commercial Fishing (f)	\$31,118,000	\$18,958,000	500	\$1,991,000
Port of Miami Shipping	\$9,242,492,000	\$4,439,473,000	84,311	\$380,122,000
Miami River Shipping	\$841,836,000	\$427,334,000	7,502	\$45,081,000
Total	\$14,682,446,000	\$7,450,765,000	157,613	\$732,194,000

Note: See Table ES-3 for footnote explanations.

Table ES-8
Total Economic Contribution of Biscayne Bay as a Percent of the Florida Economy in 2004

Activity	Direct, Indirect and Induced Economic Contribution			
	Output	Income	Employment	Tax Revenue
Recreation	0.71%	0.52%	0.71%	0.79%
Commercial Fishing	0.0048%	0.0038%	0.01%	0.01%
Port of Miami Shipping	1.44%	0.89%	0.92%	0.98%
Miami River Shipping	0.13%	0.09%	0.08%	0.12%
Total	2.29%	1.50%	1.72%	1.89%

Historic Economic Contribution to Miami-Dade County. The direct, indirect and induced output, income and employment generated in Miami-Dade County from Biscayne Bay-related activities during the period 1980 through 2004 are provided in Figure ES-6. All three measures of economic contribution increased throughout most of the 24 year period. In 1992 and 1993, Hurricane Andrew significantly reduced recreation activity on the Bay. Output, income and employment begin to recover in 1994 and by 1995 the upward trend is back to pre-1992 levels.

Historic Economic Contribution to Southeast Florida. The direct, indirect and induced output, income and employment generated in southeast Florida from Biscayne Bay-related activities during the period 1980 through 2004 are provided in Figure ES-7. Output, income and employment also exhibit an upward trend throughout the period and the impact of Hurricane Andrew in 1992 and 1993 is evident.

Figure ES-6
Economic Contribution to Miami-Dade County of Activities On or Related To Biscayne Bay, 1980 to 2004
 Includes direct, indirect and induced effects

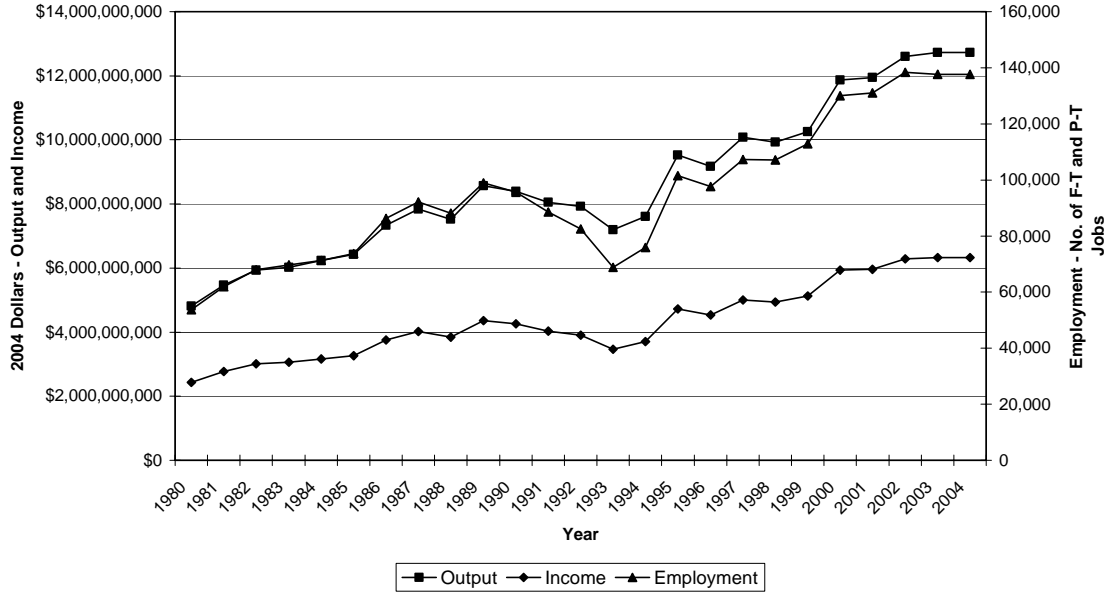
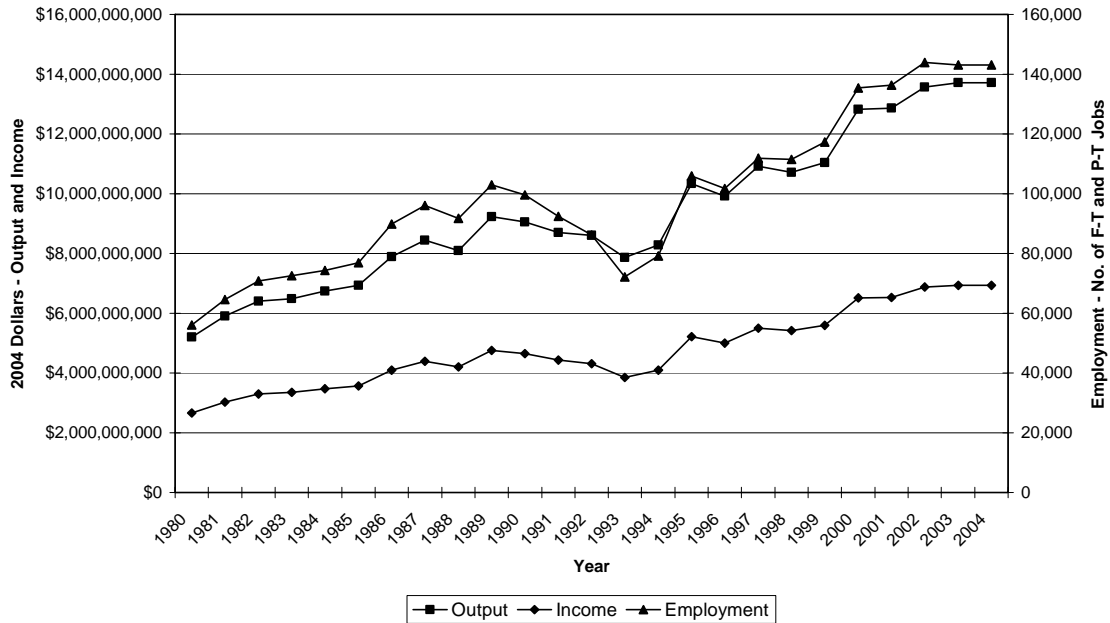
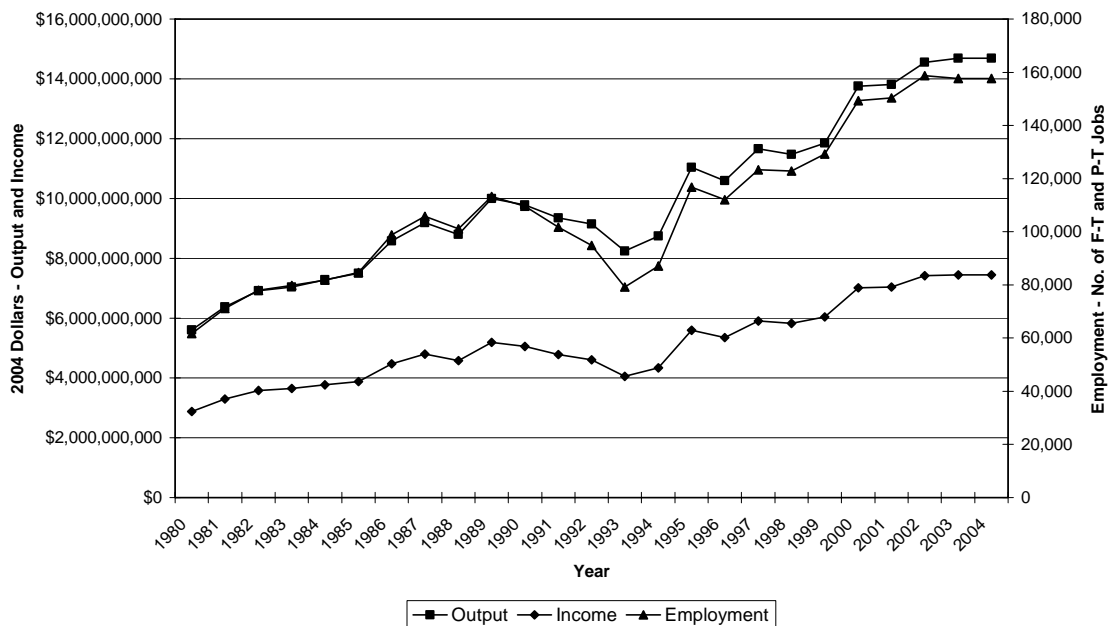


Figure ES-7
Economic Contribution to Southeast Florida of Activities On or Related To Biscayne Bay, 1980 to 2004, Includes direct, indirect and induced effects



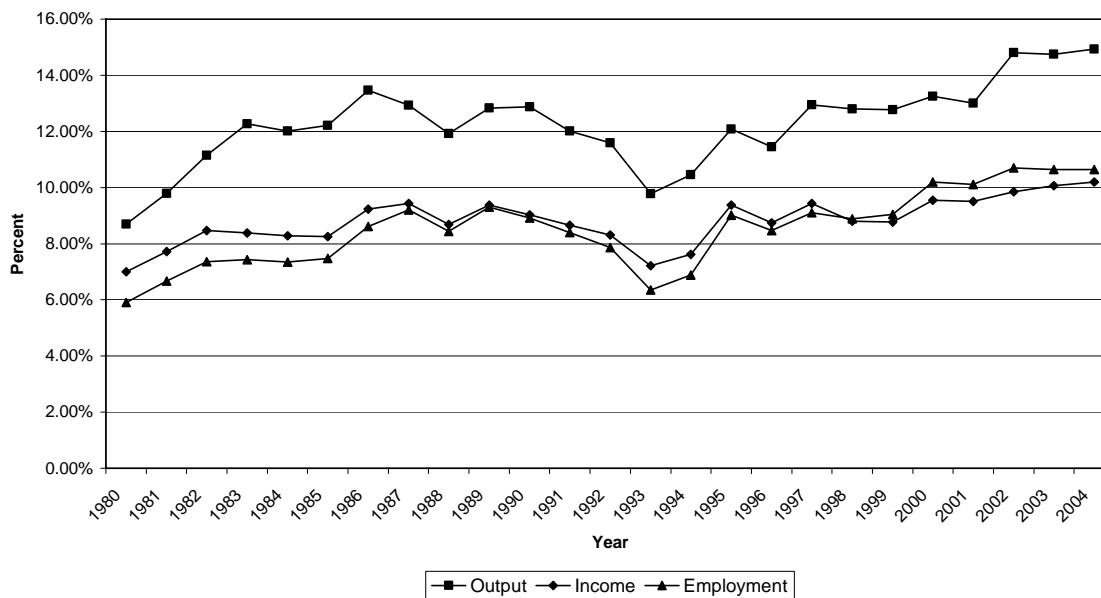
Historic Economic Contribution to Florida. The direct, indirect and induced output, income and employment generated in Florida from Biscayne Bay-related activities during the period 1980 through 2004 are provided in Figure ES-8. The trend mirrors the trend observed for southeast Florida because most of the economic contribution of Biscayne Bay to Florida benefits southeast Florida.

Figure ES-8
Economic Contribution to Florida of Activities On or Related
To Biscayne Bay, 1980 to 2004, Includes direct, indirect and induced effects



Historic Economic Contributions as Percent of Overall Economy. The economic contributions of Biscayne Bay-related activities as a percent of the Miami-Dade County economy from 1980 to 2004 are presented in Figure ES-9. Since 2000, activities on Biscayne Bay represented more than 10 percent of the county’s economy as measured by income. The economic importance of Biscayne Bay to Miami-Dade County increased from 7.0 percent of county income in 1980 to 10.2 percent of county income in 2004. After 1980, the lowest economic contribution occurred in 1993 when Bay-related activities represented 7.2 percent of the county’s economy. This relatively low value was due to the impact of Hurricane Andrew which struck the county in August 1992. By 1995, Bay-related activities recovered to their pre-1992 levels.

Figure ES-9
Economic Contribution of Activities On or Related
To Biscayne Bay as a Percent of the Miami-Dade County Economy, 1980 to 2004
Includes direct, indirect and induced effects



The economic contributions of Biscayne Bay-related activities as a percent of the southeast Florida economy from 1980 to 2004 are presented in Figure ES-10. The economic importance of Biscayne Bay has been stable throughout the period. In 1980, income generated from Bay-related activities was 3.5 percent of total income earned in southeast Florida. By 2004, the Bay's relative contribution to the southeast Florida economy was 4.0 percent.

The economic contributions of Biscayne Bay-related activities as a percent of the Florida economy from 1980 to 2004 are presented in Figure ES-11. The economic importance of Biscayne Bay to Florida has also been stable throughout the period. In 1980 and in 2004, income generated from Bay-related activities was 1.5 percent of total income earned in Florida.

Summaries of the industry types that benefit from Biscayne Bay uses and the historic economic contribution associated with each use type (recreation, commercial fishing, Port of Miami shipping, and Miami River shipping) are provided in Section 7.0 of this report.

Figure ES-10
Economic Contribution of Activities On or Related
To Biscayne Bay as a Percent of the Southeast Florida Economy, 1980 to 2004
 Includes direct, indirect and induced effects

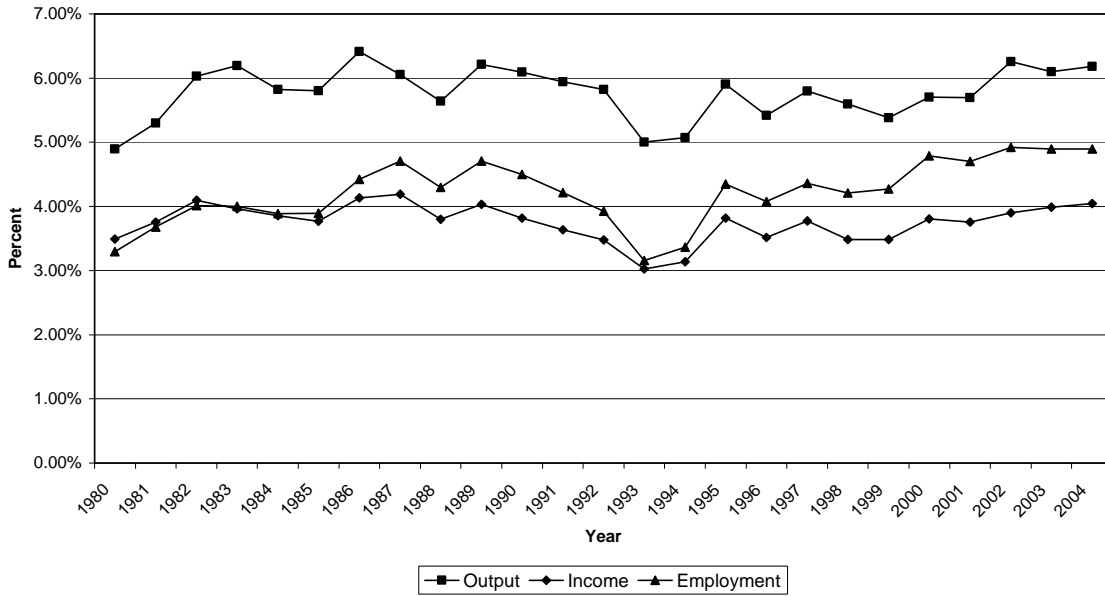
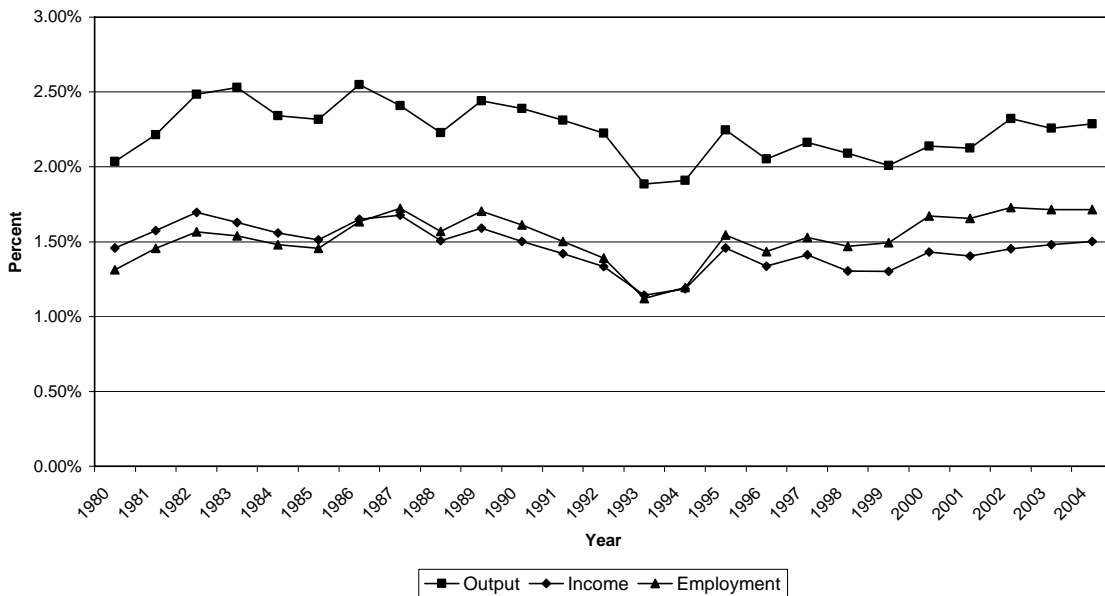


Figure ES-11
Economic Contribution of Activities On or Related
To Biscayne Bay as a Percent of the Florida Economy, 1980 to 2004
 Includes direct, indirect and induced effects



1.0 Introduction

1.1 Project Background

In 2000, a process called the Biscayne Bay Partnership Initiative (BBPI) was initiated. The BBPI provided a broad community-based forum, comprised of federal, state and local agencies, universities, non-governmental organizations, the private sector, and industry, to survey the status of Biscayne Bay's resources and the management of those resources. Various BBPI committees made recommendations for the protection, improvement, and enhancement of the Bay's resources, and its social, economic and natural values, with its ecological health as a priority. This project is an outcome of the BBPI recommendations.

Biscayne Bay is a large, shallow tropical saline lagoon surrounded by the large and diverse metropolitan area of Greater Miami and Miami Beach. Biscayne Bay is the most prominent feature in Miami-Dade County's landscape, extending for almost the entire length of the County from Haulover Inlet in the north to the upper reaches of Key Largo in the south.

The majority of the County's 2.1 million residents live within a few miles of the Bay. The Bay supports a variety of recreation activities including fishing, diving, snorkeling, swimming, picnicking, sightseeing and boating. Direct business uses of the Bay include commercial fishing, cruise ship operations, and commercial shipping. Biscayne Bay is an important component of the county's quality of life and economy. However, there is very little definitive understanding of the magnitude or extent of the Bay's economic contribution to the community.

The County's economy, which is highly dependent on international trade and tourism, and its continual population growth, relies on the use of Biscayne Bay and places taxing demands on its environment. Better awareness of the economic role of the Bay will provide greater insight into which economic sectors or activities should be promoted in the development of the area's economy. Research to assess the relationship between the economy and the Bay will help to identify areas where additional information is needed. This study is the first to assess the current and historic uses and economic contribution of the Bay that provides baseline information to evaluate the impact of Bay management on the local economy.

1.2 Project Objectives

Biscayne Bay supports a wide variety of recreational and economic uses. They include:

- Recreational fishing, swimming, boating, sailing and other activities
- Commercial Fishing
- Shipping operations at the Port of Miami and the Miami River
- Cruise Ship Operations at the Port of Miami

These activities were the focus of this study. The overall objectives of this project were to:

- (1) Estimate the intensity of Biscayne Bay uses from 1980 to 2004; and,
- (2) Estimate the economic contribution of Biscayne Bay uses to the economies of Miami-Dade County, southeast Florida and Florida from 1980 to 2004 in terms of the direct, indirect and induced sales, income, employment and tax revenues generated by the uses of the Bay.

Biscayne Bay provides other benefits to the community in addition to those evaluated during this study. The aesthetic qualities of Biscayne Bay contribute to the market values of real estate surrounding the Bay and its use as scenery for movies, television and print media. The annual Miami International Boat Show benefits from the easy access that the Bay provides for the transport of boats to the show site and public access to boaters who attend the event. These benefits were not valued during this study.

Recreational users of Biscayne Bay receive non-monetary benefits beyond what they spend to use the Bay. This “wellbeing” generated from recreational uses can be measured in monetary terms. Also, those who do not use the Bay for recreation benefit from knowing that the Bay exists and some value the Bay because it is available to future generations. These values were not estimated during this study.

1.3 Study Areas

This project has four study areas: (1) local, (2) county; (3) region and (4) State. Most of the businesses directly affected by the Bay are located in this area. The economic contribution of the Bay to the county, region and state were quantified. The cities and towns of Miami-Dade County are provided in Figure 1-1. The white areas of the county are unincorporated urban areas. The Bay is bounded by Florida's mainland on the west and a chain of barrier islands on the east, which eventually become part of the Florida Keys. It extends north to the Broward County line and south to the Monroe County line. Each study area is defined as follows.

Local Study Area. The northern boundary of the local study area is the Broward County line and the southern boundary is the Monroe County line. The western boundary of the local area is US 1. The eastern boundary extends to the west side of the barrier islands north of Government cut and the east side of the barrier islands south of Government cut.¹ The eastern boundary in Key Biscayne extends to and along Crandon Boulevard. Also, properties located within ¼ mile along either side of the Miami River are also included in the local study area.

The cities surrounding the northern portion of the Bay are Aventura, North Miami Beach, North Miami, Miami Shores, North Bay Village and Miami to the west and Sunny Isles, Bay Harbor Island, Bal Harbour, Surfside, Indian Creek and Miami Beach to the east. The cities surrounding the southern portion of the Bay, to the east, are Virginia Key and Key Biscayne. Cities to the west are Coral Gables and Palmetto Bay. Much of the southwestern part of the Bay is bordered by unincorporated Miami-Dade County. The corporate limits of the City of Homestead also lie southwest of the Bay. The Bay is mostly open water to the southeast.

Historic and popular attractions immediately surrounding the Bay, from north to south, are Oleta River State Recreation Area, Haulover Beach Park and Marina, Bayside Marketplace, the Rickenbacker Causeway beaches, Villa Vizcaya, Miami Seaquarium, Cocowalk, Crandon Park, Matheson Hammock Park, Cape Florida/Bill Baggs State Park, Black Point Park, Biscayne

¹ Government Cut is an inlet that provides access to the Atlantic Ocean from Biscayne Bay. The Port of Miami is located nearby (just south of McArthur Causeway).

National Park and Homestead Bayfront Park. The Bay can be seen from all these venues and accessed from most of these venues.

County Study Area. Miami-Dade County is the second study area. It includes the local area and all land west of the local area within Miami-Dade County.

Regional Study Area. The regional area is southeast Florida and includes the counties of Palm Beach, Broward, Miami-Dade, and Monroe.

State Study Area. The State of Florida is the largest of the four study areas.

1.4 Study Period

There are two study periods: current and historic. The current uses and economic contribution of the Bay were estimated for the year 2004. The historic uses and economic contribution of the Bay were estimated for the years 1980 to 2003.

1.5 Definitions

The terms used throughout this report are defined below.

2004 Dollars. This term means that dollar values realized during a particular year have been adjusted so that they are equal to the value of today's dollar. All dollars are reported in 2004 dollars unless otherwise noted.

Visitors. This term is defined as persons who visit Miami-Dade County and live outside of the county for at least six months per year.

Residents. This term is defined as persons who live in Miami-Dade County at least six months per year.

Number of Person-Days. This term describes the recreational use intensity of Biscayne Bay. A person-day is one person participating in a recreational activity for all or a portion of a day.

Number of Person-Days by Activity. In this study the numbers of person-days associated with 19 specific "primary" recreation activities on the Bay were estimated. It is common for persons to participate in multiple Bay-related activities during a day. For example, it is common to picnic and swim on the Bay during the same day. It is also possible for people on the same boat to participate in different activities. The estimation of person-days by activity was based on the responses of residents and visitors as they answered surveys conducted in-person. The number of person-days associated with a specific activity includes the respondent and the people in his or her party. A person-day is attributed to an activity only if it was the "primary" activity that day.²

² For days when the respondent participated in multiple activities on the Bay, the respondent had the option of allocating one-half of a day to one activity and the other half of that day to another activity.

For example, a family of four spent 16 person-days fishing from a boat in 2004. The activity type, such as fishing from a boat, is the predominant activity of the day, even though the family may have participated in other activities on the day they fished from a boat, such as swimming and picnicking. Some family members may not have fished at all. The portions of the days spent swimming or picnicking are not counted on the days when fishing from a boat was the primary activity. Therefore, the estimate of the number of person-days spent fishing from a boat, can include those who fished that day and those who were with the fishers but did not fish that day. The primary activity is considered to be the motivating factor for recreating on the Bay.

The survey researchers were instructed that the category “Sailing” is any activity conducted on a sail boat. Thus, all other categories that have the word “boat” in them are power boats. As with all of the activities, the respondent was to provide the primary activity conducted that day. Thus, it is possible that some respondents said snorkeling from a boat if that is what they did all day even if it was from a sailboat. However, most of the sailing is expected to be under the category “sailing”.

Number of Person-Trips. This term means one trip by one visitor to Miami-Dade County where the visitor is not just passing through the county to get elsewhere and is not commuting to work. A trip can last one day or many days.

Recreation Expenditures. The amount of money spent by people while they were recreating on the Bay or to purchase goods and services needed to recreate on the Bay.

Economic contribution. The contribution of Biscayne Bay-related uses to output, labor and proprietor’s income, other property type income, employment and tax revenues.

Direct businesses. The businesses who are using the Bay to produce goods and services.

Indirect businesses. The Bay using businesses (direct businesses) purchase goods and services from these businesses.

Induced businesses. The indirect businesses and the employees of the direct, indirect and induced businesses purchase goods and services from these businesses. Examples of induced businesses include construction, manufacturing, grocery stores, department stores and wholesalers.

Direct, indirect and induced economic contribution. The contribution of Biscayne Bay as the sales of the direct businesses that results from Bay-related uses moves through the economy to create output, income, employment and tax revenue. As the geographic extent of the study area becomes larger, the size of the indirect and induced economic contribution increases as more and more businesses and employees are included in the evaluation. Throughout this report, the total direct, indirect and induced economic contribution is presented unless otherwise noted.

Output. The value of the additional goods and services produced in the study area as a result of the uses of the Bay. Output will be less than recreation expenditures if some of the goods purchased in a study area are not produced in the study area.

Labor and proprietor's income. Income generated as a result of the Bay-related uses. Labor income is total payroll costs including benefits such as the costs of health and life insurance, retirement payments, and non-cash compensation. Proprietary income consists of payments received by self-employed individuals as income, including income received by private business owners, doctors, lawyers and so forth.

Other property type income. Payments for rents, profits, royalties, and dividends generated as a result of the Bay-related uses.

Income. The sum of (1) Labor and proprietor's income and (2) Other property type income generated as a result of the Bay-related uses.

Tax revenue. Also called indirect business taxes and is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected as a result of the Bay-related uses. It excludes taxes on profit and income because these taxes are accounted for in the income categories.

1.6 Land Uses in Miami-Dade County

The locations of the marine-dependent businesses, the marinas, and all businesses in Miami-Dade County are presented in Figure 1-2. The local study area is shaded in gray. The figure shows that marine-dependent businesses are scattered throughout the county and are not limited to the local study area. Most of the marinas are located in the local study area, which includes the Miami River. The economic contributions of the Bay and River include their impact on all businesses in the county.

The land uses associated with the northern, central and southern portions of the local study area are presented in Figures 1-3 through 1-5. Also shown on these land use maps are the locations of the marinas and the marine-dependent businesses. The predominant land use of the northern and central portions of the local study area is residential. The second most predominant land uses are parks, golf courses and government uses, which are primarily schools and government-owned utilities.

In the southern portion of the local study area, as shown in Figure 1-5, the predominant land use is vacant although most of the vacant land at the top of the figure is in agriculture. A GIS map of the southern portion of the county that identifies land in agriculture is provided in Figure 1-6. Thus, agriculture and vacant land are the most predominant land uses in southern Miami-Dade County. The second most predominant land use is parks including Biscayne National Park, Black Point Park, and Homestead Bayfront Park. The residential land uses are in the City of Homestead and Florida City. Government uses include the Homestead U.S. Air Reserve Base and vacant land owned by a government entity. The land use of the Turkey Point Power Plant owned by Florida Power and Light is in purple in the middle right hand side of the map, just

south of Homestead Bayfront Park and the land entrance to Biscayne National Park (Convoy Point).

1.7 Overall Methodology

The uses of Biscayne Bay are diverse and include 19 recreation activities, waterborne commerce, cruise ship services and commercial fishing. This is the first study that attempts to estimate the intensity of uses and economic contribution of the Bay. In the process of conducting this study, information and data gaps were found and addressed using the best available information. As additional and better information becomes available, the estimates of use and economic contribution can be improved.

Use intensity and economic contribution were estimated using data collected through surveys, interviews and publications. These data were applied to models that estimate the:

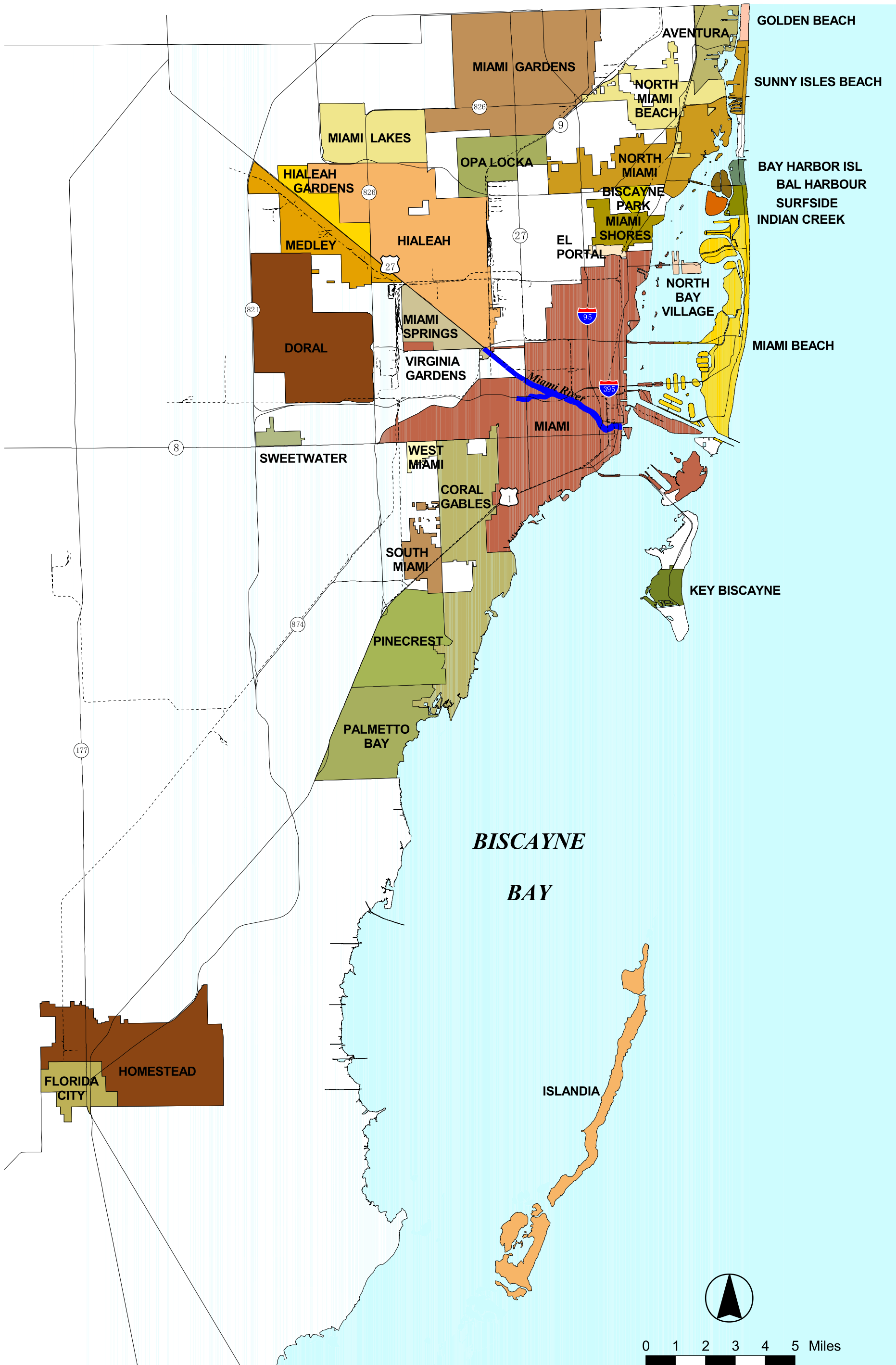
- (1) Number of person-days by Bay-related recreation activity;
- (2) Bay-related recreation expenditures by category and location of purchase;
- (3) Sales to companies that provide waterborne transportation;
- (4) Export contribution of the local ports as measured in terms of the value of goods and services produced in the county due to the nearby Port of Miami and Miami River; and,
- (5) Value of Bay-related commercial fish landings.

The expenditure and sales data were input into the IMPLAN regional economic input-output model representing each of the three study areas to obtain estimates of the direct, indirect and induced output, income, employment and tax revenues generated from these expenditures and sales. The result is the economic contribution of Biscayne Bay.

There are two components of the estimated economic contributions that could be significantly improved if better data were available. These are the economic contributions of the Port of Miami and the Miami River as they attract local exporting firms. Information regarding the identity and location of exporting firms using the Port of Miami and the Miami River is not available. In fact, the only available information on the types of goods exported by firms located in the county and the region is from the IMPLAN database. Identifying and surveying or interviewing these firms is necessary to make a meaningful assessment. Such effort was beyond the scope of this study. As a result, specific assumptions described in Section 5.0 of this report were used.

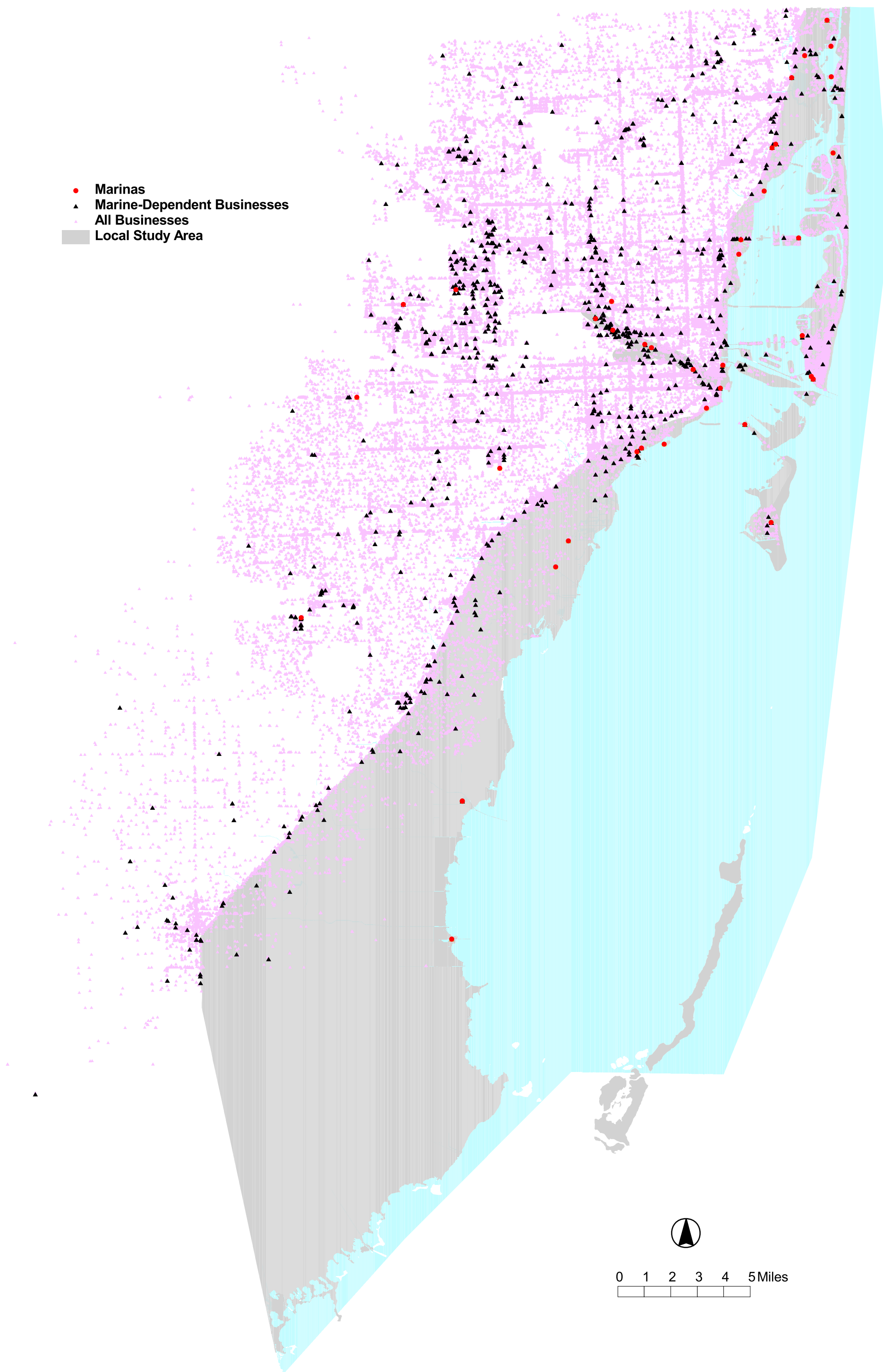
The IMPLAN Regional Economic Input Output Model was used to estimate the economic contribution of all Bay uses. This computer model simulates the supply of and demand for goods and services within a county, within groups of counties and within the State of Florida. It

Figure 1-1 Cities and Towns of Miami-Dade County



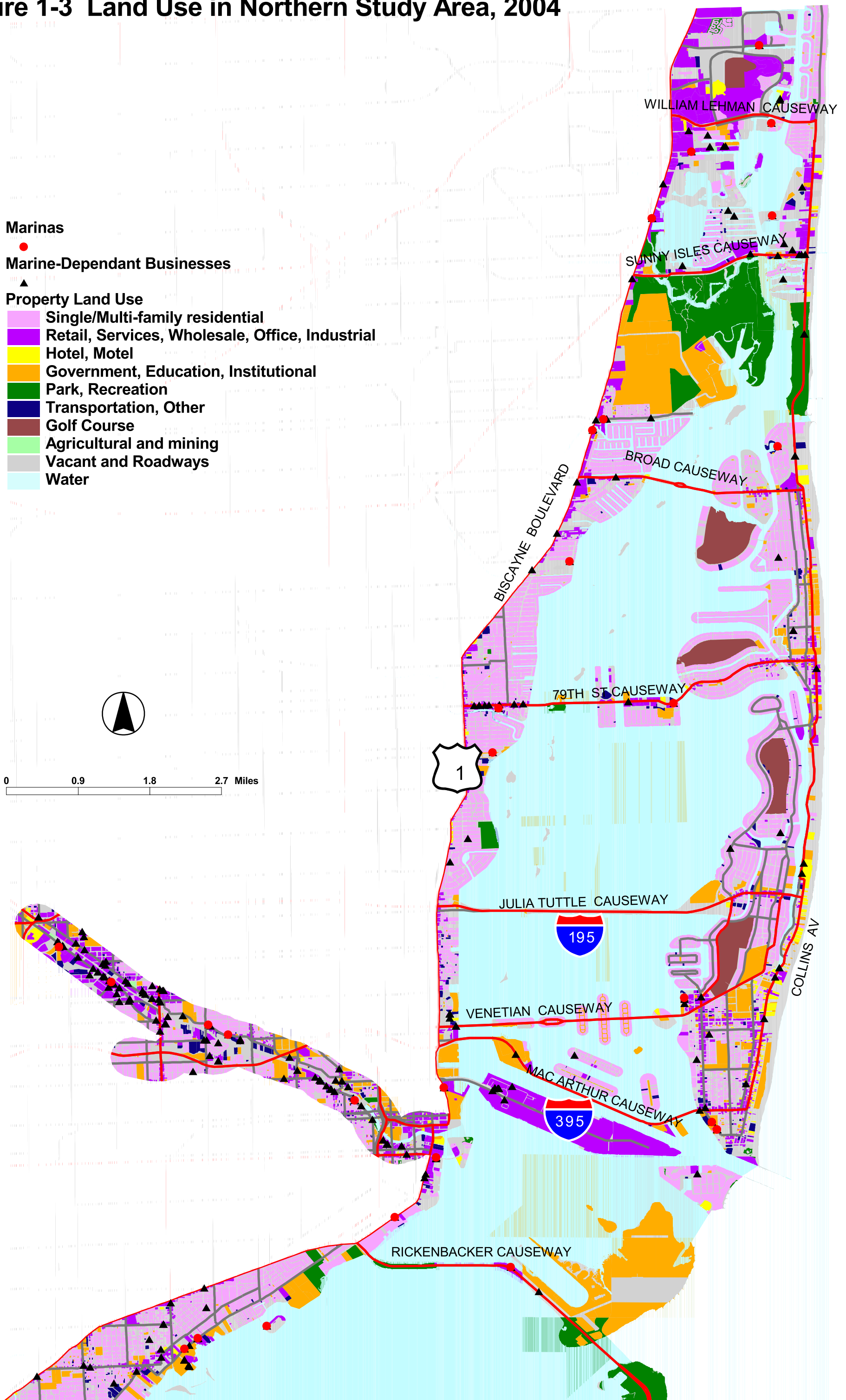
Source: Miami-Dade County geographical information system public access, land use, and property records database, November 2002

Figure 1-2 Geographic Distribution of Businesses and Marine-Dependent Businesses in Miami-Dade County, 2004



Sources: Miami-Dade County geographical information system public access, land use, and property records database, November 2003
InfoUSA Business Database, InfoUSA, Omaha, Nebraska, 2004

Figure 1-3 Land Use in Northern Study Area, 2004



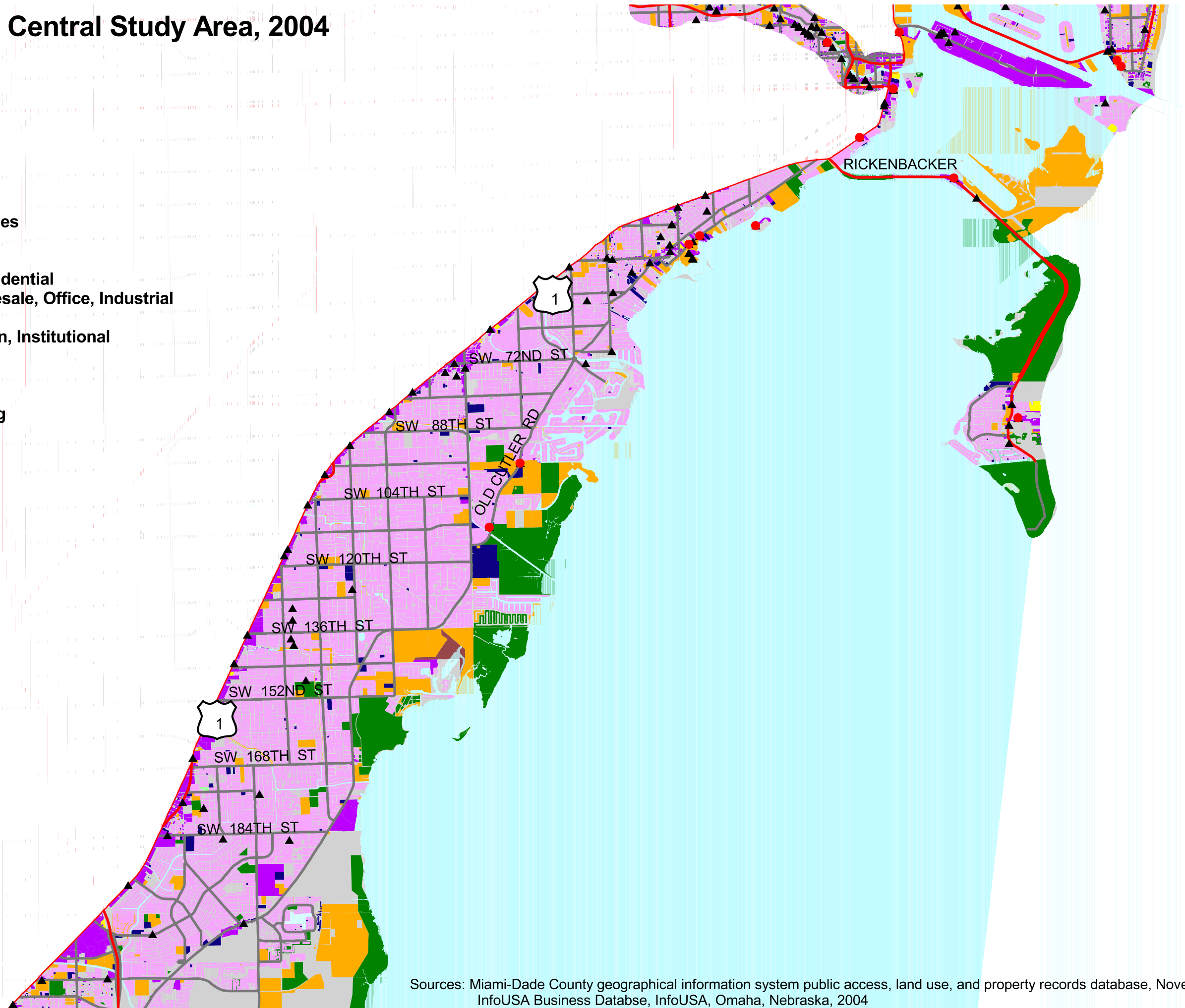
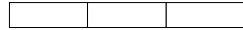
Sources: Miami-Dade County geographical information system public access, land use, and property records database, November 2003
 InfoUSA Business Database, InfoUSA, Omaha, Nebraska, 2004

Figure 1-4 Land Use in Central Study Area, 2004

- Marinas**
-
- Marine-Dependant Businesses**
- ▲
- Property Land Use**
- Single/Multi-family residential
- Retail, Services, Wholesale, Office, Industrial
- Hotel, Motel
- Government, Education, Institutional
- Park, Recreation
- Transportation, Other
- Golf Course
- Agricultural and mining
- Vacant and Roadways
- Water

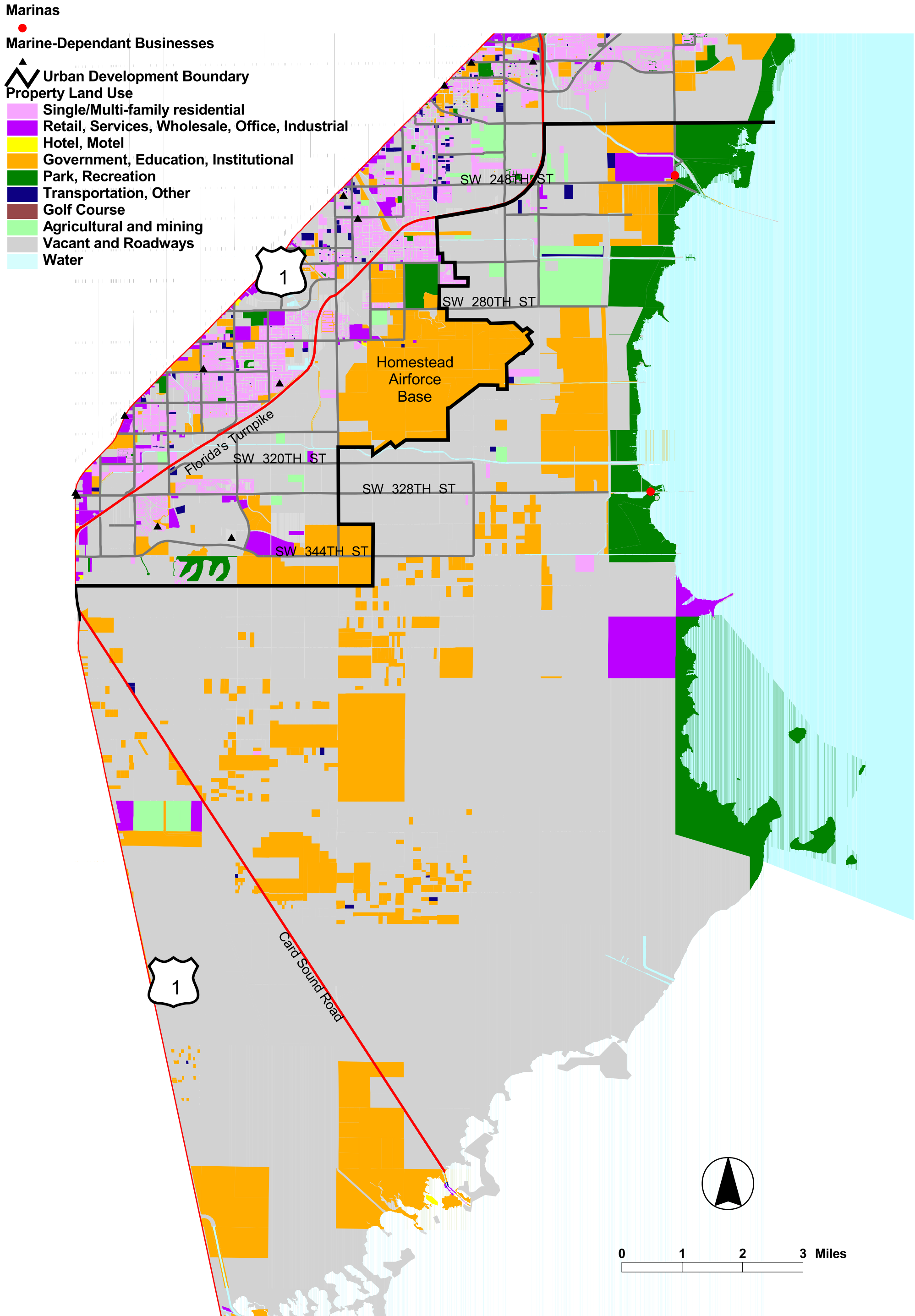


0 0.6 1.2 1.8 Miles



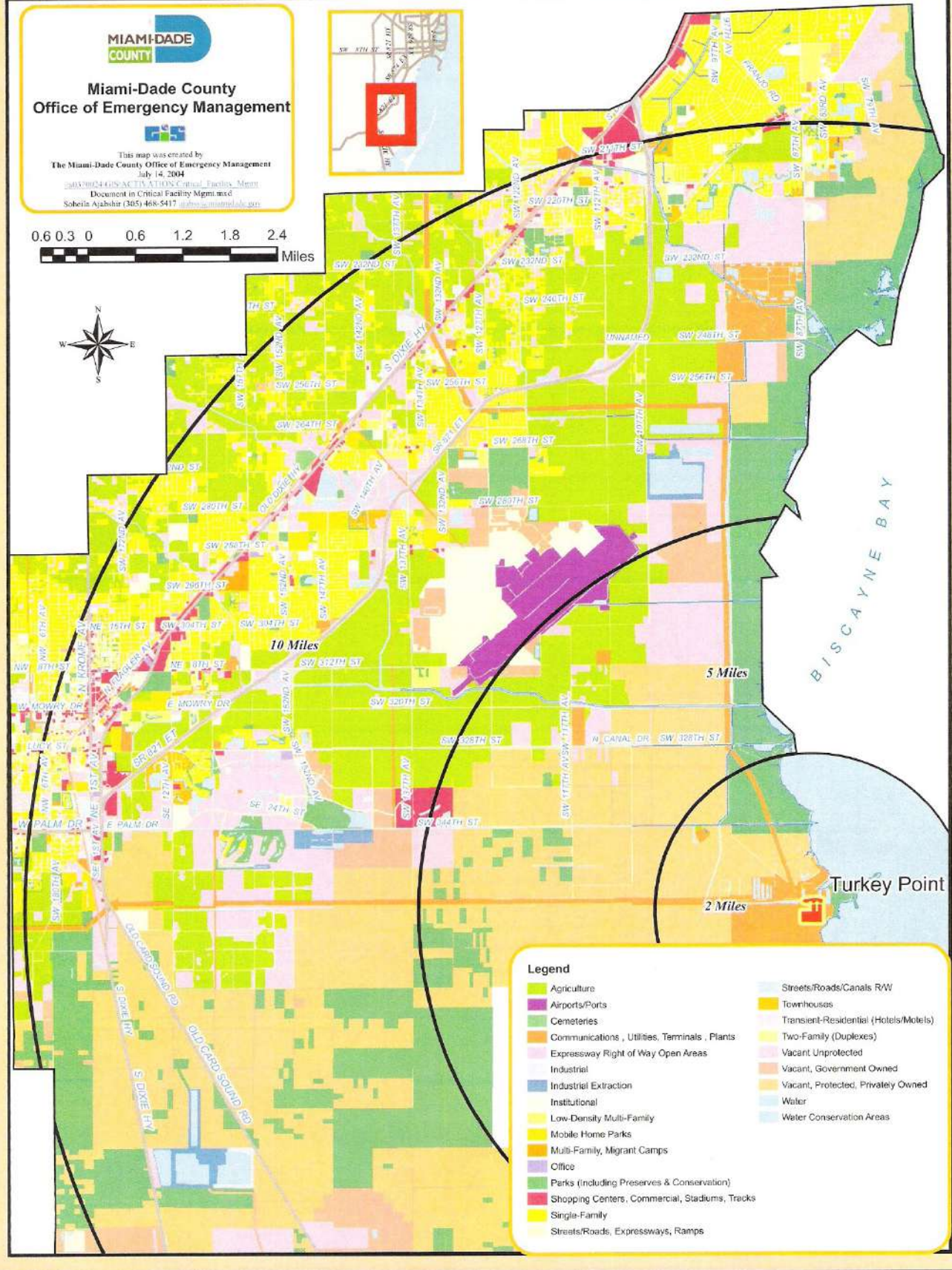
Sources: Miami-Dade County geographical information system public access, land use, and property records database, November 2003
 InfoUSA Business Database, InfoUSA, Omaha, Nebraska, 2004

Figure 1-5 Land Use in Southern Study Area, 2004



Sources: Miami-Dade County geographical information system public access, land use, and property records database, November 2003
InfoUSA Business Database, InfoUSA, Omaha, Nebraska, 2004

This map was created by
 The Miami-Dade County Office of Emergency Management
 July 14, 2004
 sobekia@oem.miamidade.gov
 Document in Critical Facility Mgmt.mxd
 Sobekia Ajahsir (305) 468-5417



- Legend**
- Agriculture
 - Airports/Ports
 - Cemeteries
 - Communications, Utilities, Terminals, Plants
 - Expressway Right of Way Open Areas
 - Industrial
 - Industrial Extraction
 - Institutional
 - Low-Density Multi-Family
 - Mobile Home Parks
 - Multi-Family, Migrant Camps
 - Office
 - Parks (including Preserves & Conservation)
 - Shopping Centers, Commercial, Stadiums, Tracks
 - Single-Family
 - Streets/Roads, Expressways, Ramps
 - Streets/Roads/Canals RW
 - Townhouses
 - Transient-Residential (Hotels/Motels)
 - Two-Family (Duplexes)
 - Vacant Unprotected
 - Vacant, Government Owned
 - Vacant, Protected, Privately Owned
 - Water
 - Water Conservation Areas

40507-001R004.cdr



Figure 1-6
 Land Use Map Obtained
 from Miami-Dade County OEM

allows the user to estimate the extent to which new investments or increases in demand affect a region's economy in terms of sales, income, employment and tax revenues.

IMPLAN stands for IMPact Analysis for PLANning and was originally developed by the USDA Forest Service in cooperation with the Federal Emergency Management Agency and the USDI Bureau of Land Management to assist the Forest Service in land and resource management planning. The developers of this model formed the Minnesota IMPLAN Group in 1993 to privatize the development of IMPLAN data and software. They are located in Stillwater, Minnesota. Information regarding this company can be found at [www. IMPLAN.com](http://www.IMPLAN.com).

The IMPLAN model used in this study represents the economic conditions of the year 2000 unless otherwise noted in this report. This was the most recent year available from the Minnesota IMPLAN Group at the time this study began. The 2002 data has just been released. The 2001 data was released during this study but the cost to acquire the data did not justify the additional accuracy.

IMPLAN is an input-output accounting model that describes the flow of commodity values from producers to intermediate and final consumers. It is both a database of county-specific values and an economic model. According to the Minnesota IMPLAN Group's document titled *The IMPLAN Input-Output System*, "purchases for final use (final demand) drive the model. Industries produce goods and services for final demand and purchase goods and services from other producers. These other producers, in turn, purchase goods and services...The indirect and induced effects can be mathematically derived. The derivation is called the Leontief inverse. The resulting set of multipliers describe the change in output³ for each and every regional industry caused by a one dollar change in final demand for any given industry...The IMPLAN accounts closely follow the accounting conventions used in the "Input-Output Study of the US Economy" by the Bureau of Economic Analysis (1980) and the rectangular format recommended by the United Nations. The IMPLAN system was designed to serve three functions: (1) data retrieval, (2) data reduction and model development, and (3) impact analysis."

1.8 Report Organization

This report is comprised of eight sections and six appendices. They are identified as follows.

Main Report

- Executive Summary
- Section 1 - Introduction
- Section 2 - Biscayne Bay-Dependent Recreation in 2004: methods and results
- Section 3.0 - Biscayne Bay-Dependent Recreation, Historic: methods and results
- Section 4.0 - Biscayne Bay-Dependent Commercial Fishing: methods and results

³ The model also produces multipliers for income, employment and tax revenues.

- Section 5.0 - Miami-Dade County Shipping Industry: methods and results for the Port of Miami and the Miami River
- Section 6.0 - Marine Businesses in Miami-Dade County: description, number, sales and employment
- Section 7.0 - Uses and Economic Contribution of Biscayne Bay: summary of results for all Bay uses
- Section 8.0 – Bibliography

Appendices

- A - Biscayne Bay User Survey Residents and Visitors
- B - General Visitor Survey
- C - 2000 Population of Miami-Dade County Residents by Zip Code
- D - General Resident Survey
- E - 2004 Resident and Visitor Expenditures Related to Biscayne Bay Recreation and Economic Contribution of Biscayne Bay Related Expenditures to Southeast Florida and Florida, Itemized by Industry, 2004
- F - Landings and Value of Species Reported for the Area Encompassing Biscayne Bay, Card Sound and Barnes Sound and Itemized Economic Contribution of Biscayne Bay-Related Commercial Fishing – Direct, Indirect and Induced

2.0 Biscayne Bay-Dependent Recreation in 2004

Biscayne Bay is used for a wide variety of recreational activities. The locations of parks and marinas located along the Bay and the Miami River are provided in Figure 2-1. The recreational activities are listed as follows:

Recreation Activities on Biscayne Bay

- Fishing
- Snorkeling
- Scuba Diving
- Boating for Pleasure / Partying
- Swimming
- Water-skiing
- Parasailing
- Windsurfing
- Personal Watercraft Boating (jet skis, wave runners, etc.)
- Sailing
- Canoeing / Kayaking
- Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)
- Sunset Cruise
- Glass bottom boat tour
- Picnicking on Biscayne Bay
- Kite Sailing

As is evident from Figure 2-1, Biscayne Bay is accessible through many parks, marinas, boat ramps and private docks. There is no system that counts persons entering the Bay or participating in activities on or near the Bay. Therefore, the use intensity and economic contribution of the Bay as is it used for recreation had to be estimated using survey research. Also, many people participate in multiple Bay-related recreation activities on the same day. The intent of this study was to count only one primary activity per person per day. These two issues were the greatest challenges in estimating the use intensity and economic contribution of Biscayne Bay and influenced the estimation methodology chosen as further described in this section.

In order to obtain a current snapshot of the recreational uses of Biscayne Bay and their economic importance to the study areas, four surveys were conducted. These surveys are listed below.

- Biscayne Bay Users Survey – Residents
- Biscayne Bay Users Survey – Visitors
- General Resident Survey
- General Visitor Survey

The purposes of these surveys are to collect data on the recreational uses of Biscayne Bay and the expenditures associated with those uses. All questions address activities that have already taken place and expenditures that have already been incurred. The period of use and expenditures must have taken place within the past 12 months from the time the survey is completed. This information is necessary to estimate the 2004 recreational use of the Bay and the economic contribution of the Bay as it is used for recreation.

From the survey responses, the number of person-days of Biscayne Bay recreational use by activity for 2004 was estimated. The total itemized expenditures made by these recreators to participate in each activity in 2004 were also estimated using the survey responses. IMPLAN economic input-output models for Miami-Dade County, southeast Florida and Florida were used

2.0 Biscayne Bay-Dependent Recreation in 2004

to convert the total itemized expenditures for 2004 into the direct, indirect and induced output, income, employment and tax revenues generated in these three geographic areas. The results are presented by type of business and by type of impact (direct, indirect or induced).

The Biscayne Bay User Survey and the General Visitor Survey were intercept surveys where survey researchers were stationed in areas where visitors and Bay users are likely to be. People who met the survey criteria were asked to participate in an interview at that time. The survey researcher asked the respondent questions from the survey instrument and wrote down the answers. Rife Market Research, Inc. of Miami was in charge of implementing this survey and providing the survey researchers. All of the survey researchers lived in Miami-Dade County and most were fluent in both English and Spanish.

At the beginning of each survey season, the survey researchers participated in a one-day training session for these intercept surveys. During the survey period, the completed surveys were reviewed as they came in to identify and correct any survey errors. For all surveys, the responses to each survey were then reviewed to assess the consistency of the responses. Special questions on the surveys, such as the number of days spent at the Bay access sites, and a comparison of answers among the questions were used to “clean” the survey data so that the responses reflect the uses and expenditures associated with the Bay by primary activity. Six of the surveys were excluded from the analyses because inconsistencies could not be resolved. Overall, the completed surveys were of high quality in terms of the consistency of responses among the questions.

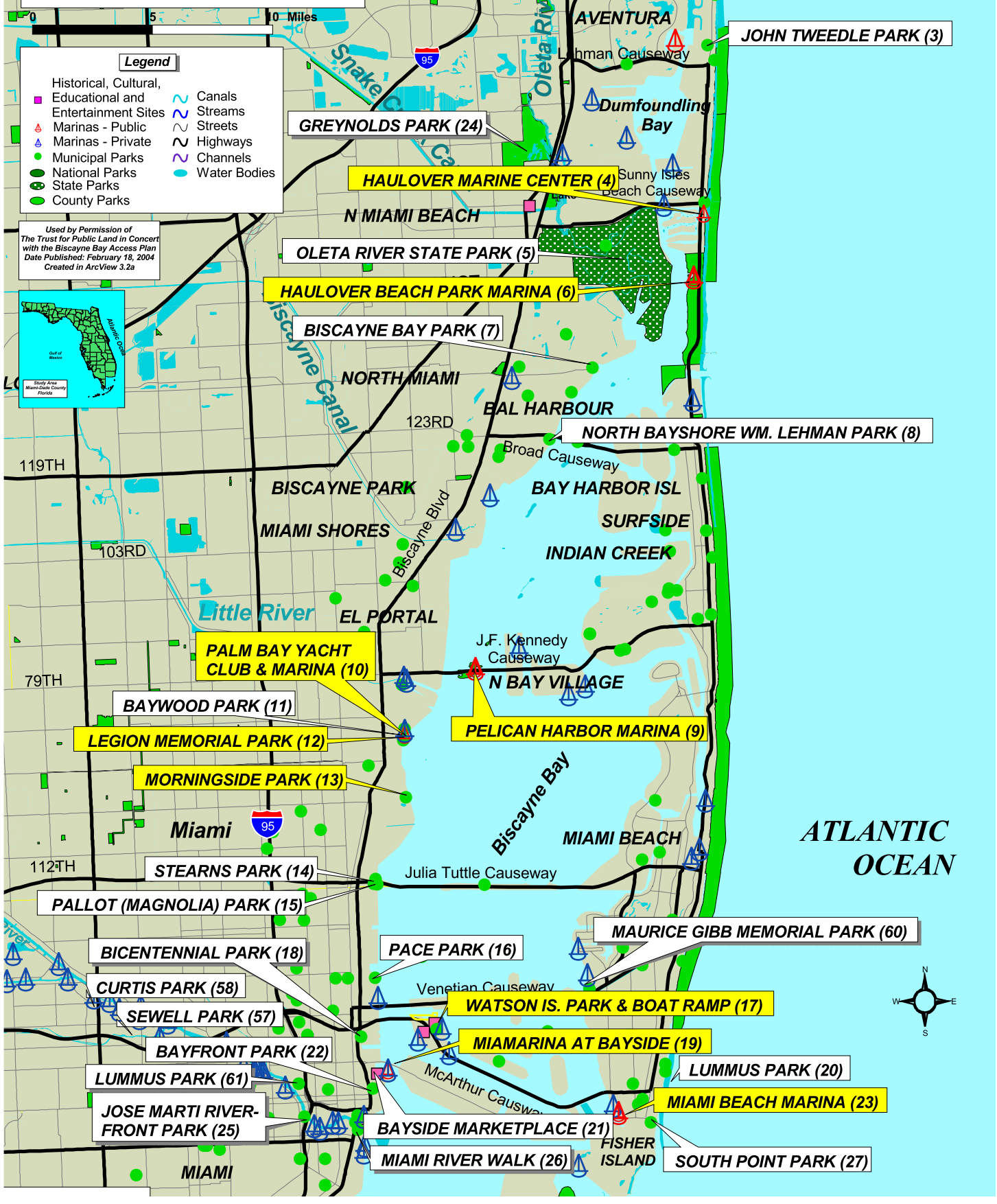
2.1 Biscayne Bay Users Intercept Survey

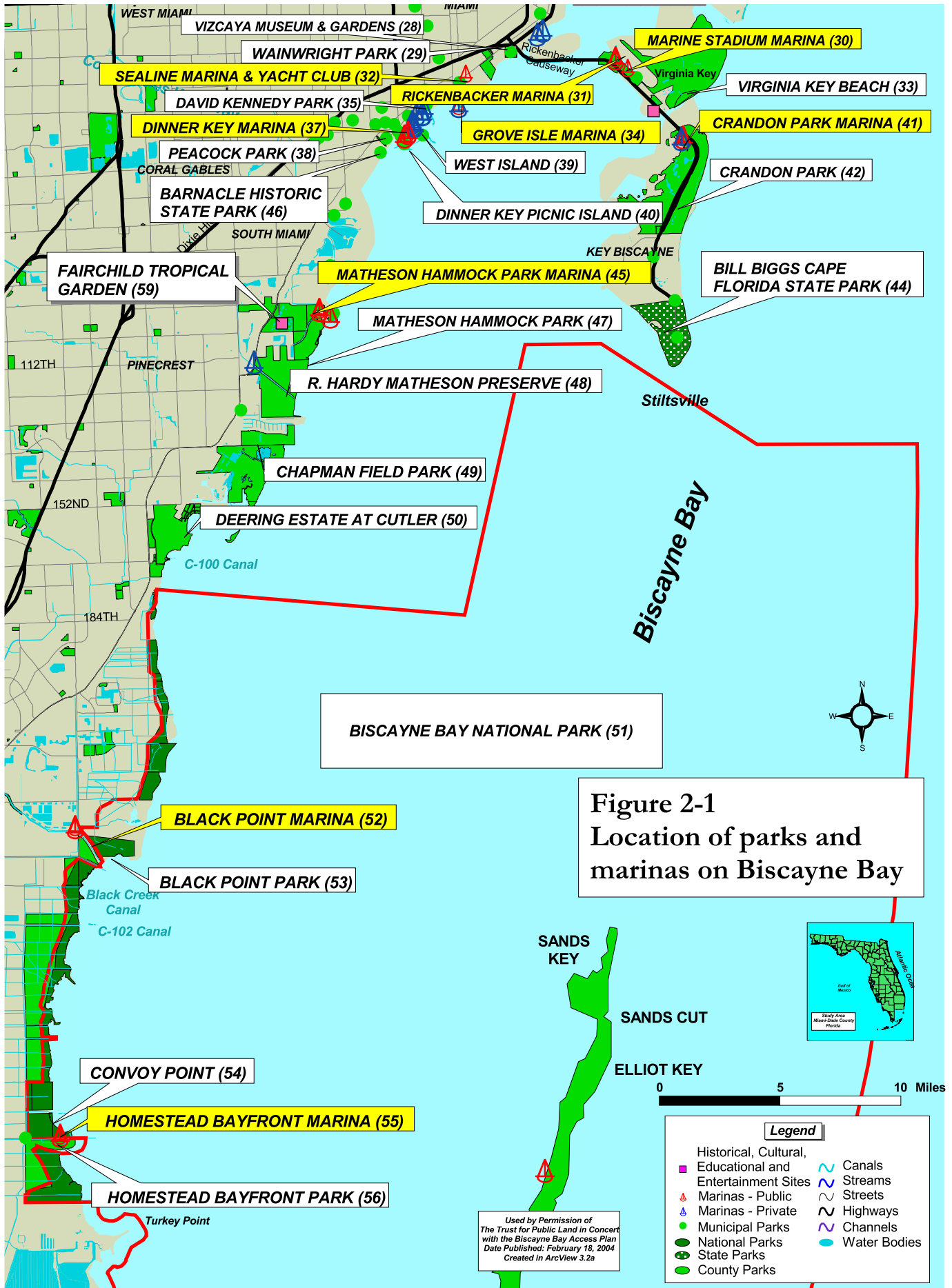
Of the four surveys, the Biscayne Bay Users Intercept Survey of residents and visitors collects the most information needed to estimate the current uses and economic contribution of the Bay. The intercept survey was conducted over two seasons, the winter/spring season and the summer season. This was done for two reasons: (1) to capture any differences in the uses of the Bay from season to season, and (2) to have sufficient time to make any necessary adjustments in survey research effort at the interview sites to obtain a representative sample. The winter survey was conducted from February 29, 2004 through May 4, 2004. The summer survey was conducted from July 1, 2004 through August 27, 2004.

There are two survey instruments for this survey: one for residents and one for visitors. Residents are those who live in Miami-Dade County and visitors are those who do not live in Miami-Dade County. Although there is a separate survey instrument for residents and visitors, most of the questions are the same. For visitors, their origin, purpose of visit, mode of travel, length of trip and number of years that they have been visiting Miami-Dade County are elicited. For residents, their residence zip code, length of residence in the county, and whether they own a registered boat in the county are solicited.

The questions common to both surveys solicit information on recreational uses of the Bay, person-days of use in the past 12 months by primary activity, expenditures on the last day spent in each activity on the Bay, impact of three management scenarios on the respondent’s use of the Bay and socioeconomic characteristics of the respondent. Both survey instruments are provided in Appendix A.

Figure 2-1
Location of parks and
marinas on Biscayne Bay





BISCAYNE BAY NATIONAL PARK (51)

Figure 2-1
Location of parks and
marinas on Biscayne Bay

Legend

- Historical, Cultural, Educational and Entertainment Sites
- Marinas - Public
- Marinas - Private
- Municipal Parks
- National Parks
- State Parks
- County Parks
- Canals
- Streams
- Streets
- Highways
- Channels
- Water Bodies

Used by Permission of
 The Trust for Public Land in Concert
 with the Biscayne Bay Access Plan
 Date Published: February 18, 2004
 Created in ArcView 3.2a



0 5 10 Miles

2.0 Biscayne Bay-Dependent Recreation in 2004

The number of completed Biscayne Bay User surveys is provided in Table 2.1-1. There are 608 completed resident surveys and 309 completed visitor surveys. The resident completed survey goal was higher than the visitor completed survey goal because of the belief that resident participation in recreation on Biscayne Bay is more intensive and diverse, so the available project budget was allocated accordingly.

**Table 2.1-1
Number of Completed Biscayne Bay User Intercept Surveys**

Survey Type	Winter Survey Feb. 29 to May 4, 2004	Summer Survey July 1 to August 27, 2004	Total
Residents	304	304	608
Visitors	151	158	309

All public access points to the Bay were included as an interview site. In addition, some private marinas and clubs allowed researchers access to private areas to survey Bay users. The number of interviews desired at each site for residents and visitors was based on a study of Miami-Dade County residents regarding their past use of the Bay¹ and observations of the survey researchers and project team members.

The number of persons intercepted during the Biscayne Bay Users Survey by interview site is provided in Table 2.1-2.² The survey response rate and the percent of completed surveys at each interview site are provided in Table 2.1-3. The percent of eligible persons who agreed to be interviewed among all sites was 35 percent or one out of three people. This response rate and the distribution of completed surveys among the sites (Column 5 of Table 2.1-3) provides a representative sample of Biscayne Bay recreational users at a given point in time.

**Table 2.1-2
Number of Persons Intercepted During Biscayne Bay Users Survey by Interview Site**

Interview Site	Doesn't Use Bay	Refusal	Language Barrier	Resident Surveyed	Visitor Surveyed
Bayside Marketplace	12	197	1	26	18
Bicentennial Park	2	76	0	11	14
Bill Baggs Cape Florida State Park	0	153	53	84	49
Biscayne Bay Park @ FIU	5	13	0	7	0
Blackpoint Park and Marina	12	51	22	56	14
Coconut Grove Sailing Club	0	10	0	7	6
Coral Reef Yacht Club	1	39	1	16	11

¹ "Measuring the Perception and Awareness of Biscayne Bay Among Miami-Dade Residents", prepared by Behavioral Science Research for The Trust for Public Land, Coral Gables, Florida, June 17, 2002, pages 14 and 15.

² Hazen and Sawyer, P.C. sincerely thanks the site owners who allowed the survey researchers to conduct voluntary interviews at their place of business. The table cited in this paragraph lists the sites whose owners provided permission.

2.0 Biscayne Bay-Dependent Recreation in 2004

Table 2.1-2 (continued)
Number of Persons Intercepted During Biscayne Bay Users Survey by Interview Site

Interview Site	Doesn't Use Bay	Refusal	Language Barrier	Resident Surveyed	Visitor Surveyed
Crandon Park Beach	0	16	0	8	7
Crandon Park Marina	1	31	1	19	2
Crandon Park Beach and Marina	1	95	13	45	26
Charles Deering Estate	1	6	2	4	5
David Kennedy Park	0	11	0	2	2
Dinner Key Marina	0	60	1	26	3
Greynolds Park	6	49	1	11	2
Haulover Park and Marina	27	87	14	20	17
Homestead Park and Marina	3	31	11	40	20
John Tweedle Park	4	12	0	4	0
Lincoln Road Mall	8	27	0	2	0
Lummus Park South Beach	17	88	7	14	7
Marine Stadium Marina	0	30	0	4	1
Matheson Hammock Park	7	106	22	44	22
Maurice Gibb Memorial Park	0	19	0	4	0
Miamarina	1	147	0	5	19
Miami Beach Marina	1	38	2	5	9
Miami Yacht Club	0	2	0	2	1
N. Bayshore W. Lehman Park	0	26	1	5	0
Oleta River State Park	0	17	2	25	14
Palm Bay Yacht Club and Marina	2	10	3	4	2
Pelican Harbor Marina	1	6	0	4	2
Redlands Country Club	0	0	0	3	0
Rickenbacker Beach and Marina	0	8	2	4	4
South Beach	3	1	0	0	2
South Point Park (South Beach)	3	50	3	11	3
The Barnacle Historic State Park	0	10	0	3	2
Watson Island Park & Boat Ramp	0	9	1	4	2
Alice Wainwright Park	0	5	1	4	2
Bayfront Park	0	11	0	3	1
Baywood Park	0	0	0	1	0
Chapman Field	2	8	0	4	2
Grove Isle Marina	0	4	0	4	1
Haulover Marine Center	2	80	9	22	5
Legion Memorial Park	0	0	2	0	0
Margaret Pace Park	0	14	3	3	1
Pallot Park	0	2	0	0	0
Peacock Park	0	11	0	4	2
Morningside Park	0	9	4	4	0
Unknown	0	0	0	30	9
Grand Total	122	1,675	182	608	309

2.0 Biscayne Bay-Dependent Recreation in 2004

Table 2.1-3
Number of Persons Surveyed, Response Rate and Percent Surveyed at Each Interview Site
Biscayne Bay Users Survey

Interview Site	Total - Surveyed and Refusals	Total Surveyed	% Response Rate	% Surveyed at Location
(1)	(2)	(3)	(4) = (3) / (2)	(5) = (3)/917
Bill Baggs Cape Florida State Park	286	133	47%	14.5%
Crandon Park Beach and Marina	166	71	43%	7.7%
Blackpoint Park and Marina	121	70	58%	7.6%
Matheson Hammock Park	172	66	38%	7.2%
Homestead Park and Marina	91	60	66%	6.5%
Bayside Marketplace	241	44	18%	4.8%
Oleta River State Park	56	39	70%	4.3%
Unknown (of sites listed here)	39	39	100%	4.3%
Haulover Park and Marina	124	37	30%	4.0%
Dinner Key Marina	89	29	33%	3.2%
Coral Reef Yacht Club	66	27	41%	2.9%
Haulover Marine Center	107	27	25%	2.9%
Bicentennial Park	101	25	25%	2.7%
Miamarina	171	24	14%	2.6%
Crandon Park Marina	52	21	40%	2.3%
Lummus Park South Beach	109	21	19%	2.3%
Crandon Park Beach	31	15	48%	1.6%
Miami Beach Marina	52	14	27%	1.5%
South Point Park (South Beach)	64	14	22%	1.5%
Coconut Grove Sailing Club	23	13	57%	1.4%
Greynolds Park	62	13	21%	1.4%
Charles Deering Estate	15	9	60%	1.0%
Rickenbacker Beach and Marina	16	8	50%	0.9%
Biscayne Bay Park @ FIU	20	7	35%	0.8%
Palm Bay Yacht Club and Marina	16	6	38%	0.7%
Pelican Harbor Marina	12	6	50%	0.7%
Watson Island Park & Boat Ramp	15	6	40%	0.7%
Alice Wainwright Park	11	6	55%	0.7%
Chapman Field	14	6	43%	0.7%
Peacock Park	17	6	35%	0.7%
Marine Stadium Marina	35	5	14%	0.5%
N. Bayshore W. Lehman Park	31	5	16%	0.5%
The Barnacle Historic State Park	15	5	33%	0.5%
Grove Isle Marina	9	5	56%	0.5%
David Kennedy Park	15	4	27%	0.4%
John Tweedle Park	16	4	25%	0.4%
Maurice Gibb Memorial Park	23	4	17%	0.4%
Bayfront Park	15	4	27%	0.4%

Table 2.1-3 (continued)
Number of Persons Surveyed, Response Rate and Percent Surveyed at Each Interview Site
Biscayne Bay Users Survey

Interview Site	Total - Surveyed and Refusals	Total Surveyed	% Response Rate	% Surveyed at Location
(1)	(2)	(3)	(4) = (3) / (2)	(5) = (3)/917
Margaret Pace Park	18	4	22%	0.4%
Morningside Park	13	4	31%	0.4%
Miami Yacht Club	5	3	60%	0.3%
Redlands Country Club	3	3	100%	0.3%
Lincoln Road Mall	29	2	7%	0.2%
South Beach	3	2	67%	0.2%
Baywood Park	1	1	100%	0.1%
Grand Total	2,592	917	35%	100.0%

2.2 General Visitor Intercept Survey

The purpose of the General Visitor Intercept Survey is to collect information needed to estimate the proportion of all visitors who use Biscayne Bay for recreation. This is needed to infer the Bay-related recreational user days and expenditure responses of visitors from the Biscayne Bay Users Survey to the population of visitors in Miami-Dade County. A visitor is a non-resident of Miami-Dade County and, in the case of seasonal residents, has not lived in the county for six months or more.

General visitors who did not use the Bay in the past 12 months were asked why they did not use the Bay. They were also asked if they would participate in recreational uses of the Bay under three management scenarios including the activities they would participate in and an estimate of how many days they would participate in each activity. These questions were included to assess the impact of Bay management scenarios on Bay uses which could be the focus of future research. The survey instrument is provided in Appendix B.

The General Visitor Survey was conducted during the same two time periods as the Biscayne Bay User Survey. The number of completed General Visitor surveys is provided in Table 2.2-1. There are 488 completed General Visitor surveys.

Table 2.2-1
Number of Completed General Visitor Intercept Surveys

Survey Type	Winter Survey	Summer Survey	Total
	Feb. 29 to May 4, 2004	July 1 to August 27, 2004	
Number of Completed General Visitor Surveys	238	250	488

In order to obtain a representative sample of general visitors, the primary sites where visitors were likely to be identified and site permissions were obtained. Because a variety of visitors who participate in all types of activities are concentrated at the Miami International

2.0 Biscayne Bay-Dependent Recreation in 2004

Airport,³ this site was chosen as the key location for the General Visitor Survey. The survey researchers were instructed to obtain about one-half of their completed surveys from the airport and the rest from a variety of popular visitor venues including South Beach and Bayside Marketplace. They came close to this goal as presented in Table 2.2-2 which is a tally of the number of surveys attempted and completed, the percent response rate and the percent surveyed at each interview site.⁴

Of the 488 completed surveys, 62 percent were completed at the Miami International Airport and 38 percent were completed at other visitor venues in the county. The overall survey response rate was 31 percent which is expected to provide a representative sample of all visitors to Miami-Dade County.

A person was administered the General Visitor Survey if he/she was a visitor to Miami-Dade County, was leaving the county before noon the next day and agreed to be interviewed. This is the explanation for the second, third and fourth columns of Table 2.2-2. The survey researchers were instructed not to complete this survey for anyone who had also just completed a Biscayne Bay User Survey in order to avoid sampling bias toward those who use the Bay.

2.3 General Resident Survey

The purpose of the General Resident Survey is to gather information to estimate the following parameters:

1. Percent of all Miami-Dade County residents who used the Bay for recreation in the past 12 months by type of recreation activity;
2. For residents who have not used the Bay in the past 12 months, the reasons why these residents did not use the Bay;
3. The impact of three management scenarios on recreational uses of the Bay; and,
4. Socioeconomic characteristics of the Miami-Dade County resident population disaggregated by those who used the Bay in the past 12 months and those who did not use the Bay in the past 12 months.

³ Hazen and Sawyer would like to thank the Miami International Airport for their permission to survey passengers in the airline terminals. The areas available to the survey researchers appeared to provide sufficient access to visitors from all over the world. The success of this survey is due to this site permission.

⁴ Hazen and Sawyer, P.C. sincerely thanks the site owners who allowed the survey researchers to conduct voluntary interviews at their place of business. The table cited in this paragraph lists the sites whose owners provided permission.

2.0 Biscayne Bay-Dependent Recreation in 2004

**Table 2.2-2
Number of Persons Intercepted, Percent Response Rate and Percent Surveyed by Location During General Visitor Survey by Interview Site**

Interview Site	Permanent Resident	Airport Transfer	Non-Exit Visitor	Refusal	Language Barrier	Visitors Surveyed	Total - Surveyed and Refusals	% Response Rate	% Surveyed at Location
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)+(7)	(9)=(7)/(8)	(10)=(7)/488
Bayfront Park	10	0	18	18	0	4	22	18%	0.82%
Bayside Marketplace	64	0	58	51	12	26	77	34%	5.33%
Bicentennial Park	0	0	3	2	0	1	3	33%	0.20%
Bill Baggs Cape Florida State Park	0	0	0	0	0	19	19	100%	3.89%
Blackpoint Park and Marina	0	0	0	0	6	5	5	100%	1.02%
Chapman Field	0	0	0	0	0	1	1	100%	0.20%
Crandon Park and Marina	0	0	0	0	0	5	5	100%	1.02%
Haulover Park and Marina	13	0	8	20	0	6	26	23%	1.23%
Homestead Park and Marina	0	0	0	0	0	3	3	100%	0.61%
Lincoln Road Mall	10	0	17	51	0	2	53	4%	0.41%
Lummus Park South Beach	48	0	53	64	0	23	87	26%	4.71%
Matheson Hammock Park	0	0	0	0	2	6	6	100%	1.23%
Miamarina	0	0	9	21	0	4	25	16%	0.82%
Miami Beach Marina	0	0	0	0	0	2	2	100%	0.41%
Miami International Airport	555	492	386	695	111	304	999	30%	62.30%
Oleta River State Park	0	0	0	0	0	1	1	100%	0.20%
South Beach	174	0	202	176	3	73	249	29%	14.96%
Unknown (of sites listed here)	0	0	0	0	0	3	3	100%	0.61%
Grand Total	874	492	754	1,098	134	488	1,586	31%	100.00%

2.0 Biscayne Bay-Dependent Recreation in 2004

The General Resident Survey was a mail survey to a sample of households in Miami-Dade County. The survey questions were designed to be answered for all members of the household. The names and mailing addresses of all residents in Miami-Dade County were obtained from InfoUSA, Inc. This company collects the names and addresses of residents from a variety of sources, including telephone listings, government records and mailing lists, and sells this information to the public. A sample of 2,000 residents was selected from this population. The sample was stratified based on zip code to account for differences in travel time to the Bay and socioeconomic characteristics. Samples were chosen based on the percent of all residents who live in each zip code. The 2000 population of Miami-Dade County residents by zip code and the proportion of the population in each zip code are provided in Appendix C.

The cover letter, survey instrument and attachments were provided in English and Spanish. The resident was asked to fill out either survey. These documents in English are provided in Appendix D of this report. A no postage necessary business reply envelope was also included in the survey package.

The 2,000 surveys were mailed to residents from May 5th through May 10th, 2004. As of October 1, 2004, 92 completed surveys were received and 168 were returned undeliverable for a response rate of 5.0 percent. The completed surveys represent 240 residents. Such a low response rate calls into question the extent to which the information in the completed surveys represents the population of residents.⁵

The most important statistics needed from this survey are the proportions of county residents who used the Bay for recreation in the past 12 months by type of activity. They are needed to infer the results of the Biscayne Bay Users Survey to the population of residents. Each statistic is a simple yes or no answer. Therefore, the 92 completed surveys can be used to estimate the proportion of county residents who used the Bay in the past 12 months by activity as long as the respondents who completed these surveys represent the county resident population.

To assess the extent to which the survey responses represent the population of county residents, the distributions of survey respondents and the resident population with respect to three characteristics were compared. Two of the characteristics are expected to affect recreational uses of the Bay. These are (1) household location relative to the Bay and (2) household income. Ethnicity was also compared because of the ethnic diversity of the population. If the survey respondents as a group do not represent the population of residents for characteristics that may affect recreational use of the Bay, then the survey responses are weighted by the population distribution of the characteristic that most influences recreational use of the Bay.

To test the extent to which the sample represents the county resident population, the proportions of respondents by geographic area of the county were compared to the proportions of all county residents who live in each area. Location is hypothesized to affect the intensity of Bay use

⁵ Response rates to mail surveys are typically low. However, they are useful for collecting needed information when the budget does not allow for a general resident intercept survey.

2.0 Biscayne Bay-Dependent Recreation in 2004

because those living in the western part of the county would have to travel longer to reach the Bay than those in the east.

The results for location are presented in Table 2.3-1.

**Table 2.3-1
Location of Respondents and Residents in Miami-Dade County**

Location	% of Completed Surveys	% of County Population
East	45%	36%
West	55%	64%
Total	100%	100%
Northeast	24%	19%
Southeast	21%	18%
Northwest	9%	25%
Southwest	47%	38%
Total	100%	100%

Note: The coordinates for NE, SE, NW and SW are as follows: The east/west delineation is Interstate 95 and then, going south, SR 836 to NW 27th Avenue to US 1. The north/south delineation is Interstate 195 that turns into SR 112 and then turns into SR 948.

For both the eastern county and the western county, the completed surveys are reasonably representative of the county population: 45 percent of the survey respondents came from residents who live in the eastern part of the county while 36 percent of all residents actually live in the eastern part of the county. Likewise, 55 percent of the survey respondents live in the western part of the county while 64 percent of all residents live in the western part of the county. In evaluating the quadrants, northeast, southeast, northwest, and southwest, the northwest is underrepresented in the sample.

The proportion of residents in the county who used the Bay in the past 12 months was calculated from the 92 completed surveys. The proportion was also calculated for the northeast, southeast, northwest, and southwest areas of the county. The results are presented in Table 2.3-2.

**Table 2.3-2
Proportion of Miami-Dade County Resident Respondents Who Participated in Recreation Activities on Biscayne Bay in Past 12 Months, Overall and By Location**

Location	Number of Yeses	Total Respondents at Location	Percent of Respondents Who Said Yes
Northeast	11	22	50%
Southeast	11	19	58%
Northwest	4	8	50%
Southwest	24	43	56%
Total or Overall Average	50	92	54%

2.0 Biscayne Bay-Dependent Recreation in 2004

Overall, 54 percent of the Miami-Dade County residents surveyed used the Bay for recreation at least once in the past 12 months. The percentages are similar for all four location quadrants, ranging from 50 percent to 58 percent. The percentages by activity were used in this study.

The median household income of the survey respondents is \$55,000 while the median household income of the county population is \$38,000. The ethnicity of the respondents compared to that of the resident population is provided in Table 2.3-3. The survey respondent is more likely to be non-Hispanic white than a resident randomly chosen from the general population. Non-Hispanic black residents are underrepresented in the sample.

**Table 2.3-3
Ethnicity of Miami-Dade County Residents and
General Resident Survey Respondents**

Ethnicity	Miami-Dade County		General Resident Survey	
	2000 Population (a)	Percent of Population	Number	Percent of Sample
Hispanic Origin	1,291,737	57%	30	34%
White Not Hispanic	465,772	21%	54	61%
Black Not Hispanic	427,140	19%	1	1%
Other Not Hispanic	68,713	3%	3	3%
Total	2,253,362	100%	88	100%

(a) From Miami-Dade County Planning and Zoning Department website.

Thus, while the sample appears to be representative of the population in terms of location, it is not representative in terms of income or ethnicity. Thus, the survey responses should be weighted either by income or by ethnicity. Because income typically plays a larger role in recreation activity than ethnicity, the sample was weighted so that the answers represent the population in terms of income. It turns out that the percent participation by activity is similar for all or most of the activities when the responses are weighted by income or by ethnicity or not weighted at all. The comparison is provided in Table 2.3-4. The weighting of the responses and the confidence intervals for percent participation by activity is further discussed later on in this section.

2.4 Biscayne Bay-Related Recreational Uses and Expenditures and Economic Contribution Associated With Visitors – Overall Methodology

The methods used to estimate Bay-related recreational uses and expenditures by visitors and the economic contribution of these uses are summarized as follows.

1. Estimate the number of person-trips of all visitors to Miami-Dade County in 2004 using the Capacity Utilization Model, the responses to the General Visitor Survey, and other available data.
2. Estimate the number of person-trips spent by visitors who used the Bay for recreation using (1) above and responses to the General Visitor Survey.

Table 2.3-4
Percent of Miami-Dade County Residents who Participated in Biscayne Bay Related Activities, 2004
(From General Resident Mail Survey)

Activity	Percentages Weighted by Ethnicity			Percentages Weighted by Income			No Weighting of Sample
	Non-Hispanic Residents	Hispanic Residents	Weighted by Ethnicity (a)	Weighted by Hhd Income (b)	Residents with Hhd Income <= \$40,000/yr	Residents with Hhd Income > \$40,000 /yr	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fishing	23.9%	16.6%	19.7%	16.0%	6.3%	25.7%	21.2%
Snorkeling	12.0%	13.5%	12.8%	10.7%	6.3%	15.0%	12.9%
SCUBA Diving	7.5%	4.1%	5.6%	6.9%	8.4%	5.4%	5.8%
Swimming	52.4%	51.8%	52.0%	44.7%	29.4%	60.0%	52.5%
Boating for Pleasure	33.7%	35.2%	34.6%	25.9%	8.4%	43.4%	35.4%
Water Skiing	3.7%	8.3%	6.3%	3.5%	0.0%	7.0%	5.4%
Parasailing	1.5%	0.0%	0.6%	0.5%	0.0%	1.1%	0.8%
WindSurfing	3.0%	1.0%	1.9%	1.3%	0.0%	2.7%	2.1%
KiteSailing	2.2%	2.1%	2.1%	1.3%	0.0%	2.7%	2.1%
Personal Watercraft	3.0%	14.5%	9.6%	4.8%	0.0%	9.7%	7.5%
Sailing	9.0%	2.1%	5.0%	4.5%	2.1%	7.0%	5.8%
Canoeing or Kayaking	6.0%	14.5%	10.8%	7.5%	4.2%	10.7%	9.2%
View the Bay from Shore	38.9%	43.5%	41.5%	28.9%	8.4%	49.3%	40.0%
Sunset Cruise	5.2%	4.1%	4.6%	2.9%	0.0%	5.9%	4.6%
Glass Bottom Boating	3.0%	0.0%	1.3%	1.9%	2.1%	1.6%	1.7%
Picnicking on Bay	19.4%	40.4%	31.4%	19.8%	6.3%	33.2%	27.1%
Number of Households (c)	58	30	88	91	21	70	93
Number of Residents	134	97	230	234	48	187	240

(a) Proportions by ethnicity weighted 57% Hispanic and 43% Non-Hispanic. This is the distribution of the county's resident population.

(b) Proportions by income weighted 50% for household income less than or equal to \$40,000 per year and 50% for household income greater than \$40,000 per year. This is the distribution of the county's resident population.

(c) On five surveys, the race/ethnicity questions were not answered, so these surveys were not used in the weighting. On two surveys, the income question was not answered, so these surveys were not used in the weighting.

2.0 Biscayne Bay-Dependent Recreation in 2004

3. Estimate the total number of person-days Bay-using visitors spent visiting the county in 2004 using information from (2) above and responses to the Biscayne Bay User Survey.
4. Estimate the proportion of person-days Bay-using visitors spent in each Bay-related recreation activity in 2004 from the responses to the Biscayne Bay Users Survey.
5. Estimate the number of person-days spent in each recreation activity using (3) and (4) above.
6. Calculate the average itemized expenditures per person-day by recreation activity from responses to the Biscayne Bay Users Survey.
7. Estimate the total 2004 itemized expenditures by recreation activity using (5) and (6) above.
8. Estimate the 2004 expenditures for big-ticket items purchased and used while recreating on the Bay such as boats, boat repair and maintenance, and equipment using the Biscayne Bay User Survey responses and allocate the expenditures to days when the item is used on the Bay.
9. Use the IMPLAN regional economic input-output model to estimate the direct, indirect and induced output, income, employment and tax revenues generated by these Bay-related expenditures (Items (7) and (8) above).
10. Quality control the data and results at each step by assessing the consistency of the survey responses among the survey questions and by comparing the results to available data from other sources.

The following sub-sections describe each step in the list above.

2.5 Visitor Person-Trips to Miami-Dade County

The total number of person-trips by all visitors to the county was estimated using the Capacity Utilization Model. The model uses the following information. The number of hotel/motel rooms in Miami-Dade County as of August 2004 is from the Florida Department of Business and Professional Regulation database. The county's monthly hotel/motel occupancy rate from August 2003 to July 2004 is from the Greater Miami Convention and Visitors Bureau. The model also requires estimates of average party size for those using hotel and motel accommodations, the average trip length in nights for those staying in hotels/motels, and the proportion of visitors who stay in hotels/motels. This information was obtained from the General Visitor Survey responses.

2.0 Biscayne Bay-Dependent Recreation in 2004

The equation for the Capacity Utilization Model is as follows.

$$\begin{aligned}
 &\text{Total Number of Person-Trips by All Visitors to the County During a Season} = \\
 &\quad (\text{Average Daily Hotel/Motel Occupancy Rate} \times \text{Number of Hotel/Motel} \\
 &\quad \text{Rooms} \times \\
 &\quad 183 \text{ Days in the Season} \times \text{Average Persons per Room for those Using} \\
 &\quad \text{Hotels/Motels}) \\
 &\quad \text{divided by} \\
 &\quad \text{Average Trip Length in Nights for those staying in Hotels/Motels} \\
 &\quad \text{divided by} \\
 &\quad \text{Proportion of Visitors who stay at Hotels/Motels}
 \end{aligned}$$

There are two seasons: summer and winter. Summer is from June to November and winter is from December to May. The results of this model for the summer and winter seasons are provided in Table 2.5-1.

Table 2.5-1
Number of Visitor Person-Trips To Miami-Dade County in 2004
Using Capacity Utilization Model

Variable	Summer	Winter
(1) Hotel/Motel Occupancy Rate ^a	0.632	0.728
(2) Average Number of Hotel/Motel Rooms in 2004 ^b	49,394	49,394
(3) Number of Days in Season	183	183
(4) Average Persons per Room for those using hotels/motels ^c	2.31	3.13
(5) Average Trip Length in Nights for those staying in hotels/motels ^d	7.41	6.05
(6) Proportion of Visitors who stay at hotels/motels ^e	0.43	0.55
(7) Estimated Number of Person-Trips by Visitors who used hotels/motels (7) = (1) x (2) x (3) x (4) / (5)	1,777,186	3,396,009
(8) Estimated Total Number of Person-Trips by All Visitors to County (8) = (7) / (6)	4,116,106	6,172,378
(9) Total Number of Visitor Person-Trips to County		10,288,484

^a Greater Miami Convention and Visitors Bureau, September 2004. Summer months are August 2003 to November 2003 and June 2004 to July 2004. Winter months are December 2003 to May 2004.

^b From Florida Department of Business and Professional Regulation database, August 2004.

^c From General Visitor Survey responses to Questions 1 and 15.

^d General Visitor Survey responses to Question 13.

^e From General Visitor Survey responses to Question 13 and Question 14. Denominator includes person trips by day trippers.

2.0 Biscayne Bay-Dependent Recreation in 2004

In 2004, 10.3 million visitor person-trips were taken to Miami-Dade County, including day trips of those who live in nearby counties. This compares to 12.6 million visitor person-trips in 2000 estimated during the Socio-Economic Study of Reefs in Southeast Florida.⁶ The Miami-Dade County Convention and Visitor's Bureau estimates that 10.2 million overnight visitor person-trips were taken in 2002⁷. Unfortunately, the county and the State do not know the number or proportion of visitors who visit the county for only one day. The proportion of visitors was estimated from the responses to the General Visitor Survey and the Biscayne Bay User Survey.

Calculating the parameter values of the Capacity Utilization Model using the General Visitor Survey data was straightforward except for the proportion of visitors who stayed in hotels/motels. Visitors to the county include those who stay overnight and those who only spend the day (called day trippers). The proportion of day trippers surveyed in 2004 was only two percent of all respondents while the proportion measured in 2000 for the southeast Florida reef study cited above was 30 percent even though the numbers and proportions of people surveyed at the airport versus the other sites were the same.

The proportion of visitors who are day trippers is not available from the county or the Greater Miami Convention and Visitor's Bureau. The only other estimate of the proportion of day trippers was from the Biscayne Bay User Survey and this value is 18 percent. After much consideration, it was decided that the 0.18 proportion would be used in this study. The proportion of all visitors staying at hotels/motels and the home of family and friends from the general visitor survey responses were adjusted downward based on their relative sizes so that the percentages for all accommodations and the day trippers sum to 1.0.

The proportions are provided in Table 2.5-2. Thus, the estimated percentages of visitors to the county who stay at hotels and motels are 43 percent in the summer and 55 percent in the winter. If these proportions were to increase, then the number of visitor person-trips to the county would be lower than that reported here. If these proportions were to decrease, the number of visitor person-trips to the county would be higher than that reported here.

⁶ Hazen and Sawyer in association with Florida State University and NOAA, "Socioeconomic Study of Reefs in Southeast Florida", Final Report prepared for Broward County, Florida, Fort Lauderdale, October 19, 2001, page 2-27.

⁷ Synovate Miami, "2002 Profile of Overnight Visitors to Greater Miami and the Beaches", prepared for the Greater Miami Convention and Visitors Bureau, Miami, Florida, pages 2 and 20

Table 2.5-2
Proportion of General Visitor Respondents by Accommodation
Miami-Dade County, Florida

Accommodation	Summer	Winter	Both Seasons
Day Trippers	0.18	0.18	0.18
1. Hotel/Motel/Guest House/Bed & Breakfast	0.43	0.55	0.49
2. Home of Family/Friends	0.32	0.21	0.26
3. Campground	0.00	0.00	0.00
4. Condominium or Second Home (own)	0.02	0.03	0.02
5. Vacation Rental or Time Share	0.03	0.03	0.03
6. Other	0.01	0.01	0.01
Total	1.00	1.00	1.00
No. of Respondents	250	238	488

Source: Question 14 of General Visitor Survey (Where did you stay on this trip?). The percent of day trippers was taken from the Biscayne Bay User Survey responses.

While not used in this study, the General Visitor Survey provides the information needed to estimate the number of person-days visitors spent in the county. To estimate the number of person-days, the number of person-trips, as presented on the last row of Table 2.5-1 was distributed to the different types of accommodation modes and day-trippers using the proportions presented in Table 2.5-2. Then, for each accommodation mode and the day-trippers, the number of person-trips was multiplied by average number of days per trip from the General Visitor Survey. The average number of days per trip by accommodation is provided in Table 2.5-3. Then the number of person-days by accommodation mode was summed over all accommodation modes.

The numbers of visitor person-trips to Miami-Dade County and the number of person-days visitors spent in the county are presented in Table 2.5-4. These visitors include those who stayed overnight and day trippers and do not include commuters to work and those just passing through the county via the roads or the airport. In 2004, visitors took 10.3 million trips to Miami-Dade County and stayed a total of 79.5 million person-days. Thus, there were 218,000 visitors in Miami-Dade County on an average day (79.5 million person-days / 365 days per year).

**Table 2.5-3
Average Number of Days Per Trip by Accommodation By
Visitors In Miami-Dade County - 2004 - From General
Visitor Survey**

Accommodation	Summer	Winter
Day Trippers	1.00	1.00
Hotel/Motel/Guest House/Bed & Breakfast	7.41	6.13
Home of Family and Friends	9.44	12.05
All Other Accommodations ^a	11.83	32.13

^a All Other Accommodations include campground, condo or second home, vacation rental, time share and boat. During the winter survey, five out of 15 people in the sample stayed from 19 to 89 days which explains the large average number of days per trip.

Source: General Visitor Survey responses to Question 8 (On this trip, how many nights have you spent in this county?).

**Table 2.5-4
Visitation in Miami-Dade County - Year 2004**

Item	Number		
	Summer	Winter	Total
Person-Trips	4,120,000	6,170,000	10,290,000
Person-Days	29,700,000	49,790,000	79,490,000
Item	Percent		
	Summer	Winter	Total
Person-Trips	40%	60%	100%
Person-Days	37%	63%	100%

2.6 Visitor Person-Trips for Those Who Used Biscayne Bay for Recreation

The number of visitor person-trips to the county for those who used Biscayne Bay for recreation is the product of the total number of visitor person-trips to the county described in Section 2.5 and the proportion of visitors who used the Bay for recreation. This proportion is derived from the responses to the General Visitor Survey. The number of visitor person-trips when the Bay was used for recreation was divided into visitor person-trips when the only recreation activity was viewing the Bay from shore and visitor person-trips when the Bay was used for other types of Bay-related recreation. This distinction made the quality control process easier because trips and person-days where the visitors only viewed the Bay from shore is a relatively large proportion of Bay-related recreation and tends to overwhelm the other activities if added together. The calculations are provided in Table 2.6-1 and are explained as follows.

Recreation Other Than Viewing the Bay From Shore. During the summer, 40 percent of 4.1 million visitor person-trips included Bay-related recreation other than viewing the Bay from shore. During the winter months, 52 percent of 6.2 million visitor person-trips involved these

2.0 Biscayne Bay-Dependent Recreation in 2004

activities. As a result, 4.9 million visitor person-trips included Bay-related recreation other than viewing the Bay from the shore. Thus, 48 percent of all visitor person-trips to Miami-Dade County included recreation on Biscayne Bay other than viewing the Bay from shore (4.9 million person-trips / 10.3 million person-trips).

Viewing the Bay From Shore Only. During the summer, 17 percent of 4.1 million visitor person-trips included viewing the Bay from shore with no other Bay-related recreation activity. During the winter months, 20 percent of 6.2 million visitor person-trips involved this activity. As a result, 2.0 million visitor person-trips included viewing the Bay from the shore as the only Bay-related recreation activity. Thus, 19 percent of all visitor person-trips to Miami-Dade County included viewing the Bay from shore as the only Bay-related recreation activity (2.0 million person-trips / 10.3 million person-trips).

All Bay-Related Activities. From the calculations of Table 2.6-1, about 6.8 million person-trips were taken by visitors who used the Bay for recreation sometime during their trip. Thus, 66 percent of all visitor person-trips to Miami-Dade County included Bay-related recreation activities (6.8 million person-trips / 10.3 million person-trips).

**Table 2.6-1
Person-Trips of Visitors To Miami-Dade County Who Used Biscayne Bay
for Recreation in 2004**

Item	Summer	Winter	Total
(1) Total Person Trips to County - All Visitors	4,120,000	6,170,000	10,290,000
(2) Proportion of Person Trips Taken By Visitors Who Used Bay for Recreation Other than Viewing the Bay from Shore ^a	0.40	0.52	0.48
(3) Number of Person Trips When Visitor Used the Bay For Activities Other than Viewing Bay from Shore (3) = (1) x (2)	1,664,480	3,214,622	4,879,102
(4) Proportion of Person Trips Taken By Visitors Who Did No Other Bay-Related Activity Except Viewing the Bay from Shore while dining, shopping, jogging, strolling ^a	0.17	0.20	0.19
(5) Number of Person Trips When Visitor Used the Bay For No Activities Except Viewing Bay from Shore (5) = (1) x (4)	708,640	1,244,370	1,953,010
(6) Number of Person Trips When Visitor Used the Bay for Recreation (6) = (3) + (5)	2,373,120	4,458,992	6,832,112

^a From General Visitor Survey. Number of yes answers to Question 20 excluding those respondents who only Viewed the Bay from Shore (In the past 12 months, have you participated in any of the Biscayne Bay-related activities listed on this card?) divided by total number of respondents.

2.7 Visitor Person-Days Spent in Each Recreation Activity

The next step is to convert the visitor person-trips when the Bay was used for recreation into the number of person-days spent in each recreation activity in 2004.

First, an estimate of the number of person-days Bay-using visitors spent in the county was calculated as the number of person-trips when the Bay was used for recreation times the average nights per trip taken from the General Visitor Survey responses of visitors who used the Bay for recreation. This calculation is provided in Table 2.7-1 beginning with Row 1 and is explained as follows.

The numbers of visitor person-trips when the Bay was used for recreation activities other than viewing the Bay from shore and when the visitor only viewed the Bay from shore are from Table 2.6-1, Rows 3 and 5 and are also provided in Row 1 of Table 2.7-1. These numbers were multiplied by the average nights per trip for visitor Bay users taken from the General Visitor Survey. This provides an estimate of the total person-days Bay-using visitors spent visiting the county in year 2004. About 46.5 million person-days were spent in the county by visitors who participated in Bay-related recreation activities other than viewing the Bay from shore. About 18.6 million person-days were spent by visitors who participated in no other Bay-related recreation except viewing the Bay from shore.

Next, using the responses of the visitors who completed the Biscayne Bay User Survey, the proportion of total days spent in the county that was spent in each activity was calculated. The total days all the visitor respondents spent in the county in 2004 was 5,608 for those who participated in at least one Bay-related recreation activity other than viewing the Bay from shore and 522 for those visitors who only viewed the Bay from shore.⁸ The number of days these respondents spent in each recreation activity was calculated from the Biscayne Bay User Survey responses and divided by the total number of days these respondents spent in the county (5,608 or 522). These calculations are provided in Table 2.7-2, Columns 2 and 3.

Then the number of person-days visitors spent in each recreation activity was calculated as the total number of person-days Bay-using visitors spent in the county times the proportion of these person-days spent in each activity as provided in Column 3 of Table 2.7-2. The results of this calculation are provided in Column 4 of Table 2.7-2.

From these calculations, visitors spent 35.7 million person-days participating in Bay-related recreation activities in 2004 (last row of Table 2.7-2). Of these person-days, 6.8 million were spent viewing the Bay from shore by visitors who participated in no other Bay-related recreation except viewing the Bay from shore. Another 3.8 million person-days were spent viewing the Bay from shore by visitors who participated in other Bay-related recreation activities (see italicized line in Table 2.7-2). An estimated 25.1 million person-days were spent in all other Bay-related recreation activities (28.9 million minus 3.8 million). The locations within Biscayne Bay where visitors participated in Bay-related recreation by activity are provided in Section 2.18.

⁸ Total Person-Days in County in past 12 months spent by Biscayne Bay User Visitor Respondents (Question 6 of Biscayne Bay Users Survey (Visitors) summed over all survey respondents)

**Table 2.7-1
Calculation of Total Person-Days Bay-Using Visitors
Spent Visiting Miami-Dade County in Year 2004**

Row	Description of Information	Activities Other Than Viewing Bay from Shore	Viewing Bay from Shore Only
1	Total Visitor Person-Trips When Biscayne Bay Was Used in 2004 - Population	4,879,102	1,953,010
2	Average nights per trip for visitor Bay users. ^a	9.54	9.54
3	Total Person-Days Bay-Using Visitors Spent Visiting the County in Year 2004 (Row 3 = Row 1 x Row 2)	46,535,994	18,627,455

^a Average of General Visitor Survey Question 13 responses for respondents who participated in Bay-related activities. The average trip length from the Biscayne Bay User Visitor survey responses was 10.7 nights per trip which is similar to the average from the General Visitor Survey.

The average number of days that visitors participated in each activity in the past 12 months for those who participated in that activity is provided in Table 2.7-3. The average days fishing from a boat of 12 days in 2004 is consistent with the average fishing days of residents in Miami-Dade County as reported in Milon (1993)⁹. According to the Milon study, 15 fishing trips per person were taken by residents in Miami-Dade County. There is no other comparable statistic that can be used to assess the results of this visitor survey.

The 12 days for glass bottom boating is from one visitor and is too high. The participation information on glass bottom boating obtained from this one visitor was not used in this study. Instead, the only concession in the county that provides glass bottom boat tours was consulted to obtain an estimate of the number of person-days spent glass bottom boating in the county in 2004. This estimate is 5,000 person-days. One-half of this value was allocated to visitors and the other half was allocated to residents.

⁹ J. Walter Milon and Eric M. Thunberg, "A Regional Analysis of the Current and Future Florida Resident Participation in Marine Recreational Fishing", Florida Sea Grant College Program, SGR-112, May 1993, pages 1-6 and 3-7.

2.0 Biscayne Bay-Dependent Recreation in 2004

**Table 2.7-2
Number of Visitor Person-Days Spent Participating in Biscayne Bay-Related Activities, 2004**

Activity (1)	No. of Days Respondents Participated ^a (2)	Proportion of All Visiting Days ^b (3) = (2) / 5,608 or 522	No. of Person Days - Population ^c (4) = (3) x 46.5 m or 18.6 m
Fishing from Shore	60.83	0.0108	504,806
Fishing from Boat	619.28	0.1104	5,138,887
Snorkeling from Shore	35.35	0.0063	293,326
Snorkeling from Boat	100.65	0.0179	835,217
Scuba Diving from Shore	0.00	0.0000	0
Scuba Diving from Boat	60.25	0.0107	499,960
Swimming from Shore	746.88	0.1332	6,197,751
Swimming from Boat	198.34	0.0354	1,645,867
Boating for Pleasure/Partying	321.49	0.0573	2,667,787
Water-skiing	3.40	0.0006	28,247
Parasailing	2.34	0.0004	19,458
Windsurfing	1.00	0.0002	8,298
Kite Sailing	2.00	0.0004	16,596
Personal Watercraft Boating	13.70	0.0024	113,716
Sailing	480.33	0.0857	3,985,841
Canoeing / Kayaking	28.81	0.0051	239,043
<i>Viewing the Bay from Shore (By Participants in Other Activities)</i>	459.22	0.0819	3,810,653
Sunset Cruise	40.13	0.0072	332,978
Glass Bottom Boat Tour (d)	1.00	0.0002	2,500
Picnicking on Biscayne Bay	306.99	0.0547	2,547,409
Sub-Total	3,482	0.6209	28,888,341
Viewing the Bay from Shore (By Those Who Did Not Participate in Other Activities)	190.00	0.3640	6,780,108
Total			35,668,449

^a Of 309 respondents who completed the Biscayne Bay User Survey - Visitors.

^b For all respondents, except respondents who only Viewed the Bay from Shore, the proportion of Total Visiting Days by Activity equals Total Days by Activity reported by all Bay-using visitor respondents other than Viewing Bay from Shore Only (Questions 12 to 14 of BBUS - Visitors) divided by Total Days Spent in Miami-Dade County in past 12 months by Bay-using visitor respondents other than Viewing Bay from Shore Only (Question 6 of BBUS - Visitors equal to 5,608 days). For those who only Viewed the Bay from Shore, the same equation is used except that only the days corresponding to respondents who only Viewed the Bay from the Shore were used (190 days divided by 522 days).

^c For all activities except Viewing the Bay from Shore Only, the Number of Person-days Visitors Spent Participating in each Activity is equal to the Total Person-days Bay-Using Visitors (other than Viewing the Bay from Shore only) Spent Visiting the County in Year 2004 (46.5 million person-days from Table 2.7-1) times the Proportion of Total Visiting Days by Activity (Column 5). For Viewing the Bay from Shore Only, the same equation is used except that the total Bay-viewing days of visitors who only viewed the Bay on their trip is equal to the total number of days these visitors visited the county in the past 12 months (18.6 million person-days from Table 2.7-1) times the proportion of days these visitors viewed the Bay (0.3640).

^d Number of person-days from Biscayne Underwater Park concession which provides only opportunity to ride glass bottom boat in county. Represents 1/2 of 5,000 person-days spent on glass bottom boats or island touring. The other 1/2 allocated to residents.

Table 2.7-3
Average Days Spent Participating in Biscayne Bay
Activities in the Past 12 Months for Those Who
Participated in the Activity (a)

Activity	Average (Mean)	Sample Size
Fishing from Boat	12	51
Fishing from Shore	5	13
Snorkeling from Boat	5	18
Snorkeling from Shore	2	17
SCUBA Diving	7	9
Swimming from Boat	7	26
Swimming from Shore	5	163
Boating for pleasure	5	61
Water Skiing	2	2
Parasailing	1	2
Wind Surfing	1	1
Kite Sailing	2	1
Personal watercraft boating	2	7
Sailing	17	29
Canoeing / Kayaking	3	8
Viewing the Bay from shore	4	157
Sunset Cruise (b)	6	14
Glass Bottom Boat Tour	12	1
Picnicking on the Bay	3	78

(a) From Biscayne Bay User Survey - Visitors.

(b) The sunset cruise can be either a charter or a private boat.

2.8 Visitor Daily Expenditures to Participate in Bay-Related Recreation

The Biscayne Bay User Survey asked respondents to state the amount of money they spent in the county for Bay-related goods and services on the last day that they used the Bay for each type of recreation activity.¹⁰ To avoid double-counting expenditures, survey researchers were directed to enter the expenditures under the “predominant” activity in which the respondent participated during that day. The respondent was also asked how many people spent or benefited from those expenditures.

The average itemized expenditures by type of expenditure and recreation activity per person per day are provided in Table 2.8-1. The expenditures for each item were averaged over all those

¹⁰ For the purposes of estimating the economic contribution of Biscayne Bay to counties outside of Miami-Dade County we could have asked respondents to tell us what they spent in other counties outside of Miami-Dade County to participate in Biscayne Bay-related recreation (other than the “Big Ticket” items which are included in this study). However, such expenditures would be relatively small and would make the survey longer and more complicated. The differences in expenditures within Miami-Dade County, southeast Florida and Florida should only reflect differences in expenditures for the “Big Ticket” items to be discussed in the next sub-section.

2.0 Biscayne Bay-Dependent Recreation in 2004

who reported expenditures for that activity, even if some respondents did not spend any money on that item. For example, a visitor fishing the Bay from a motor boat spent, on average, \$64 that day on Bay-related goods and services. Of this amount, \$12 was spent on boat fuel, \$12 was spent on food and beverages at stores, \$8 was spent on food and beverages at restaurants and bars, \$7 was spent on boat rentals, such as charter boats, \$7 was spent on shopping and sundries, \$5 was spent on lodging and \$13 was spent on other items. This information was obtained from 50 respondents representing 156 people in the fishing parties. These results are consistent with expenditure estimates of other recreation studies.

The lodging expenditure item includes lodging cost for hotels and motels or if the respondent paid by the day or by the week for other accommodations. The \$4.66 expenditure per night per person is lower than what one would expect to pay for lodging because it is the average expenditure among all respondents, including those who stayed with family or friends and those who are day trippers.

The amount of money spent on automobile gasoline is difficult to obtain from survey respondents. For this survey, it appeared that the responses were too high. As a result, \$0.28 per person per day was used for all activities. This value was obtained by assuming that, on average, 10 miles round trip is driven in a car with a fuel efficiency of 18 miles per gallon at \$1.50 per gallon and three people per car.

These expenditures per person per day were multiplied by the number of person-days spent in each activity to obtain an estimate of total visitor expenditures associated with Bay-related recreation in 2004. These total expenditures by activity are presented in Table 2.8-2. In 2004, visitors spent about \$2 billion on Biscayne Bay recreation-related goods and services other than “big ticket” items to be discussed in the next section.

Table 2.8-1
Average Itemized Biscayne Bay-Related Expenditures in Miami-Dade County
Per Person Per Day by Visitors – 2004

Expenditure Item	Fishing	Fishing	Dive/ Snorkel	Dive/Snorkel from
	From Motor Boat	From Shore	From Motor Boat	Shore
Boat fuel	\$11.59	\$0.00	\$13.45	\$0.00
Tackle, bait, and/or ice	\$4.56	\$4.39	\$0.00	\$0.59
Boat Rental	\$6.65	\$0.00	\$10.65	\$0.00
Equipment Rental	\$3.27	\$0.00	\$4.35	\$0.29
Ramp, Marina and Parking Fees	\$2.57	\$0.50	\$2.90	\$0.47
Park Entrance Fees	\$0.45	\$1.89	\$0.00	\$0.74
Lodging (per night)	\$4.66	\$5.71	\$8.06	\$0.00
Camping fees (per night)	\$0.00	\$0.79	\$0.00	\$0.00
Food and Beverages – Stores	\$11.96	\$7.04	\$6.71	\$6.03
Food and Beverages – Restaurants/Bars	\$7.98	\$1.79	\$8.71	\$6.03
Auto gas	\$0.28	\$0.28	\$0.28	\$0.28
Auto Rental, Taxi, Bus fares	\$2.17	\$3.71	\$1.61	\$0.00
Shopping and Sundries	\$7.38	\$6.14	\$3.23	\$3.53
Total	\$63.53	\$32.24	\$59.96	\$17.95
People in Party	156	28	31	34
Number of Respondents	50	13	13	11

Expenditure Item	Swimming	Boating for pleasure/ partying	Waterski / Parasail / Windsurf / Kite Sail	Personal Watercraft Boating
	Boat fuel	\$1.13	\$9.66	\$2.89
Tackle, bait, and/or ice	\$0.10	\$1.71	\$0.00	\$0.00
Boat Rental	\$0.00	\$9.98	\$10.79	\$12.19
Equipment Rental	\$0.00	\$0.05	\$14.74	\$20.50
Ramp, Marina and Parking Fees	\$0.32	\$4.17	\$1.95	\$0.00
Park Entrance Fees	\$0.96	\$0.13	\$0.05	\$0.06
Lodging (per night)	\$6.56	\$12.42	\$5.26	\$41.50
Camping fees (per night)	\$0.05	\$0.00	\$0.00	\$0.00
Food and Beverages – Stores	\$6.25	\$8.80	\$5.00	\$4.69
Food and Beverages – Restaurants/Bars	\$7.35	\$23.18	\$14.74	\$37.06
Auto gas	\$0.28	\$0.28	\$0.28	\$0.28
Auto Rental, Taxi, Bus fares	\$3.98	\$3.18	\$1.05	\$12.00
Shopping and Sundries	\$2.03	\$9.33	\$1.58	\$8.44
Total	\$29.00	\$82.89	\$58.33	\$137.97
People in Party	475	197	19	16
Number of Respondents	142	61	10	8

Table 2.8-1, continued
Average Itemized Biscayne Bay-Related Expenditures in Miami-Dade County
Per Person Per Day by Visitors – 2004

Expenditure Item	Canoe/Kayak/ Sail	Viewing the Bay From Shore / Picnicking	Sunset Cruise	Glass Bottom Boat Tour
Boat fuel	\$1.04	\$0.01	\$5.91	\$0.00
Tackle, bait, and/or ice	\$0.08	\$0.09	\$0.00	\$0.00
Boat Rental	\$2.05	\$0.01	\$13.12	\$20.00
Equipment Rental	\$3.23	\$0.04	\$0.00	\$0.00
Ramp, Marina and Parking Fees	\$4.32	\$0.63	\$1.97	\$0.00
Park Entrance Fees	\$0.20	\$0.97	\$0.61	\$0.00
Lodging (per night)	\$16.58	\$10.45	\$27.88	\$42.50
Camping fees (per night)	\$0.00	\$0.00	\$0.00	\$0.00
Food and Beverages – Stores	\$10.42	\$5.26	\$6.97	\$0.00
Food and Beverages – Restaurants/Bars	\$14.71	\$17.63	\$17.27	\$31.50
Auto gas	\$0.28	\$0.28	\$0.28	\$0.28
Auto Rental, Taxi, Bus fares	\$6.88	\$4.37	\$4.55	\$17.50
Shopping and Sundries	\$3.63	\$19.75	\$6.67	\$5.00
Total	\$63.42	\$59.47	\$85.22	\$116.78
People in Party	104	660	33	2
Number of Respondents	40	222	14	1

2.0 Biscayne Bay-Dependent Recreation in 2004

**Table 2.8-2
Total Itemized Biscayne Bay-Related Expenditures of Visitors
to Miami-Dade County by Recreation Activity – 2004**

Expenditure Item	Fishing	Fishing From Shore	Dive/ Snorkel	Dive/Snorkel from Shore
	From Motor Boat		From Motor Boat	
Boat fuel	\$59,575,000	\$0	\$17,960,000	\$0
Tackle, bait, and/or ice	\$23,438,000	\$2,218,000	\$0	\$173,000
Boat Rental	\$34,160,000	\$0	\$14,213,000	\$0
Equipment Rental	\$16,800,000	\$0	\$5,814,000	\$86,000
Ramp, Marina and Parking Fees	\$13,226,000	\$252,000	\$3,876,000	\$138,000
Park Entrance Fees	\$2,306,000	\$956,000	\$0	\$216,000
Lodging	\$23,949,000	\$2,885,000	\$10,768,000	\$0
Camping fees	\$0	\$397,000	\$0	\$0
Food and Beverages – Stores	\$61,453,000	\$3,552,000	\$8,959,000	\$1,769,000
Food and Beverages – Restaurants/Bars	\$41,029,000	\$901,000	\$11,629,000	\$1,769,000
Auto gas	\$1,427,000	\$140,000	\$371,000	\$81,000
Auto Rental, Taxi, Bus fares	\$11,167,000	\$1,875,000	\$2,154,000	\$0
Shopping and Sundries	\$37,949,000	\$3,101,000	\$4,307,000	\$1,035,000
Total	\$326,479,000	\$16,277,000	\$80,051,000	\$5,267,000

Expenditure Item	Swimming	Boating for pleasure / partying	Waterski /	Personal Watercraft Boating
			Parasail / Windsurf / Kite Sail	
Boat fuel	\$8,867,000	\$25,784,000	\$210,000	\$142,000
Tackle, bait, and/or ice	\$793,000	\$4,550,000	\$0	\$0
Boat Rental	\$0	\$26,637,000	\$783,000	\$1,386,000
Equipment Rental	\$0	\$135,000	\$1,070,000	\$2,331,000
Ramp, Marina and Parking Fees	\$2,543,000	\$11,118,000	\$141,000	\$0
Park Entrance Fees	\$7,497,000	\$352,000	\$4,000	\$7,000
Lodging	\$51,438,000	\$33,124,000	\$382,000	\$4,719,000
Camping fees	\$413,000	\$0	\$0	\$0
Food and Beverages – Stores	\$48,985,000	\$23,468,000	\$363,000	\$533,000
Food and Beverages – Restaurants/Bars	\$57,622,000	\$61,833,000	\$1,070,000	\$4,215,000
Auto gas	\$2,179,000	\$741,000	\$20,000	\$32,000
Auto Rental, Taxi, Bus fares	\$31,205,000	\$8,491,000	\$76,000	\$1,365,000
Shopping and Sundries	\$15,931,000	\$24,890,000	\$115,000	\$959,000
Total	\$227,473,000	\$221,123,000	\$4,234,000	\$15,689,000

Table 2.8-2, continued
Total Itemized Biscayne Bay-Related Expenditures of Visitors
to Miami-Dade County by Recreation Activity – 2004

Expenditure Item	Canoe/Kayak/ Sail	Picnicking (a)	Viewing Bay From Shore (a)	Sunset Cruise
Boat fuel	\$4,387,000	\$23,000	\$96,000	\$1,968,000
Tackle, bait, and/or ice	\$325,000	\$228,000	\$947,000	\$0
Boat Rental	\$8,653,000	\$19,000	\$80,000	\$4,369,000
Equipment Rental	\$13,650,000	\$112,000	\$465,000	\$0
Ramp, Marina and Parking Fees	\$18,240,000	\$1,594,000	\$6,627,000	\$656,000
Park Entrance Fees	\$853,000	\$2,462,000	\$10,238,000	\$202,000
Lodging	\$70,036,000	\$26,609,000	\$110,625,000	\$9,283,000
Camping fees	\$0	\$0	\$0	\$0
Food and Beverages – Stores	\$44,036,000	\$13,397,000	\$55,698,000	\$2,321,000
Food and Beverages – Restaurants/Bars	\$62,155,000	\$44,910,000	\$186,710,000	\$5,751,000
Auto gas	\$1,174,000	\$708,000	\$2,942,000	\$92,000
Auto Rental, Taxi, Bus fares	\$29,087,000	\$11,129,000	\$46,266,000	\$1,514,000
Shopping and Sundries	\$15,356,000	\$50,315,000	\$209,184,000	\$2,220,000
Total	\$267,952,000	\$151,506,000	\$629,878,000	\$28,376,000

Expenditure Item	Glass Bottom Boat Tour	Total (b)
Boat fuel	\$0	\$119,013,000
Tackle, bait, and/or ice	\$0	\$32,670,000
Boat Rental	\$166,000	\$90,468,000
Equipment Rental	\$0	\$40,464,000
Ramp, Marina and Parking Fees	\$0	\$58,413,000
Park Entrance Fees	\$0	\$25,092,000
Lodging	\$353,000	\$344,169,000
Camping fees	\$0	\$809,000
Food and Beverages – Stores	\$0	\$264,533,000
Food and Beverages – Restaurants/Bars	\$261,000	\$479,854,000
Auto gas	\$2,000	\$9,910,000
Auto Rental, Taxi, Bus fares	\$145,000	\$144,473,000
Shopping and Sundries	\$41,000	\$365,403,000
Total	\$968,000	\$1,975,271,000

(a) These expenditures were calculated by multiplying person-days in each activity by the average expenditure per person per day for both viewing the Bay from shore and picnicking.

(b) Numbers may not sum to total due to rounding.

2.9 Visitor Expenditures for “Big-Ticket” Items Needed to Recreate on Biscayne Bay

Many recreators use their own boats and equipment to recreate on Biscayne Bay. They also spend money to maintain and repair their boats. Purchases within the county, the region or the state contribute to the economy in terms of output, income, employment and tax revenues. The expenditures on “big ticket” items that were used to recreate on Biscayne Bay were estimated using the responses to the Biscayne Bay Users Survey. The survey asked respondents if they purchased any goods or services in Florida in the past 12 months that they needed to participate in Biscayne Bay-related recreation activities. If they said that they did, they were asked to list the type of good or service, the amount of money spent, the county or city in Florida where the purchase was made and the average days per year that the good or service is used or enjoyed. These are questions 17 and 18 of the visitor’s survey.

Each respondent's expenses for these items were divided by the days per year that the good or service is used, as provided by the respondent, to begin to prorate the purchase over the different uses of the good or services (Bay versus ocean versus lake uses). Then these adjusted expenses were added over all respondents and divided by the number of people in all the respondents' parties for those respondents who participated in a Bay-related boating activity (365 people in all the parties). The exception is equipment where the number of people who participated in all activities other than viewing the Bay and picnicking on Bay was used (688 people). This provides the average purchase per person-day of activity.

The results of these calculations are provided in Table 2.9-1, columns 2 through 4. For example, the average visitor boater using Biscayne Bay spent \$0.06 per person per day of boat use to purchase a boat in southeast Florida in 2004. Because all of the boats purchased by the respondents in 2004 were purchased in southeast Florida, this same \$0.06 per person per day of boat use was spent in Florida.

The itemized expenditures per person per day were then multiplied by the 15.2 million person-days spent in all types of boating on Biscayne Bay in 2004 to obtain an estimate of the amount of money spent on these “big-ticket” items in each study area in 2004. The exception is equipment, where the 22.5 million person-days spent in all Bay-related recreation activities other than picnicking and viewing the Bay from shore was used. These calculations are provided in columns (5), (6) and (7). As presented in Table 2.9-1, visitors spent \$63 million in Miami-Dade County in 2004 on boat purchases, boat maintenance and repair, and recreational equipment that is attributable to Biscayne Bay. About \$64 million was spent in southeast Florida and about \$73 million was spent in Florida.

These are the values attributable to Biscayne Bay. The total sales of these “Big Ticket” items in Miami-Dade County is the sum of sales generated due to Biscayne Bay, sales generated due to the Atlantic Ocean and other water bodies, sales generated from income created by local export industries, and sales generated due to the competitive advantage of the goods and services (better value for the money). In this Biscayne Bay Economic Study, only the sales generated due to the uses of the Bay are presented.

2.0 Biscayne Bay-Dependent Recreation in 2004

The 309 Bay-using visitors to Miami-Dade County that were surveyed did not purchase any boats in Miami-Dade County to participate in Biscayne Bay-related recreation. This is not to say that no Bay-using visitor ever purchased a boat in Miami-Dade County to participate in Bay-related recreation – we just didn't find one in this sample.

In Table 2.9-1, there are three items called “boat repair”, “boat maintenance”, and “boat maintenance and repair”. When respondents answered “Big Ticket” expenditures questions, some respondents aggregated what they spent for “boat maintenance and repair”, and other respondents listed “boat maintenance” and “boat repair” separately. The itemization of the values associated with “boat maintenance”, “boat repair” and “boat maintenance and repair” in Table 2.9-1 are additive. One is not a subset of another.

Table 2.9-1
Visitor Purchases of “Big Ticket” Items in Florida Needed to Participate in Biscayne Bay-Related Activities

Expense Item	Average Purchase Over Past 12 Months Per Person Per Day of Boat or Equipment Use During a Year (a)			Total Purchases of Participants in Biscayne Bay-Related Recreation Pro-Rated Over Use on Bay, 2004 (b)		
	Florida	Southeast Florida	Miami-Dade County	Florida	Southeast Florida	Miami-Dade County
(1)	(2)	(3)	(4)	(5) = (2) x (A or B)	(6) = (3) x (A or B)	(7) = (4) x (A or B)
Boat Purchase	\$0.06	\$0.06	\$0.00	\$940,000	\$940,000	\$0
Boat Maintenance	\$1.26	\$1.22	\$1.21	\$19,259,000	\$18,662,000	\$18,418,000
Boat Repair	\$0.51	\$0.43	\$0.42	\$7,767,000	\$6,622,000	\$6,361,000
Boat Maintenance and Repair (c)	\$2.81	\$2.40	\$2.40	\$42,829,000	\$36,561,000	\$36,561,000
Replace Boat Parts	\$0.01	\$0.01	\$0.00	\$105,000	\$106,000	\$0
Equipment (snorkeling, diving, fishing, skiing, sailing)	\$0.08	\$0.05	\$0.05	\$1,884,000	\$1,229,000	\$1,229,000
Boat Towing	\$0.00	\$0.00	\$0.00	\$0	\$0	\$0
Total	\$4.73	\$4.18	\$4.08	\$72,783,000	\$64,119,000	\$62,569,000
Number of Person-Days For Boating Activities (A):						15,248,500
Number of Person-Days For All Activities Except Viewing Bay and Picnicking on Bay (B):						22,536,076

(a) Each respondent's expenses for these items were divided by the days per year that the good or service is used, as provided by the respondent, to begin to prorate the purchase over the different uses of the good or services (Bay versus Ocean versus Lake uses) (See Questions 17 and 18 of Visitors - Biscayne Bay User Intercept Survey). Then these adjusted expenses were added over all respondents and divided by the number of people in all the respondents' parties who participated in a Bay-related boating activity (365 people). The exception is equipment where the number of people who participated in all activities other than viewing the Bay and picnicking on Bay was used (688 people). This provides the average purchase per person day of activity.

(b) (A) was used for all items except equipment where (B) was used.

(c) Many respondents combined boat maintenance activities with boat repair activities when answering the survey regarding their expenditures. These combined responses are provided in this row of the table. All rows relating to boat maintenance and/or boat repair are additive.

2.10 Economic Contribution Associated with Biscayne Bay-Related Expenditures By Visitors

Expenditures by visitors generate output, income, tax revenues and jobs within the industries that supply Bay-related goods and services, such as charter / party boat operations, grocery stores, restaurants and hotels. These industries are called direct industries. In addition, these expenditures create multiplier effects wherein additional output, income, tax revenues, and employment are created as the income earned by the Bay-related industries and their employees is re-spent within the county. These additional effects of Bay-related expenditures are called indirect and induced. Indirect effects are generated as the Bay-related industries purchase goods and services from other industries in the county. Induced effects are created when the employees of the direct and indirect industries spend their money in the county.

For visitors, the direct, indirect and induced economic contribution of Biscayne Bay-related recreation was estimated using the estimated itemized Bay-related expenditures presented in Table 2.8-2 and Table 2.9-1 as input to the IMPLAN regional economic input-output model. This computer model simulates the supply of and demand for goods and services within a county or within groups of counties. It allows the user to estimate the extent to which new investments or increases in demand affect a region's economy in terms of output, income, tax revenues, and employment. IMPLAN stands for Impact Analysis for PLANning. The input-output data represents 2000 economic conditions.

The IMPLAN model uses detailed data on the economy of the county or groups of counties to estimate economic multipliers and to model the impact of Bay-related recreation expenditures on the economy. The IMPLAN Model was used to convert these expenditures into estimates of direct, indirect and induced output, income, tax revenues and employment generated within Miami-Dade County, southeast Florida¹¹ and Florida. The itemized expenditures were matched to industries that are included in the IMPLAN model as summarized in Table 2.10-1. Biscayne Bay-related expenditures by visitors were \$2.04 billion in Miami-Dade County and southeast Florida and \$2.05 billion in Florida in 2004.

Boat purchases, and boat maintenance and repair expenditures were assigned to IMPLAN Sector 451 - Automotive Dealers and Service Stations. This sector includes county-wide data for cars, boats and recreational vehicles. IMPLAN does not provide a breakout of the data by type of motor vehicle but the entire county is covered. It does not include boat yards. Boat yards are included under IMPLAN Sector 436 – Water Transportation. Boat maintenance and boat repair services and boat parts manufacturing are scattered over many IMPLAN sectors and SIC codes. After much consideration, IMPLAN Sector 451 - Automotive Dealers and Service Stations was chosen as the most representative of the labor and capital mix of the boat maintenance service industry, and the boat dealer industry. IMPLAN Sector 436 – Water Transportation is too broad to use for boat maintenance and does not include boat sales.

¹¹ Southeast Florida includes Palm Beach, Broward, Miami-Dade and Monroe counties.

Table 2.10-1
Itemization of Visitor Biscayne-Bay Related Expenditures Applied to IMPLAN Model Sectors, 2004

Expenditure Item	IMPLAN Sector	Value of Expenditures (a)		
		Miami-Dade County	Southeast Florida	Florida
Bait, Tackle, Ice, Ramp, Marina and Parking Fees, Boat Towing	436 Transportation - Water	\$91,083,000	\$91,083,000	\$91,083,000
Food and Beverages – Stores	450 Food Stores (Commodity)	\$264,533,000	\$264,533,000	\$264,533,000
Boat Purchase, Boat Maintenance and Repair	451 Automotive Dealers and Service Stations (includes boats)	\$54,979,000	\$56,163,000	\$63,028,000
Auto Gas and Boat Fuel	201 Refined Petroleum (Industry)	\$128,923,000	\$128,923,000	\$128,923,000
Food and Beverages - Restaurants/Bars	454 Eating and Drinking	\$479,854,000	\$479,854,000	\$479,854,000
Shopping	455 Miscellaneous Retail (Commodity)	\$366,632,000	\$366,632,000	\$367,287,000
Lodging, Camping Fees	463 Hotels and Lodging	\$344,978,000	\$344,978,000	\$344,978,000
Auto Rental, Taxi, Bus Fares	477 Auto Rental and Leasing	\$144,473,000	\$144,473,000	\$144,473,000
Boat and Equipment Rental, Park Entrance Fees	488 Amusement and Recreational Services	\$156,024,000	\$156,024,000	\$156,024,000
Boat Repair and Replacement Parts	393 Boat Building and Repairing (SIC 3732)	\$6,361,000	\$6,726,000	\$7,871,000
Total	All IMPLAN Sectors	\$2,037,841,000	\$2,039,390,000	\$2,048,055,000

(a) Values are rounded to nearest \$1,000.

2.0 Biscayne Bay-Dependent Recreation in 2004

The economic contribution of Biscayne Bay-related recreation as visitors to Miami-Dade County participate in Bay-related recreation activities and spend the amount of money as indicated in Table 2.10-1 is provided in Table 2.10-2. The output contribution is defined as the value of the additional goods and services produced in the county due to the Bay-related expenditures. The total income contribution is defined as the sum of employee compensation, proprietor's income, interest, rents, and profits generated as a result of the Bay-related expenditures. Income is the money that stays in the county's economy. The employment contribution is the number of full-time and part-time jobs created due to the Bay-related expenditures. The tax revenue contribution is the sum of the additional excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related expenditures. It excludes taxes on profit and income because this value is already accounted for in the income category.

Table 2.10-2
Economic Contribution of Biscayne Bay-Related Expenditures by Visitors to Miami-Dade County, 2004 (a)

Study Area	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Miami-Dade County	\$3,251,000,000	\$1,825,000,000	48,000	\$203,000,000
Southeast Florida	\$3,448,000,000	\$1,953,000,000	49,000	\$217,000,000
Florida	\$3,982,000,000	\$2,252,000,000	55,000	\$246,000,000

^a Includes direct, indirect and induced effects.

^b Output is defined as the value of the additional goods and services produced in the study area due to the Bay-related recreation expenditures.

^c Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the Bay-related recreation expenditures.

^d Employment includes the number of full-time and part-time jobs created due to the Bay-related recreation expenditures.

^e Tax revenue is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related recreation expenditures. It excludes taxes on profit and income.

In 2004, visitor expenditures associated with Biscayne Bay-related recreation created \$3.3 billion in output, \$1.8 billion in income, 48,000 jobs, and \$203 million in tax revenues within Miami-Dade County. Within southeast Florida, \$3.5 billion in output, \$2 billion in income, 49,000 jobs and \$217 million in tax revenues were generated. Within Florida, \$4 billion in output, \$2.3 billion in income, 55,000 jobs, and \$246 million in tax revenues were generated.

2.11 Biscayne Bay-Related Recreational Uses and Expenditures of Residents and Economic Contribution – Overall Methodology

The methods used to estimate Bay-related recreational uses and expenditures by residents and the economic contribution of these uses are summarized as follows.

1. Estimate the percent of Miami-Dade County residents who used Biscayne Bay for recreation in 2004 in total and by activity using the results of the General Resident Survey.

2.0 Biscayne Bay-Dependent Recreation in 2004

2. Estimate the number of person-days residents spent participating in Biscayne Bay-related recreation using the results from (1) above and the responses to the Biscayne Bay User Survey regarding the number of days spent in each activity over the past 12 months.
3. Calculate the average itemized expenditures per person-day by recreation activity from responses to the Biscayne Bay Users Survey.
4. Estimate the total itemized expenditures by recreation activity using (2) and (3) above.
5. Estimate the 2004 expenditures for big-ticket items purchased and used while recreating on the Bay such as boat purchases, boat repair and maintenance, and equipment using the Biscayne Bay User Survey responses. Allocate the expenditures to days when the item is used on the Bay.
6. Use the IMPLAN regional economic input-output model to estimate the direct, indirect and induced output, income, employment and taxes generated by these Bay-related expenditures (Items (4) and (5) above).
7. Quality control the data and results at each step by assessing the consistency of the survey responses among the survey questions and by comparing the results to available data from other sources.

The following sub-sections describe each step in the list above.

2.12 Percent of Miami-Dade County Residents Who Used the Bay for Recreation

From the responses to the General Resident Mail Survey, 47 percent of Miami-Dade County residents used the Bay for recreation in 2004. To obtain this estimate, the survey responses were weighted by the distribution of household income in the county. For those respondents who used the Bay in 2004, the percent who participated in each recreation activity was calculated.

The results are presented in Table 2.12-1. For resident respondents with household income less than or equal to \$40,000 per year, 29 percent used the Bay for recreation in 2004. For respondents with household income greater than \$40,000 per year, 64 percent used the Bay for recreation in 2004. The population estimate of the percent of residents who used the Bay for recreation in 2004 is the weighted average of 29 percent and 64 percent where the weights are 50 percent and 50 percent to reflect the fact that the median household income in the county is about \$40,000 per year. Thus, 47 percent of Miami-Dade County residents used Biscayne Bay for recreation in 2004 ($0.50 \times 0.29 + 0.50 \times 0.64$).¹² The method of weighting the participation rates by activity was identical to this method.

¹² This result is lower than the results of the 2002 study titled, "Measuring the Perception and Awareness of Biscayne Bay Among Miami-Dade Residents" by the Trust for Public Land, Coral Gables, Florida. According to this study, 75 percent of residents surveyed visited the Biscayne Bay area at least once during the time they lived in the county. (page ii) This is a much longer time frame than the 12-month window used in this Biscayne Bay Economic Study.

2.0 Biscayne Bay-Dependent Recreation in 2004

Table 2.12-1
Percent of Miami-Dade County Residents who Participated in Biscayne Bay Related Activities, 2004 (Used in Developing Person-Day Estimates by Activity)

Activity	Hhd Income <= \$40k/yr	Hhd Income > \$40k/yr	Weighted by Household Income (a)
(1)	(2)	(3)	(4)
% of All Residents (b)			
All Activities	29.36%	64.34%	46.85%
Of Residents Who Used Bay in Past 12 Months, % Participating by Activity			
Fishing from Boat	14.3%	32.5%	23.4%
Fishing from Shore	21.4%	15.8%	18.6%
Snorkeling from Boat	7.1%	21.7%	14.4%
Snorkeling from Shore	14.3%	5.0%	9.6%
SCUBA Diving from Boat	14.3%	4.2%	9.2%
SCUBA Diving from Shore	0.0%	0.0%	0.0%
Swimming from Boat	7.1%	28.3%	17.7%
Swimming from Shore	42.9%	28.3%	35.6%
Boating for Pleasure	14.3%	34.2%	24.2%
Water Skiing	0.0%	9.2%	4.6%
Parasailing	0.0%	1.7%	0.8%
Wind Surfing	0.0%	3.3%	1.7%
Kite Sailing	0.0%	4.2%	2.1%
Personal watercraft boating	0.0%	11.7%	5.8%
Sailing	7.1%	10.0%	8.6%
Canoeing / Kayaking	14.3%	15.0%	14.6%
Viewing the Bay from Shore	28.6%	71.7%	50.1%
Sunset Cruise	0.0%	7.5%	3.8%
Glass Bottom Boat Tour	7.1%	2.5%	4.8%
Picnicking on the Bay	21.4%	45.8%	33.6%
Number of Households	21	70	91
Number of Residents	48	187	235

(a) Proportions by income weighted 50% for household income less than or equal to \$40,000 per year and 50% for household income greater than \$40,000 per year. Median household income in Miami-Dade County is about \$40,000 per year.

(b) From General Resident Mail Survey answers to questions 4, 5, 6, and 7. Based on responses of 91 households and the activities of 234 household members. Of these 91 households, 47% used the Bay for one or more recreation activities and 53% did not use the Bay for recreation activities in the past 12 months.

Table 2.12-2
Confidence Intervals for Percent of Resident Population Participating in
Each Activity (a)

Activity	% Participation Used in Study	Error of Estimation (b)	95% Confidence Interval (c)	
All Activities	47.0%	10.2%	36.8%	57.2%
Fishing from Boat	23.4%	8.7%	14.7%	32.1%
Fishing from Shore	18.6%	8.0%	10.6%	26.6%
Snorkeling from Boat	14.4%	7.2%	7.2%	21.6%
Snorkeling from Shore	9.6%	6.0%	3.6%	15.6%
SCUBA Diving	9.2%	5.9%	3.3%	15.1%
Swimming from Boat	17.7%	7.8%	9.9%	25.5%
Swimming from Shore	35.6%	9.8%	25.8%	45.4%
Boating for pleasure	24.2%	8.8%	15.4%	33.0%
Water Skiing	4.6%	4.3%	0.3%	8.9%
Parasailing	0.8%	1.8%	0.0%	2.6%
Wind Surfing	1.7%	2.6%	0.0%	4.3%
Kite Sailing	2.1%	2.9%	0.0%	5.0%
Personal watercraft boating	5.8%	4.8%	1.0%	10.6%
Sailing	8.6%	5.7%	2.9%	14.3%
Canoeing / Kayaking	14.6%	7.2%	7.4%	21.8%
Viewing the Bay from shore	50.1%	10.2%	39.9%	60.3%
Sunset Cruise	3.8%	3.9%	-0.1%	7.7%
Glass Bottom Boat Tour	4.8%	4.4%	0.4%	9.2%
Picnicking on the Bay	33.6%	9.7%	23.9%	43.3%

(a) Based on a sample size of 92 survey respondents. The z-statistic for a 95% confidence interval is 1.96.

(b) For example, the error of estimation for all activities is 10.22 percentage points. Among the activities in this table, it ranges from 1.82 to 10.22 percentage points.

(c) A confidence interval gives an estimated range of values that contain the unknown population parameter, in this case the percent of the Miami-Dade County resident population that participated in a given activity on the Bay. The confidence interval is estimated using a sample from the population. A 95 percent confidence interval means that 95 percent of the time, the population participation rate will be within the interval.

2.0 Biscayne Bay-Dependent Recreation in 2004

Of those residents who used the Bay in the past 12 months, the percent of these residents who participated in each recreation activity ranges from 50 percent for viewing the Bay from shore to 0.8 percent for parasailing. About 23 percent of these residents fished from a boat and 18 percent of these residents fished from shore. About 34 percent of these residents picnicked on the Bay. Bear in mind that these percentages are of those who used the Bay in the past 12 months. The percent of all residents who participated in each activity is about one-half of the percentages reported in column (4) of Table 2.12-1. The 95 percent confidence interval for each participation rate by activity is provided Table 2.12-2.

2.13 Resident Person-Days Spent in Each Recreation Activity

The number of person-days spent in each recreation activity is the product of the county population older than 14 years, the proportion of residents who used the Bay for recreation in the past 12 months (0.4685), the proportion of Bay-using residents who participated in the activity (from Table 2.12-1) and the average (mean) number of days in 2004 spent in each activity.

The average (mean) number of days in each activity was based on the responses to the Biscayne Bay User Survey for those respondents who participated in the activity. Here, for each activity, 95 percent of the responses were used in calculating these means because the largest values representing five percent of the responses were excluded. In reviewing the resident respondents' answers, large outliers were found for many of the activities. For example, four resident respondents reported that they fished from shore from 200 to 365 days in the past 12 months while the other respondents (97 percent) said they fished from shore from 1 to 150 days. The average of the values is 31 and the median¹³ of the values is 12. These extreme values were removed from the sample before calculating the average days by activity because it is likely that these values would overestimate the average number of days for the resident population.

A comparison of statistics that indicate the central level of tendency for days in an activity is provided in Table 2.13-1. Here the median days, mean days, trimmed mean where the middle 90 percent of the responses were used and the trimmed mean where the lowest 95 percent of the responses were used are presented. For days fishing from a boat in the past 12 months, the median is 12 days per person and the mean is 22 days per person. The 90 percent trimmed mean is 19 days per person and the 95 percent trimmed mean is 18 days per person. In reviewing the activities in this table, the values for the two types of trimmed means are very similar. These values indicate that outliers in the upper range of the data are significantly influencing the average (mean) value for many activities.

The average days fishing from a boat of 18 days in 2004 is consistent with the average fishing days of residents in Miami-Dade County as reported in Milon (1993)¹⁴. According to the Milon study, 15 fishing trips were taken by residents, on average, in Miami-Dade County.

¹³ The median value means that 50 percent of the responses were higher than this value and 50 percent of the responses were lower than this value.

¹⁴ J. Walter Milon and Eric M. Thunberg, "A Regional Analysis of the Current and Future Florida Resident Participation in Marine Recreational Fishing", Florida Sea Grant College Program, SGR-112, May 1993, pages 1-6 and 3-7.

2.0 Biscayne Bay-Dependent Recreation in 2004

The calculations of the number of person-days Miami-Dade County residents spent participating in Biscayne Bay-related activities are provided in Table 2.13-2. The name of the activity is in column (1), the percent of Bay-using residents who participated in each activity in the past 12 months is in column (2), the number of residents who participated in each activity in the past 12 months is provided in column (3), the mean (or average) number of days per year that these persons participated in the activity is provided in column (4) and the total person-days per year spent in each activity is provided in column (5).

Miami-Dade County residents spent 30 million person-days participating in Biscayne Bay-related recreation in 2004. Of this amount 5.3 million person-days were spent viewing the Bay from shore; 4.7 million person-days were spent swimming from shore; 3.5 million person-days were spent fishing from a boat; and 3.3 million person-days were spent fishing from shore. These uses represent 57 percent of the recreation activities on Biscayne Bay. The locations within Biscayne Bay where residents participated in Bay-related recreation by activity are provided in Section 2.18.

**Table 2.13-1
Comparison of Median, Mean and Trimmed Mean Days Participating By Activity in
Past 12 Months for Those Who Participated in the Activity –
Biscayne Bay User Survey of Residents (Of 610 Completed Surveys)**

Activity	All Resident Responses Used			Trimmed - Middle 90% of Responses Used		Trimmed - Lowest 95% of Responses Used	
	Median Days	Mean Days	Sample Size	Mean	Sample Size	Mean	Sample Size
Fishing from Boat	12	22	181	19	163	18	172
Fishing from Shore	12	31	135	23	122	21	128
Snorkeling from Boat	6	10	77	9	69	8	73
Snorkeling from Shore	7	9	40	8	36	8	38
SCUBA Diving	10	11	35	10	32	10	33
Swimming from Boat	10	16	100	15	90	14	95
Swimming from Shore	15	19	407	17	366	16	387
Boating for pleasure	6	14	158	11	142	11	150
Water Skiing	4	6	22	5	20	5	21
Parasailing	1	1	1	1	1	1	1
Wind Surfing	6	12	16	12	14	10	15
Kite Sailing	6	13	3	13	3	13	3
Personal watercraft boating	2	9	35	7	32	5	33
Sailing	25	34	71	31	63	29	67
Canoeing / Kayaking	4	7	59	7	53	6	56
Viewing the Bay from shore	10	20	336	13	302	13	319
Sunset Cruise	2	6	29	5	25	5	28
Glass Bottom Boat Tour	1	2	4	2	4	2	4
Picnicking on the Bay	10	10	355	10	320	9	337

**Table 2.13-2
Number of Person-Days Residents Spent in Biscayne Bay-Related Recreation Activities, 2004**

Activity	% of Bay-Using Residents Who Participated (a)	No. of Residents Who Participated (b)	Average Days Per Year Per Person in Activity (c)	Total Person-Days Per Year in Activity
(1)	(2)	(3) = (2) x pop. X 0.47	(4)	(5) = (3) x (4)
Fishing from Boat	23.4%	196,062	18	3,540,515
Fishing from Shore	18.6%	156,151	21	3,348,711
Snorkeling from Boat	14.4%	120,730	8	991,753
Snorkeling from Shore	9.6%	80,819	8	606,146
SCUBA Diving	9.2%	77,327	10	735,781
Swimming from Boat	17.7%	148,668	14	2,120,734
Swimming from Shore	35.6%	298,334	16	4,742,421
Boating for Pleasure	24.2%	203,046	11	2,150,713
Water Skiing	4.6%	38,414	5	186,583
Parasailing	0.8%	6,984	1	6,984
Wind Surfing	1.7%	13,969	10	136,894
Kite Sailing	2.1%	17,461	13	232,813
Personal Watercraft	5.8%	48,891	5	248,899
Sailing	8.6%	71,840	29	2,054,217
Canoeing / Kayaking	14.6%	122,726	6	725,397
Viewing Bay fm Shore	50.1%	420,062	13	5,264,597
Sunset Cruise	3.8%	31,430	5	142,557
Glass Bottom Boat	4.8%	-	2	2,500
Picnicking on the Bay	33.6%	281,870	9	2,557,743
Total Person-Days				29,795,957

(a) From General Resident Survey.

(b) Based on April 1, 2003 Miami-Dade County population older than 14 of 1,788,985 from U.S. Census Bureau times proportion of all residents who used Bay in past 12 months (46.85%).

(c) Trimmed mean - Lowest 95% of Responses Used.

(d) Number of person-days from Biscayne Underwater Park concession which provides the only opportunity to ride a glass bottom boat in the county. Represents 1/2 of 5,000 person-days spent on glass bottom boats or island touring. The other 1/2 was allocated to residents.

2.14 Resident Daily Expenditures to Participate in Bay-Related Recreation

The Biscayne Bay User Survey asked respondents to state the amount of money they spent in the county for Bay-related goods and services on the last day that they used the Bay for each type of recreation activity. To avoid double-counting expenditures, survey researchers were directed to enter the expenditures under the “predominant” activity in which the respondent participated during that day. The respondent was also asked how many people spent or benefited from those expenditures.

The average itemized expenditures by type of expenditure and recreation activity is provided in Table 2.14-1. The expenditures for each item were averaged over all those who reported expenditures for that activity, even if some respondents did not spend any money on that item. For example, a resident fishing the Bay from a motor boat spent, on average, \$42 that day on Bay-related goods and services. Of this amount, \$11 was spent on boat fuel, \$13 was spent on food and beverages at stores, \$7 was spent on bait, tackle and ice, \$2 was spent on food and beverages at restaurants and bars, \$4 was spent on boat rentals, such as charter boats, \$2 was spent on shopping and sundries, and \$0.01 was spent on lodging and \$3 was spent on other items. This information was obtained from 182 respondents representing 543 people in the fishing parties. These results are consistent with expenditure estimates of other recreation studies.

The amount of money spent on automobile gasoline is difficult to obtain from survey respondents. For this survey, it appeared that the responses were too high. As a result, \$0.28 per person per day was used for all activities. This value was obtained by assuming that, on average, 10 miles round trip is driven in a car with a fuel efficiency of 18 miles per gallon at \$1.50 per gallon and three people per car.

These expenditures per person per day were multiplied by the number of resident person-days spent in each activity to obtain an estimate of total resident expenditures associated with Bay-related recreation in 2004. These total expenditures by activity are presented in Table 2.14-2. In 2004, residents spent about \$683 million on Biscayne Bay recreation-related goods and services other than “Big Ticket” items to be discussed in the next section.

2.0 Biscayne Bay-Dependent Recreation in 2004

**Table 2.14-1
Average Itemized Biscayne Bay-Related Expenditures in Miami-Dade County
Per Person Per Day by Residents – 2004**

Expenditure Item	Fishing From Motor Boat	Fishing From Shore	Dive/Snorkel From Motor Boat	Dive/Snorkel from Shore
Boat fuel	\$11.07	\$0.00	\$9.47	\$0.00
Tackle, bait, and/or ice	\$6.61	\$5.46	\$0.13	\$0.00
Boat Rental	\$4.20	\$0.00	\$1.47	\$0.00
Equipment Rental	\$0.08	\$0.01	\$1.43	\$0.00
Ramp, Marina and Parking Fees	\$2.16	\$0.14	\$3.34	\$0.61
Park Entrance Fees	\$0.33	\$0.88	\$0.21	\$0.79
Lodging (per night)	\$0.01	\$0.02	\$0.06	\$0.05
Camping fees (per night)	\$0.04	\$0.15	\$0.09	\$0.00
Food and Beverages – Stores	\$13.07	\$8.19	\$10.57	\$6.69
Food and Beverages – Restaurants/Bars	\$1.71	\$0.85	\$1.93	\$2.80
Auto gas	\$0.28	\$0.28	\$0.28	\$0.28
Auto Rental, Taxi, Bus fares	\$0.00	\$0.04	\$0.00	\$0.13
Shopping and Sundries	\$2.28	\$0.95	\$1.96	\$1.04
Total	\$41.84	\$16.97	\$30.94	\$12.38
People in Party	543	264	232	94
Number of Respondents	182	126	73	32

Expenditure Item	Swimming	Boating for pleasure / partying	Waterski / Parasail / Windsurf / Kite Sail	Personal Watercraft Boating
Boat fuel	\$1.37	\$7.69	\$6.71	\$2.46
Tackle, bait, and/or ice	\$0.06	\$0.31	\$0.00	\$0.00
Boat Rental	\$0.00	\$1.50	\$3.23	\$8.85
Equipment Rental	\$0.01	\$0.09	\$1.86	\$1.54
Ramp, Marina and Parking Fees	\$0.62	\$2.32	\$1.65	\$1.14
Park Entrance Fees	\$0.92	\$0.18	\$0.20	\$0.08
Lodging (per night)	\$0.02	\$0.02	\$0.00	\$0.00
Camping fees (per night)	\$0.02	\$0.04	\$0.00	\$0.15
Food and Beverages – Stores	\$8.75	\$11.73	\$6.33	\$3.71
Food and Beverages – Restaurants/Bars	\$1.28	\$5.36	\$4.46	\$5.12
Auto gas	\$0.28	\$0.28	\$0.28	\$0.28
Auto Rental, Taxi, Bus fares	\$0.00	\$0.05	\$0.00	\$0.00
Shopping and Sundries	\$1.65	\$2.75	\$1.35	\$2.63
Total	\$14.97	\$32.32	\$26.06	\$25.96
People in Party	1,249	613	79	65
Number of Respondents	376	154	29	32

Table 2.14-1, continued
Average Itemized Biscayne Bay-Related Expenditures in Miami-Dade County
Per Person Per Day by Residents – 2004

Expenditure Item	Canoe/Kayak/ Sail	Viewing the Bay From Shore / Picnicking	Sunset Cruise	Glass Bottom Boat Tour
Boat fuel	\$1.00	\$0.03	\$6.01	\$0.00
Tackle, bait, and/or ice	\$0.24	\$0.04	\$0.00	\$0.00
Boat Rental	\$0.72	\$0.00	\$2.07	\$21.67
Equipment Rental	\$2.32	\$0.00	\$0.28	\$0.00
Ramp, Marina and Parking Fees	\$2.82	\$0.46	\$1.63	\$0.00
Park Entrance Fees	\$0.34	\$0.70	\$0.10	\$0.72
Lodging (per night)	\$0.00	\$0.00	\$0.00	\$8.06
Camping fees (per night)	\$0.07	\$0.04	\$0.00	\$0.00
Food and Beverages – Stores	\$11.28	\$7.53	\$14.90	\$6.11
Food and Beverages – Restaurants/Bars	\$1.19	\$8.78	\$6.25	\$21.94
Auto gas	\$0.28	\$0.28	\$0.28	\$0.28
Auto Rental, Taxi, Bus fares	\$0.00	\$0.04	\$0.00	\$0.00
Shopping and Sundries	\$1.88	\$2.15	\$1.90	\$9.44
Total	\$22.15	\$20.05	\$33.42	\$68.22
People in Party	277	1,522	100	18
Number of Respondents	101	459	30	4

2.0 Biscayne Bay-Dependent Recreation in 2004

**Table 2.14-2
Total Itemized Biscayne Bay Related Expenditures of
Residents to Miami-Dade County by Recreation Activity – 2004**

Expenditure Item	Fishing		Dive/ Snorkel	
	From Motor Boat	From Shore	From Motor Boat	Dive/Snorkel from Shore
Boat fuel	\$39,195,610	\$0	\$16,361,922	\$0
Tackle, bait, and/or ice	\$23,419,779	\$18,272,036	\$218,424	\$0
Boat Rental	\$14,879,292	\$0	\$2,546,622	\$0
Equipment Rental	\$293,413	\$38,054	\$2,472,159	\$0
Ramp, Marina and Parking Fees	\$7,654,815	\$482,011	\$5,772,343	\$367,557
Park Entrance Fees	\$1,167,131	\$2,952,320	\$357,421	\$477,179
Lodging	\$26,081	\$50,738	\$111,694	\$32,242
Camping fees	\$130,406	\$507,380	\$148,925	\$0
Food and Beverages – Stores	\$46,270,120	\$27,411,226	\$18,268,166	\$4,056,019
Food and Beverages – Restaurants/Bars	\$6,070,386	\$2,860,357	\$3,328,480	\$1,695,919
Auto gas	\$983,476	\$930,197	\$479,870	\$168,374
Auto Rental, Taxi, Bus fares	\$0	\$139,530	\$0	\$77,380
Shopping and Sundries	\$8,061,246	\$3,183,812	\$3,389,043	\$631,939
Total	\$148,151,757	\$56,827,661	\$53,455,069	\$7,506,608

Expenditure Item	Boating for pleasure / partying		Waterski / Parasail / Windsurf / Kite Sail	
	Swimming	Boating for pleasure / partying	Waterski / Parasail / Windsurf / Kite Sail	Personal Watercraft Boating
Boat fuel	\$9,409,135	\$16,547,711	\$3,778,934	\$612,673
Tackle, bait, and/or ice	\$386,476	\$670,709	\$0	\$0
Boat Rental	\$0	\$3,220,806	\$1,818,166	\$2,201,795
Equipment Rental	\$43,959	\$196,476	\$1,048,119	\$382,921
Ramp, Marina and Parking Fees	\$4,253,068	\$4,996,109	\$926,908	\$283,361
Park Entrance Fees	\$6,335,643	\$379,620	\$114,081	\$19,146
Lodging	\$115,393	\$52,628	\$0	\$0
Camping fees	\$109,898	\$87,713	\$0	\$38,292
Food and Beverages – Stores	\$60,077,796	\$25,224,678	\$3,565,032	\$923,796
Food and Beverages – Restaurants/Bars	\$8,790,041	\$11,518,417	\$2,509,782	\$1,275,126
Auto gas	\$1,906,432	\$597,420	\$156,465	\$69,138
Auto Rental, Taxi, Bus fares	\$27,475	\$98,238	\$0	\$0
Shopping and Sundries	\$11,293,893	\$5,917,559	\$762,917	\$654,795
Total	\$102,749,211	\$69,508,084	\$14,680,404	\$6,461,044

Table 2.14-2, continued
Total Itemized Biscayne Bay Related Expenditures of
Residents to Miami-Dade County by Recreation Activity – 2004

Expenditure Item	Canoe/Kayak/ Sail	Picnicking	Viewing Bay From Shore	Sunset Cruise
Boat fuel	\$2,767,907	\$79,544	\$163,726	\$856,765
Tackle, bait, and/or ice	\$668,981	\$106,993	\$220,223	\$0
Boat Rental	\$2,006,942	\$0	\$0	\$295,092
Equipment Rental	\$6,452,318	\$0	\$0	\$39,916
Ramp, Marina and Parking Fees	\$7,847,142	\$1,170,478	\$2,409,193	\$232,367
Park Entrance Fees	\$943,263	\$1,780,225	\$3,664,233	\$14,256
Lodging	\$0	\$10,083	\$20,754	\$0
Camping fees	\$200,694	\$102,511	\$210,999	\$0
Food and Beverages – Stores	\$31,361,810	\$19,254,215	\$39,630,905	\$2,124,092
Food and Beverages – Restaurants/Bars	\$3,311,454	\$22,456,716	\$46,222,604	\$890,978
Auto gas	\$772,115	\$710,484	\$1,462,388	\$39,599
Auto Rental, Taxi, Bus fares	\$0	\$101,671	\$209,269	\$0
Shopping and Sundries	\$5,238,118	\$5,504,805	\$11,330,528	\$270,857
Total	\$61,570,743	\$51,277,727	\$105,544,822	\$4,763,923

Expenditure Item	Glass Bottom Boat Tour	Total (a)
Boat fuel	\$0	89,773,928
Tackle, bait, and/or ice	\$0	43,963,621
Boat Rental	\$54,167	27,022,881
Equipment Rental	\$0	10,967,335
Ramp, Marina and Parking Fees	\$0	36,395,354
Park Entrance Fees	\$1,806	18,206,322
Lodging	\$20,139	439,752
Camping fees	\$0	1,536,819
Food and Beverages – Stores	\$15,278	278,183,133
Food and Beverages – Restaurants/Bars	\$54,861	110,985,121
Auto gas	\$694	8,276,655
Auto Rental, Taxi, Bus fares	\$0	653,563
Shopping and Sundries	\$23,611	56,263,123
Total	\$170,556	682,667,607

(a) Numbers may not sum to total due to rounding.

2.15 Resident Expenditures for “Big-Ticket” Items Needed to Recreate on Biscayne Bay

Many recreators use their own boats and equipment to recreate on Biscayne Bay. They also spend money to maintain and repair their boats. Purchases within the county, the region or the state contribute to the economy in terms of output, income, employment and tax revenues. The expenditures associated with Bay use were estimated using the responses to the Biscayne Bay Users Survey. The survey asked respondents if they purchased any goods or services in Florida in the past 12 months that they needed to participate in Biscayne Bay-related recreation activities. If they said that they did, they were asked to list the type of good or service, the amount of money spent, the county or city in Florida where the purchase was made and the average days per year that the good or service is used or enjoyed. These are questions 9 and 10 of the resident’s survey.

Each respondent's expenses for these items were divided by the days per year that the good or service is used, as provided by the respondent, to begin to prorate the purchase over the different uses of the good or service (Bay versus ocean versus lake uses). Then these adjusted expenses were added over all respondents and divided by the number of people in all the respondents' parties for those respondents who participated in a Bay-related boating activity (982 people in all the parties). The exception is equipment where the number of people who participated in all activities other than viewing the Bay and picnicking on Bay was used (1,582 people). This provides the average purchase per person-day of activity.

The results of these calculations are provided in Table 2.15-1, columns 2 through 4. For example, the average resident boater using Biscayne Bay spent \$1.77 per person per day of boat use to purchase a boat in Miami-Dade County in 2004. It represents the purchase of boats in Miami-Dade County for Bay-related recreation in 2004. Because all of the boats purchased by the respondents in 2004 were purchased in Miami-Dade County, this same \$1.77 per person per day of boat use was spent in southeast Florida and in Florida.

The itemized expenditures per person per day were then multiplied by the 12.2 million person-days spent boating in Biscayne Bay in 2004 to obtain an estimate of the amount of money spent on these “big ticket” items in each study area in 2004. The exception is equipment, where the 22 million person-days spent in all Bay-related recreation activities other than picnicking and viewing the Bay from shore was used. As presented in Table 2.15-1, residents spent \$176 million in Miami-Dade County on boats, boat maintenance and repair and recreational equipment that is attributable to Biscayne Bay. About \$177 million was spent in southeast Florida and about \$177 million was spent in Florida.

In Table 2.15-1, there are three items called “boat repair”, “boat maintenance”, and “boat maintenance and repair”. When respondents answered “big ticket” expenditures questions, some respondents aggregated what they spent for “boat maintenance and repair”, and other respondents listed “boat maintenance” and “boat repair” separately. The values for “boat maintenance”, “boat repair” and “boat maintenance and repair” in Table 2.15-1 are additive. One is not a subset of another.

Table 2.15-1
Resident Purchases of “Big Ticket” Items in Florida Needed to Participate in Biscayne Bay-Related Activities

Expense Item	Average Purchase Over Past 12 Months Per Person Per Day of Boat or Equipment Use During a Year (a)			Total Purchases of Participants in Biscayne Bay-Related Recreation Pro-Rated Over Use on Bay, 2004 (b)		
	Florida	Southeast Florida	Miami-Dade County	Florida	Southeast Florida	Miami-Dade County
(1)	(2)	(3)	(4)	(5) = (2) x (A or B)	(6) = (3) x (A or B)	(7) = (4) x (A or B)
Boat Purchase	\$1.77	\$1.77	\$1.77	\$21,495,459	\$21,495,459	\$21,495,459
Boat Maintenance	\$4.48	\$4.48	\$4.48	\$54,574,420	\$54,574,420	\$54,574,420
Boat Repair	\$1.38	\$1.35	\$1.33	\$16,835,503	\$16,466,708	\$16,211,389
Boat Maintenance and Repair	\$6.32	\$6.32	\$6.32	\$76,910,756	\$76,910,756	\$76,910,756
Replace Boat Parts	\$0.23	\$0.23	\$0.23	\$2,819,355	\$2,819,355	\$2,819,355
Equipment (snorkeling, diving, fishing, skiing, sailing)	\$0.21	\$0.19	\$0.19	\$4,696,545	\$4,233,552	\$4,233,552
Boat Towing	\$0.009	\$0.009	\$0.009	\$110,638	\$110,638	\$110,638
Total	\$14.41	\$14.35	\$14.33	\$177,442,677	\$176,610,890	\$176,355,570
Number of Person-Days For Boating Activities (A):						12,171,750
Number of Person-Days For All Activities Except Viewing Bay and Picnicking on Bay (B):						21,973,617

(a) Each respondent's expenses for these items were divided by the days per year that the good or service is used as provided by the respondent to begin to prorate the purchase over the different uses of the good or services (Bay versus ocean versus lake uses) (See Questions 9 and 10 of Residents - Biscayne Bay User Intercept Survey). Then these adjusted expenses were added over all respondents and divided by the number of people in all the respondents' parties who participated in a Bay-related boating activity (982 people). The exception is equipment where the number of people who participated in all activities other than viewing the Bay and picnicking on Bay was used (1,582 people). This provides the average purchase per person day of activity.

(b) (A) was used for all items except equipment where (B) was used.

2.16 Economic Contribution Associated with Biscayne Bay-Related Expenditures By Residents

Expenditures by residents generate output, income, tax revenues and jobs within the industries that supply Bay-related goods and services, such as charter / party boat operations, grocery stores, boat dealers, and gas stations. These industries are called direct industries. For residents, the expenditures were converted to output, income, employment and tax revenues generated within the directly affected industries using the IMPLAN Regional Economic Input-Output Model as discussed earlier in this section under visitors.

The multiplier effect of Biscayne Bay-related spending by residents in the county was not estimated because this spending is also the result of multiplier effects from other economic activities within the county and does not represent new money coming into the economy. The multiplier effect of resident spending on Biscayne Bay-related activities is attributed both to the Bay and to other economic activities that generated the resident income used to purchase the Bay-related goods and services. Thus, the economic importance of the Bay would be overstated if the multiplier effects were considered. To provide a conservative estimate of the economic contribution of resident recreational use of the Bay, the multiplier effects were not included. Only the direct economic contribution of resident Bay-related expenditures were estimated.

The IMPLAN model uses detailed data on the economy of the county or groups of counties to estimate economic multipliers and to model the impact of Bay-related recreation expenditures on the economy. The IMPLAN Model was used to convert these expenditures into estimates of direct output, income, tax revenues and employment generated within Miami-Dade County, southeast Florida¹⁵ and Florida.

Total Biscayne Bay-related expenditures by residents were estimated to be \$859 million in Miami-Dade County and southeast Florida and \$860 million in Florida in 2004. The itemized expenditures were matched to industries that are included in the IMPLAN model as summarized in Table 2.16-1. Boat purchase, and boat maintenance and repair expenditures were assigned to IMPLAN Sector 451 - Automotive Dealers and Service Stations. This sector includes county-wide data for cars, boats and recreational vehicles. IMPLAN does not provide a breakout of the data by type of motor vehicle but the entire county is covered. It does not include boat yards. Boat yards are included under IMPLAN Sector 436 – Water Transportation. Boat maintenance and boat repair services and boat parts manufacturing are scattered over many IMPLAN sectors and SIC codes. After much consideration, IMPLAN Sector 451 - Automotive Dealers and Service Stations was chosen as the most representative of the labor and capital mix of the boat maintenance service industry, and the boat dealer industry. IMPLAN Sector 436 – Water Transportation is too broad to use for boat maintenance and does not include boat sales.

¹⁵ Southeast Florida includes Palm Beach, Broward, Miami-Dade and Monroe counties.

**Table 2.16-1
Itemization of Resident Biscayne-Bay Related Expenditures Applied to IMPLAN Model Sectors, 2004**

Expenditure Item	IMPLAN Sector	Value of Expenditures (a)		
		Miami-Dade County	Southeast Florida	Florida
Bait, Tackle, Ice, Ramp, Marina and Parking Fees, Boat Towing	436 Transportation – Water	\$80,470,000	\$80,470,000	\$80,470,000
Food and Beverages – Stores	450 Food Stores (Commodity)	\$278,183,000	\$278,183,000	\$278,183,000
Boat Purchase, Boat Maintenance and Repair	451 Automotive Dealers and Service Stations (includes boats)	\$152,981,000	\$152,981,000	\$152,981,000
Auto Gas and Boat Fuel	201 Refined Petroleum (Industry)	\$98,051,000	\$98,051,000	\$98,051,000
Food and Beverages - Restaurants/Bars	454 Eating and Drinking	\$110,985,000	\$110,985,000	\$110,985,000
Shopping	455 Miscellaneous Retail (Commodity)	\$60,497,000	\$60,497,000	\$60,960,000
Lodging, Camping Fees	463 Hotels and Lodging	\$1,977,000	\$1,977,000	\$1,977,000
Auto Rental, Taxi, Bus Fares	477 Auto Rental and Leasing	\$654,000	\$654,000	\$654,000
Boat and Equipment Rental, Park Entrance Fees	488 Amusement and Recreational Services	\$56,197,000	\$56,197,000	\$56,197,000
Boat Repair and Replacement Parts	393 Boat Building and Repairing (SIC 3732)	\$19,031,000	\$19,286,000	\$19,655,000
Total	All IMPLAN Sectors	\$859,023,000	\$859,278,000	\$860,110,000

(a) Totals are off by \$1,000 due to rounding.

2.0 Biscayne Bay-Dependent Recreation in 2004

The economic contribution of Biscayne Bay-related recreation as Miami-Dade County residents participate in Bay-related recreation activities and spend the amount of money as indicated in Table 2.16-1 is provided in Table 2.16-2. The output contribution is defined as the value of the goods and services produced in the county due to the Bay-related expenditures. The total income contribution is defined as the sum of employee compensation, proprietor's income, interest, rents, and profits generated as a result of the Bay-related expenditures. Income is the money that stays in the county's economy. The employment contribution is the number of full-time and part-time jobs created due to the Bay-related expenditures. The tax revenue contribution is the sum of the additional excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related expenditures. It excludes taxes on profit and income because they are already accounted for under the income category.

Table 2.16-2
Economic Contribution of Biscayne Bay-Related Expenditures
by Miami-Dade County Residents, 2004 (a)

Study Area	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Miami-Dade County	\$538,000,000	\$287,000,000	9,400	\$54,000,000
Southeast Florida	\$544,000,000	\$290,000,000	9,600	\$55,000,000
Florida	\$585,000,000	\$313,000,000	10,400	\$59,000,000

^a Includes direct effects only.

^b Output is defined as the value of the additional goods and services produced in the study area due to the Bay-related recreation expenditures.

^c Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the Bay-related recreation expenditures.

^d Employment includes the number of full-time and part-time jobs created due to the Bay-related recreation expenditures.

^e Tax revenue is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related recreation expenditures. It excludes taxes on profit and income.

In 2004, resident expenditures associated with Biscayne Bay-related recreation created \$538 million in output, \$287 million in income, 9,400 jobs, and \$54 million in tax revenues within Miami-Dade County. Within southeast Florida, \$544 million in output, \$290 million in income, 9,600 jobs and \$55 million in tax revenues were generated. Within Florida, \$585 million in output, \$313 million in income, 10,400 jobs, and \$59 million in tax revenues were generated.

2.17 Resident and Visitor Recreational Uses and Economic Contribution of Recreational Expenditures

This section summarizes the results of the visitor and resident analyses of the recreational uses of Biscayne Bay and the economic contribution of recreational expenditures as described previously in the previous sections of this chapter. Demographic information of residents and visitors is also provided.

Recreational Uses of Biscayne Bay. The total number of person-days Miami-Dade County residents and visitors participated in Biscayne Bay-related recreation is provided in Table 2.17-1. In 2004, residents and visitors spent 65 million person-days participating in recreation activities on Biscayne Bay (column (2) under All Activities Residents and Visitors). On an average day, 179,000 people participated in recreation activities on the Bay. Of this amount, 82,000 people were county residents and 98,000 were county visitors. These residents represented 4.6 percent

2.0 Biscayne Bay-Dependent Recreation in 2004

of the county's resident population older than 14 years and the visitors represented 45 percent of the county's visitor population. Overall, nine percent of the residents and visitors in the county, on an average day, participated in Biscayne Bay-related recreation in 2004.

**Table 2.17-1
Evaluation of Resident and Visitor Person-days
Spent Recreating on Biscayne Bay, 2004**

Type of Participant	No. of Person-days Spent in Bay Recreation	Average no. of persons using Bay per day (3) = (2) / 365 days per year	Number of Persons in Population (a)	% of County (5) = (3) / (4)
(1)	(2)	(3)	(4)	(5)
All Activities				
Residents	29,799,000	81,641	1,788,985	4.6%
Visitors	35,668,000	97,721	217,781	44.9%
Residents and Visitors	65,467,000	179,362	2,006,766	8.9%
All Activities Except Viewing Bay from Shore				
Residents	24,531,000	67,208	1,788,985	3.8%
Visitors	25,078,000	68,707	217,781	31.5%
Residents and Visitors	49,609,000	135,915	2,006,766	6.8%

(a) For residents, population is population in Miami-Dade County over 14 years of age. For visitors, population is number of visitor person-days in 2004 (all visitors) divided by 365 days per year.

For all recreation activities except Viewing the Bay from Shore while dining, shopping, jogging or strolling, 50 million person-days were spent participating in recreation activities on Biscayne Bay. On an average day, 136,000 people participated in recreation activities on the Bay other than Viewing the Bay from Shore. Of this amount 67,000 people were county residents and 69,000 were county visitors. These residents represented 3.8 percent of the county's resident population older than 14 years and the visitors represented 32 percent of the county's visitor population. This means that on an average day, 3.8 percent of the county's residents are recreating on the Bay and 32 percent of the county's visitors are recreating on the Bay. Overall, about seven percent of the residents and visitors in the county, on an average day, participated in Biscayne Bay-related recreation other than viewing the Bay from shore in 2004. In practice, recreation on the Bay varies significantly from day to day so there are days when a greater number of people are using the Bay and days when fewer people are using the Bay.

An itemization of the recreational uses of Biscayne Bay by Miami-Dade County residents and visitors is provided in Table 2.17-2. Of the 65.5 million person-days residents and visitors participated in Biscayne Bay-related recreation, 15.9 million person-days were spent viewing the Bay from the shore while dining, shopping, jogging or strolling comprising 25 percent of the estimated person-days. The next most predominant activities were swimming from shore with 10.9 million person-days, fishing from a boat with 8.7 million person-days and sailing with 6.0 million person-days.

The survey researchers were instructed that the category "Sailing" is any activity conducted on a sail boat. Thus, all other categories that have the word "boat" in them are power boats. As with

2.0 Biscayne Bay-Dependent Recreation in 2004

all of the activities, the respondent was to provide the primary activity conducted that day. Thus, it is possible that some respondents said snorkeling from a boat if that is what they did all day even if it was from a sailboat. However, most of the sailing is expected to be under the category “sailing”.

Of the least predominant activities, residents and visitors spent 26,000 person-days parasailing, 145,000 person-days windsurfing, 215,000 person-days water-skiing, and 250,000 person-days kite sailing. Because the number of people interviewed who participated in these activities is relatively small, these estimates of user-days are not likely to be as accurate as the estimates for the other more predominant activities. Errors in estimating these values are not expected to affect the estimates of economic contribution because the number of person-days is relatively small. However, a conclusion can be made that Biscayne Bay appears to be a popular location for these activities.

The 6,000 person-days spent touring the Bay via a glass bottom boat is the rounding of 2,500 person-days for visitors and 2,500 person-days for residents to 3,000 person-days each and is considered to be accurate as it was based on information from the only glass bottom boat concessionaire in the county. This concessionaire provided information that was used to estimate 5,000 person-days spent on glass bottom boats.

**Table 2.17-2
Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 2004**

Primary Activity (a)	Visitors to Miami- Dade County	Residents of Miami- Dade County	Total
(1)	(2)	(3)	(4) = (2) + (3)
Fishing – From Shore	505,000	3,349,000	3,854,000
Fishing – From Boat	5,139,000	3,541,000	8,680,000
Snorkeling - From Shore	293,000	606,000	899,000
Snorkeling - From Boat	835,000	992,000	1,827,000
Scuba Diving	500,000	736,000	1,236,000
Swimming - From Shore	6,198,000	4,742,000	10,940,000
Swimming - From Boat	1,646,000	2,121,000	3,767,000
Boating for Pleasure/Partying	2,668,000	2,151,000	4,819,000
Water-skiing	28,000	187,000	215,000
Parasailing	19,000	7,000	26,000
Windsurfing	8,000	137,000	145,000
Kite Sailing	17,000	233,000	250,000
Personal Watercraft (jet skis, etc.)	114,000	249,000	363,000
Sailing	3,986,000	2,054,000	6,040,000
Canoeing / Kayaking	239,000	725,000	964,000
Viewing Bay from Shore	10,591,000	5,265,000	15,856,000
Sunset Cruise	333,000	143,000	476,000
Glass Bottom Boat Tour	3,000	3,000	6,000
Picnicking on Biscayne Bay	2,547,000	2,558,000	5,105,000
Total	35,668,000	29,799,000	65,467,000

(a) A person-day is one person participating in an activity for all or a portion of a day. A person-day is attributed to an activity only if it was the “primary” activity that day. Sailing is any activity conducted on a sail boat.

2.0 Biscayne Bay-Dependent Recreation in 2004

Economic Contribution of Biscayne Bay From Resident and Visitor Expenditures Associated with Bay Use. A summary of the economic contribution of Biscayne Bay as residents and visitors spent money to use the Bay in 2004 is provided in Table 2.17-3 with a comparison to the rest of the economies in Tables 2.17-4 and 2.17-5.

In Miami-Dade County, Bay-related recreation expenditures generated \$3.8 billion in output, \$2.1 billion in income, 57,100 jobs and \$257 million in tax revenues in 2004. This economic contribution represents 4.4 percent of the county's gross sales, 3.4 percent of the county's personal income and 4.4 percent of the county's employment.

In the southeast Florida counties of Palm Beach, Broward, Miami-Dade and Monroe, Bay-related recreation expenditures generated \$4.0 billion in output, \$2.2 billion in income, 58,800 jobs and \$272 million in tax revenues in 2004. This economic contribution represents 1.8 percent of the area's gross sales, 1.3 percent of the area's personal income and 2.0 percent of the area's employment.

In Florida, Bay-related recreation expenditures generated \$4.6 billion in output, \$2.6 billion in income, 65,300 jobs and \$305 million in tax revenues in 2004. This economic contribution represents 0.7 percent of the State's gross sales, 0.5 percent of the State's personal income and 0.7 percent of the State's employment.

**Table 2.17-3
Economic Contribution of Biscayne Bay-Related Expenditures
By Residents and Visitors to Miami-Dade County, 2004 (a)**

Study Area	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Miami-Dade County	\$3,789,000,000	\$2,112,000,000	57,100	\$257,000,000
Southeast Florida	\$3,992,000,000	\$2,243,000,000	58,800	\$272,000,000
Florida	\$4,567,000,000	\$2,565,000,000	65,300	\$305,000,000

^a Includes direct, indirect and induced effects.

^b Output is defined as the value of additional goods and services produced in the study area due to the Bay-related recreation expenditures.

^c Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the Bay-related recreation expenditures.

^d Employment includes the number of full-time and part-time jobs created due to the Bay-related recreation expenditures.

^e Tax revenue is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related recreation expenditures. It excludes taxes on profit and income.

**Table 2.17-4
Economy of Study Areas, 2004**

Study Area	Gross Sales	Personal Income	Employment
Miami-Dade County	\$85,245,887,000	\$62,037,209,000	1,293,315
Southeast Florida	\$222,040,661,966	\$171,714,743,000	2,923,679
Florida	\$642,280,422,229	\$496,706,399,000	9,185,622

Source: Gross Sales are from the University of Florida Bureau of Economic and Business Research based on data from the Florida Department of Revenue and represent 2003. Income and employment data are from U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System web site and represent 2002. These are the most recent years for which data are available. Employment is number full-time and part-time jobs. Personal income is the income received by persons from all sources and is the sum of wage and salary disbursements, supplements to wages and salaries, proprietor's income, rental income, personal dividend income, personal interest income, personal current transfer receipts, less contributions for government social insurance.

**Table 2.17-5
Economic Contribution as Biscayne Bay is Used for Recreation
By Residents and Visitors
As Percent of Study Area Economies, 2004**

Study Area	Gross Sales (a)	Personal Income	Employment
Miami-Dade County	4.4%	3.4%	4.4%
Southeast Florida	1.8%	1.3%	2.0%
Florida	0.7%	0.5%	0.7%

(a) The IMPLAN model provides the value of the additional goods and services produced in the study area due to the Bay-related recreational expenditures. The gross sales values represent the total sales in the county.

Evaluation of Expenditures and Economic Contribution. The resident and visitor expenditures associated with Bay-related recreation were compared to Miami-Dade County's gross sales in Table 2.17-6. For example, Bay-related recreation expenditures at food stores of all types represent 10 percent of the county's gross sales in this industry. Bay-related recreation expenditures at restaurants and drinking places represent 17 percent of the county's gross sales in this industry. The \$2.9 billion in all Bay-related recreation expenditures represents three percent of the county's gross sales in 2004. It is these expenditures that were used to estimate the economic contribution reported in this Chapter.

Table 2.17-6
Comparison of Bay-Related Recreation Expenditures With Miami-Dade County
Gross Sales

Industry Type	County Gross Sales	Bay-Related Recreation Expenditures	% of County Gross Sales
Food Stores, all types	\$5,410,000,000	\$543,000,000	10%
Restaurants and Drinking Places	\$3,551,000,000	\$591,000,000	17%
General Merchandise Stores and Gift Shops	\$7,744,000,000	\$421,637,259	5%
Filling and Service Stations and Marinas	\$1,306,000,000	\$227,000,000	17%
Hotels and Motels	\$1,549,000,000	\$344,000,000	22%
Admissions (Entrance Fees to Parks and Events)	\$460,000,000	\$43,000,000	9%
All Industries	\$85,246,000,000	\$2,896,000,000	3%

Gross sales are from the Bureau of Economic and Business Research at the University of Florida, Gainesville and represent the year 2003, the more recent year available.

An itemization of the direct, indirect and induced output, labor income, other property type income, tax revenues and employment by industry type is provided in Table 2.17-7. Eating and drinking establishments enjoy the greatest economic benefit from Biscayne Bay expenditures with about 20 percent of the total economic contribution accruing to this industry. Hotels and lodging places are second with about 10 percent of the total economic contribution. Other industries that benefit significantly from Biscayne Bay-related expenditures are construction, manufacturing, water transportation, wholesale trade, food stores, automotive dealers and service stations (including boat dealers and retail fuel sales), finance/insurance/real estate, automobile rental and leasing, amusement and recreation services not elsewhere classified, and government.

Appendix E includes (1) the total resident and visitor expenditures that determined these contributions; and (2) the economic contribution of these expenditures to southeast Florida and Florida by benefiting industry.

Table 2.17-7
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay-Related Recreation, 2004

Industry	Output, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$0	\$2,770,000	\$5,410,000	\$8,180,000
Commercial Fishing	\$0	\$20,000	\$2,000	\$22,000
Mining	\$0	\$70,000	\$120,000	\$190,000
Construction	\$0	\$11,800,000	\$164,390,000	\$176,190,000
Manufacturing: Food Products	\$0	\$18,170,000	\$15,880,000	\$34,050,000
Textiles	\$0	\$190,000	\$720,000	\$910,000
Apparel and Fabric Products	\$0	\$1,400,000	\$7,020,000	\$8,420,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$950,000	\$12,120,000	\$13,070,000
Printing, Publishing and Allied Products	\$0	\$14,690,000	\$7,440,000	\$22,130,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,040,000	\$12,410,000	\$13,450,000
Boat Building and Repairing	\$25,340,000	\$90,000	\$30,000	\$25,460,000
All other products	\$0	\$3,910,000	\$25,700,000	\$29,610,000
Transportation: Water Transportation	\$171,130,000	\$14,570,000	\$2,780,000	\$188,480,000
All Other Transportation	\$0	\$25,400,000	\$28,550,000	\$53,950,000
Communications, Electric, Gas and Sanitary Services	\$0	\$29,780,000	\$32,710,000	\$62,490,000
Wholesale Trade	\$0	\$37,960,000	\$78,920,000	\$116,880,000
Retail Trade: Food Stores	\$143,830,000	\$200,000	\$20,650,000	\$164,680,000
Automotive Dealers and Service Stations	\$256,950,000	\$1,510,000	\$26,020,000	\$284,480,000
Eating and Drinking Establishments	\$591,240,000	\$5,220,000	\$44,190,000	\$640,650,000
All Other Retail Stores	\$135,370,000	\$1,440,000	\$68,130,000	\$204,940,000
Finance, Insurance and Real Estate	\$0	\$82,610,000	\$236,960,000	\$319,570,000
Services: Hotels and Lodging Places	\$347,390,000	\$6,770,000	\$13,210,000	\$367,370,000
Automobile Rental and Leasing	\$145,110,000	\$5,720,000	\$5,830,000	\$156,660,000
Amusement and Recreation Services, n.e.c.	\$213,240,000	\$40,000	\$5,650,000	\$218,930,000
All Other Service Industries	\$0	\$146,460,000	\$308,960,000	\$455,420,000
Government - State, Local, Federal	\$1,640,000	\$11,020,000	\$210,750,000	\$223,410,000
Total	\$2,031,240,000	\$423,800,000	\$1,334,552,000	\$3,789,592,000

Table 2.17-7, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay Related Recreation, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$1,070,000	\$2,030,000	\$3,100,000
Commercial Fishing	\$0	\$10,000	\$0	\$10,000
Mining	\$0	\$0	\$10,000	\$10,000
Construction	\$0	\$7,250,000	\$46,070,000	\$53,320,000
Manufacturing: Food Products	\$0	\$3,500,000	\$2,280,000	\$5,780,000
Textiles	\$0	\$40,000	\$170,000	\$210,000
Apparel and Fabric Products	\$0	\$460,000	\$1,780,000	\$2,240,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$110,000	\$3,310,000	\$3,420,000
Printing, Publishing and Allied Products	\$0	\$5,220,000	\$2,550,000	\$7,770,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$150,000	\$2,820,000	\$2,970,000
Boat Building and Repairing	\$9,180,000	\$30,000	\$10,000	\$9,220,000
All other products	\$0	\$1,170,000	\$7,180,000	\$8,350,000
Transportation: Water Transportation	\$30,430,000	\$2,590,000	\$490,000	\$33,510,000
All Other Transportation	\$0	\$11,150,000	\$11,390,000	\$22,540,000
Communications, Electric, Gas and Sanitary Services	\$0	\$8,800,000	\$8,270,000	\$17,070,000
Wholesale Trade	\$0	\$15,910,000	\$33,070,000	\$48,980,000
Retail Trade: Food Stores	\$85,520,000	\$120,000	\$12,280,000	\$97,920,000
Automotive Dealers and Service Stations	\$114,660,000	\$670,000	\$11,610,000	\$126,940,000
Eating and Drinking Establishments	\$233,010,000	\$2,060,000	\$17,410,000	\$252,480,000
All Other Retail Stores	\$64,860,000	\$690,000	\$32,370,000	\$97,920,000
Finance, Insurance and Real Estate	\$0	\$19,460,000	\$40,910,000	\$60,370,000
Services: Hotels and Lodging Places	\$141,380,000	\$2,760,000	\$5,380,000	\$149,520,000
Automobile Rental and Leasing	\$44,250,000	\$1,740,000	\$1,780,000	\$47,770,000
Amusement and Recreation Services, n.e.c.	\$87,590,000	\$20,000	\$2,320,000	\$89,930,000
All Other Service Industries	\$0	\$76,540,000	\$168,250,000	\$244,790,000
Government - State, Local, Federal	\$390,000	\$5,200,000	\$166,430,000	\$172,020,000
Total	\$811,270,000	\$166,720,000	\$580,170,000	\$1,558,160,000

Table 2.17-7, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay Related Recreation, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$470,000	\$930,000	\$1,400,000
Commercial Fishing	\$0	\$10,000	\$0	\$10,000
Mining	\$0	\$0	\$10,000	\$10,000
Construction	\$0	\$630,000	\$5,670,000	\$6,300,000
Manufacturing: Food Products	\$0	\$2,600,000	\$1,620,000	\$4,220,000
Textiles	\$0	\$10,000	\$40,000	\$50,000
Apparel and Fabric Products	\$0	\$160,000	\$440,000	\$600,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$30,000	\$810,000	\$840,000
Printing, Publishing and Allied Products	\$0	\$1,760,000	\$870,000	\$2,630,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$130,000	\$2,750,000	\$2,880,000
Boat Building and Repairing	\$1,310,000	\$0	\$0	\$1,310,000
All other products	\$0	\$370,000	\$1,320,000	\$1,690,000
Transportation: Water Transportation	\$11,470,000	\$980,000	\$190,000	\$12,640,000
All Other Transportation	\$0	\$3,040,000	\$3,020,000	\$6,060,000
Communications, Electric, Gas and Sanitary Services	\$0	\$5,410,000	\$7,870,000	\$13,280,000
Wholesale Trade	\$0	\$4,920,000	\$10,230,000	\$15,150,000
Retail Trade: Food Stores	\$22,310,000	\$30,000	\$3,200,000	\$25,540,000
Automotive Dealers and Service Stations	\$38,580,000	\$230,000	\$3,910,000	\$42,720,000
Eating and Drinking Establishments	\$55,910,000	\$490,000	\$4,180,000	\$60,580,000
All Other Retail Stores	\$20,070,000	\$220,000	\$10,350,000	\$30,640,000
Finance, Insurance and Real Estate	\$0	\$29,880,000	\$103,070,000	\$132,950,000
Services: Hotels and Lodging Places	\$53,650,000	\$1,050,000	\$2,040,000	\$56,740,000
Automobile Rental and Leasing	\$40,470,000	\$1,600,000	\$1,620,000	\$43,690,000
Amusement and Recreation Services, n.e.c.	\$31,860,000	\$10,000	\$840,000	\$32,710,000
All Other Service Industries	\$0	\$9,460,000	\$17,030,000	\$26,490,000
Government - State, Local, Federal	\$250,000	\$500,000	\$31,650,000	\$32,400,000
Total	\$275,880,000	\$63,990,000	\$213,660,000	\$553,530,000

Table 2.17-7, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay Related Recreation, 2004

Industry	Tax Revenue, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$60,000	\$100,000	\$160,000
Commercial Fishing	\$0	\$520	\$70	\$590
Mining	\$0	\$670	\$1,130	\$1,800
Construction	\$0	\$50,000	\$1,020,000	\$1,070,000
Manufacturing: Food Products	\$0	\$150,000	\$890,000	\$1,040,000
Textiles	\$0	\$0	\$10,000	\$10,000
Apparel and Fabric Products	\$0	\$10,000	\$40,000	\$50,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$0	\$80,000	\$80,000
Printing, Publishing and Allied Products	\$0	\$170,000	\$90,000	\$260,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$30,000	\$140,000	\$170,000
Boat Building and Repairing	\$220,000	\$760	\$300	\$221,060
All other products	\$0	\$30,000	\$260,000	\$290,000
Transportation: Water Transportation	\$3,730,000	\$320,000	\$60,000	\$4,110,000
All Other Transportation	\$0	\$610,000	\$850,000	\$1,460,000
Communications, Electric, Gas and Sanitary Services	\$0	\$1,150,000	\$1,670,000	\$2,820,000
Wholesale Trade	\$0	\$5,420,000	\$11,260,000	\$16,680,000
Retail Trade: Food Stores	\$22,980,000	\$30,000	\$3,300,000	\$26,310,000
Automotive Dealers and Service Stations	\$39,730,000	\$230,000	\$4,020,000	\$43,980,000
Eating and Drinking Establishments	\$40,320,000	\$360,000	\$3,010,000	\$43,690,000
All Other Retail Stores	\$20,660,000	\$220,000	\$10,660,000	\$31,540,000
Finance, Insurance and Real Estate	\$0	\$5,800,000	\$20,450,000	\$26,250,000
Services: Hotels and Lodging Places	\$25,090,000	\$490,000	\$950,000	\$26,530,000
Automobile Rental and Leasing	\$11,460,000	\$450,000	\$460,000	\$12,370,000
Amusement and Recreation Services, n.e.c.	\$11,570,000	\$0	\$310,000	\$11,880,000
All Other Service Industries	\$0	\$2,470,000	\$4,090,000	\$6,560,000
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$175,760,000	\$18,051,950	\$63,721,500	\$257,533,450

Table 2.17-7, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay Related Recreation, 2004

Industry	Employment, Full and Part time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	0	52	103	155
Commercial Fishing	0	1	0	1
Mining	0	1	1	2
Construction	0	166	1,146	1,312
Manufacturing: Food Products	0	71	51	122
Textiles	0	2	6	7
Apparel and Fabric Products	0	10	55	65
Lumber, Wood Products, Furniture, Paper and Allied Products	0	7	96	103
Printing, Publishing and Allied Products	0	103	51	154
Chemicals, Petroleum, Rubber and Leather Products	0	4	59	64
Boat Building and Repairing	182	1	0	183
All other products	0	24	114	137
Transportation: Water Transportation	696	59	11	767
All Other Transportation	0	282	268	550
Communications, Electric, Gas and Sanitary Services	0	126	133	259
Wholesale Trade	0	303	631	934
Retail Trade: Food Stores	3,898	6	560	4,464
Automotive Dealers and Service Stations	2,828	17	286	3,131
Eating and Drinking Establishments	13,535	120	1,012	14,666
All Other Retail Stores	3,149	32	1,559	4,741
Finance, Insurance and Real Estate	0	499	852	1,351
Services: Hotels and Lodging Places	4,606	90	175	4,870
Automobile Rental and Leasing	984	39	39	1,062
Amusement and Recreation Services, n.e.c.	7,374	1	195	7,571
All Other Service Industries	0	2,370	4,782	7,151
Government – State, Local, Federal	7	74	3,151	3,232
Total	37,259	4,457	15,338	57,054

2.18 Location of Recreation Activities on Biscayne Bay

The Biscayne Bay User Survey asked respondents to indicate whether they spent their days in each recreation activity in the northern part of the Bay, the central part of the Bay or the southern part of the Bay. After the respondent indicated how many days were spent in each activity over the past 12 months, the respondent was asked to provide the location of these activities. Possible answers included north; central; south; north and central; north and south; central and south; and north, central and south. Respondents were asked to indicate the location for all activities except Viewing the Bay from Shore and Picnicking on the Bay.

The north Bay is defined as the area of the Bay north of the Miami River and Government Cut. The central Bay is defined as the area of the Bay south of and including the Miami River/Government Cut and north of and including the Black Point Park and Marina. The south Bay is defined as the area south of the Black Point Park and Marina.

The number of person-days by activity and location were estimated for residents and visitors and summed together to get the total person-days for both residents and visitors. This result was then used to calculate the proportion of person-days spent by activity and location.

Location of Resident Person-days by Activity. The responses to Questions 4, 6, and 7 of the Biscayne Bay User Survey of Residents was used to calculate the percent of respondent person-days spent in each location by activity. The results are provided in Table 2.18-1. For example, in 2004, 30 percent of the boat and shore fishing person-days of resident respondents took place in the north Bay, 24 percent took place in the south Bay, and 20 percent took place in the central and south Bay. Over all activities, 25 percent of resident respondent person-days took place in the central Bay, 21 percent took place in the central and south Bay, and 17 percent took place in the north Bay.

The number of person-days by activity and location is the product of the number of resident person-days spent in each activity and the proportion of the activity's person-days spent in each location. The results are provided in Table 2.18-2. For example, of the 6.9 million person-days spent fishing in Biscayne Bay both from boat and from shore, 2.0 million person-days were spent fishing in the north Bay, 1.7 million person-days were spent fishing in the south Bay and 1.4 million person-days were spent fishing in the central and south Bay.

Location of Visitor Person-days by Activity. The responses to Questions 12, 13, and 15 of the Biscayne Bay User Survey of Visitors was used to calculate the percent of respondent person-days spent in each location by activity. The results are provided in Table 2.18-3. For example, in 2004, 44 percent of the boat and shore fishing person-days of visitor respondents took place in the south Bay, 24 percent took place in the north Bay, and 11 percent took place in the central and south Bay. Over all activities, 32 percent of visitor respondent person-days took place in the central Bay, 17 percent took place in the north Bay, and 14 percent took place in the south Bay.

As with the resident values, the number of person-days by activity and location is the product of the number of visitor person-days spent in each activity and the proportion of the activity's person-days spent in each location. The results are provided in Table 2.18-4. For example, of

2.0 Biscayne Bay-Dependent Recreation in 2004

the 5.6 million person-days spent fishing in Biscayne Bay both from boat and from shore, 2.5 million person-days were spent fishing in the south Bay, 1.4 million person-days were spent fishing in the north Bay and 0.7 million person-days were spent fishing in the central and south Bay.

Location of Resident and Visitor Person-days by Activity. The distribution of person-days in Tables 2.18-2 and 2.18-4 were summed together to obtain the distribution of person-days by location and activity for both residents and visitors. The results are provided in Table 2.18-5. For example, of the 12.5 million person-days spent fishing on Biscayne Bay in 2004 both from boat and from shore, 4.1 million person-days were spent in the south Bay, 3.4 million person-days were spent in the north Bay and 2.0 million person-days were spent in the central and south Bay. For activities with relatively small participation such as parasailing and kite sailing, the number of person-days by location is not as accurate as for the other activities due to the small number of parasailers and kite sailors interviewed.

Of the 44.5 million person-days spent in all activities (except viewing the Bay from shore and picnicking), 12.7 million person-days were spent in the central Bay, 7.6 million person-days were spent in the north Bay, and 6.8 million person-days were spent in the central and south Bay. In the north Bay, fishing was the predominant recreation activity with at least 3.4 million person-days followed by swimming with at least 1.7 million person-days. In the central Bay, swimming was the predominant activity with at least 5.5 million person-days followed by sailing with at least 3.4 million person-days. In the south Bay, fishing was the most predominant activity with at least 4.1 million person-days followed by swimming with at least 1.1 million person-days.

The percent of resident and visitor person-days spent in each location by activity was calculated using the information in Table 2.18-5 and the results are provided in Table 2.18-6. About 33 percent of the person-days spent fishing in Biscayne Bay took place in the south Bay, 27 percent took place in the north Bay and 16 percent took place in the central and south Bay. Over all activities, 28 percent of the person-days were spent in the central Bay, 17 percent were spent in the north Bay and 15 percent were spent in the central and south Bay. While recreational activities take place throughout the Bay, the central Bay appears to support the largest proportion of recreational person-days.

Table 2.18-1
Location of Recreation Activities on Biscayne Bay by Residents
Percent of Days Spent by Activity and Location in the Past 12 Months, Questions 4, 6 and 7 (608 Respondents)

Activity	Percent of Person-days by Respondents							Total	Total No. of Days Respondents	% of Days Non-Blank for Location
	North	Central	South	North and Central	North and South	Central and South	North, Central and South			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Fishing	30%	6%	24%	12%	1%	20%	6%	100%	7,825	95%
Snorkeling	12%	23%	10%	6%	1%	33%	14%	100%	1,005	93%
Scuba Diving	23%	13%	10%	11%	0%	22%	20%	100%	373	94%
Swimming	9%	38%	10%	19%	1%	20%	5%	100%	8,844	93%
Boating for Pleasure / Partying	8%	17%	13%	13%	1%	22%	26%	100%	2,075	95%
Water-skiing	28%	42%	2%	0%	4%	17%	8%	100%	119	97%
Parasailing	0%	100%	0%	0%	0%	0%	0%	100%	1	100%
Windsurfing	38%	39%	2%	11%	0%	5%	5%	100%	185	94%
Kite Sailing	15%	75%	0%	0%	0%	10%	0%	100%	40	100%
Personal Watercraft Boating (jet skis, wave runners, etc.)	54%	33%	13%	0%	0%	1%	0%	100%	310	97%
Sailing	1%	47%	1%	12%	0%	25%	15%	100%	1,990	77%
Canoeing / Kayaking	33%	33%	2%	6%	0%	19%	7%	100%	363	79%
Sunset Cruise	15%	19%	30%	13%	0%	15%	8%	100%	164	92%
Glass bottom boat tour	0%	17%	33%	50%	0%	0%	0%	100%	6	100%
All Activities	17%	25%	14%	14%	1%	21%	8%	100%	23,300	92%

Table 2.18-2
Location of Recreation Activities on Biscayne Bay by Residents
Number of Person-days Spent by Activity and Location in the Past 12 Months

Activity	Number of Person-days, Miami-Dade County Residents							Total
	North	Central	South	North and Central	North and South	Central and South	North, Central and South	
Fishing	2,068,000	443,000	1,650,000	847,000	79,000	1,388,000	414,000	6,889,000
Snorkeling	195,000	374,000	154,000	100,000	22,000	521,000	231,000	1,597,000
Scuba Diving	170,000	99,000	77,000	83,000	0	162,000	146,000	737,000
Swimming	602,000	2,611,000	678,000	1,276,000	40,000	1,345,000	312,000	6,864,000
Boating for Pleasure / Partying	176,000	360,000	290,000	274,000	32,000	464,000	554,000	2,150,000
Water-skiing	52,000	78,000	3,000	0	8,000	31,000	14,000	186,000
Parasailing	0	7,000	0	0	0	0	0	7,000
Windsurfing	53,000	53,000	2,000	15,000	0	7,000	7,000	137,000
Kite Sailing	35,000	175,000	0	0	0	23,000	0	233,000
Personal Watercraft Boating (jet skis, wave runners, etc.)	133,000	81,000	32,000	0	0	2,000	0	248,000
Sailing	12,000	970,000	13,000	243,000	0	515,000	300,000	2,053,000
Canoeing / Kayaking	242,000	240,000	12,000	42,000	0	136,000	54,000	726,000
Sunset Cruise	21,000	27,000	43,000	19,000	0	21,000	11,000	142,000
Glass bottom boat tour	0	400	800	1,300	0	0	0	2,500
All Activities	3,759,000	5,518,400	2,954,800	2,900,300	181,000	4,615,000	2,043,000	21,971,500

Table 2.18-3

Location of Recreation Activities on Biscayne Bay by Visitors

Percent of Days Spent by Activity and Location in the Past 12 Months, Questions 12, 13 and 15 (309 Respondents)

Activity	Percent of Person-days by Respondents							Total	Total No. of Days Respondents	% of Days Non-Blank for Location
	North	Central	South	North and Central	North and South	Central and South	North, Central and South			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Fishing	24%	7%	44%	5%	1%	11%	9%	100%	680	100%
Snorkeling	18%	42%	9%	13%	1%	6%	11%	100%	126	93%
Scuba Diving	17%	29%	10%	3%	1%	7%	33%	100%	60	100%
Swimming	14%	36%	6%	30%	0%	7%	7%	100%	929	98%
Boating for Pleasure / Partying	17%	33%	1%	14%	0%	11%	25%	100%	320	100%
Water-skiing	41%	0%	0%	0%	0%	0%	59%	100%	3	100%
Parasailing	50%	0%	0%	50%	0%	0%	0%	100%	2	100%
Windsurfing	100%	0%	0%	0%	0%	0%	0%	100%	1	100%
Kite Sailing	0%	100%	0%	0%	0%	0%	0%	100%	2	100%
Personal Watercraft Boating (jet skis, wave runners, etc.)	57%	0%	0%	34%	0%	9%	0%	100%	9	69%
Sailing	7%	61%	0%	2%	0%	14%	17%	100%	480	100%
Canoeing / Kayaking	17%	0%	0%	3%	0%	7%	72%	100%	29	100%
Sunset Cruise	59%	2%	0%	0%	4%	0%	35%	100%	40	100%
Glass bottom boat tour	0%	0%	100%	0%	0%	0%	0%	100%	1	100%
All Activities	17%	32%	14%	14%	0%	10%	13%	100%	2,683	99%

Table 2.18-4
Location of Recreation Activities on Biscayne Bay by Visitors
Number of Person-days Spent by Activity and Location in the Past 12 Months

Activity	Number of Person-days, Miami-Dade County Visitors							Total
	North	Central	South	North and Central	North and South	Central and South	North, Central and South	
Fishing	1,356,000	381,000	2,470,000	258,000	38,000	645,000	496,000	5,644,000
Snorkeling	199,000	474,000	106,000	146,000	13,000	62,000	128,000	1,128,000
Scuba Diving	87,000	145,000	50,000	13,000	4,000	35,000	166,000	500,000
Swimming	1,125,000	2,853,000	443,000	2,338,000	13,000	532,000	540,000	7,844,000
Boating for Pleasure / Partying	442,000	867,000	17,000	384,000	0	297,000	660,000	2,667,000
Water-skiing	12,000	0	0	0	0	0	17,000	29,000
Parasailing	10,000	0	0	10,000	0	0	0	20,000
Windsurfing	8,000	0	0	0	0	0	0	8,000
Kite Sailing	0	17,000	0	0	0	0	0	17,000
Personal Watercraft Boating (jet skis, wave runners, etc.)	65,000	0	0	39,000	0	10,000	0	114,000
Sailing	278,000	2,420,000	0	83,000	0	542,000	664,000	3,987,000
Canoeing / Kayaking	41,000	0	0	8,000	0	17,000	173,000	239,000
Sunset Cruise	196,000	6,000	0	0	12,000	0	118,000	332,000
Glass bottom boat tour	0	0	2,500	0	0	0	0	2,500
All Activities	3,819,000	7,163,000	3,088,500	3,279,000	80,000	2,140,000	2,962,000	22,531,500

Table 2.18-5
Location of Recreation Activities on Biscayne Bay by Residents and Visitors
Number of Person-days Spent by Activity and Location in the Past 12 Months

Activity	Number of Person-days, Miami-Dade County Residents and Visitors							Total
	North	Central	South	North and Central	North and South	Central and South	North, Central and South	
Fishing	3,424,000	824,000	4,120,000	1,105,000	117,000	2,033,000	910,000	12,533,000
Snorkeling	394,000	848,000	260,000	246,000	35,000	583,000	359,000	2,725,000
Scuba Diving	257,000	244,000	127,000	96,000	4,000	197,000	312,000	1,237,000
Swimming	1,727,000	5,464,000	1,121,000	3,614,000	53,000	1,877,000	852,000	14,708,000
Boating for Pleasure / Partying	618,000	1,227,000	307,000	658,000	32,000	761,000	1,214,000	4,817,000
Water-skiing	64,000	78,000	3,000	0	8,000	31,000	31,000	215,000
Parasailing	10,000	88	0	10,000	0	0	0	20,088
Windsurfing	61,000	53,000	2,000	15,000	0	7,000	7,000	145,000
Kite Sailing	35,000	192,000	0	0	0	23,000	0	250,000
Personal Watercraft Boating (jet skis, wave runners, etc.)	198,000	81,000	32,000	39,000	0	12,000	0	362,000
Sailing	290,000	3,390,000	13,000	326,000	0	1,057,000	964,000	6,040,000
Canoeing / Kayaking	283,000	240,000	12,000	50,000	0	153,000	227,000	965,000
Sunset Cruise	217,000	33,000	43,000	19,000	12,000	21,000	129,000	474,000
Glass bottom boat tour	0	400	3,300	1,300	0	0	0	5,000
All Activities	7,578,000	12,674,488	6,043,300	6,179,300	261,000	6,755,000	5,005,000	44,496,088

Table 2.18-6
Location of Recreation Activities on Biscayne Bay by Residents and Visitors
Percent of Days Spent by Activity and Location in the Past 12 Months

Activity	Percent of Person-days by Miami-Dade County Residents and Visitors							Total
	North	Central	South	North and Central	North and South	Central and South	North, Central and South	
Fishing	27%	7%	33%	9%	1%	16%	7%	100%
Snorkeling	14%	31%	10%	9%	1%	21%	13%	100%
Scuba Diving	21%	20%	10%	8%	0%	16%	25%	100%
Swimming	12%	37%	8%	25%	0%	13%	6%	100%
Boating for Pleasure / Partying	13%	25%	6%	14%	1%	16%	25%	100%
Water-skiing	30%	36%	1%	0%	4%	14%	14%	100%
Parasailing	50%	0%	0%	50%	0%	0%	0%	100%
Windsurfing	42%	37%	1%	10%	0%	5%	5%	100%
Kite Sailing	14%	77%	0%	0%	0%	9%	0%	100%
Personal Watercraft Boating (jet skis, wave runners, etc.)	55%	22%	9%	11%	0%	3%	0%	100%
Sailing	5%	56%	0%	5%	0%	18%	16%	100%
Canoeing / Kayaking	29%	25%	1%	5%	0%	16%	24%	100%
Sunset Cruise	46%	7%	9%	4%	3%	4%	27%	100%
Glass bottom boat tour	0%	8%	66%	26%	0%	0%	0%	100%
All Activities	17%	28%	14%	14%	1%	15%	11%	100%

2.19 Demographic Characteristics of Those Who Recreate on Biscayne Bay

The Biscayne Bay User Survey asked resident and visitor respondents to describe themselves in terms of age, sex, race/ethnicity, income, years living in or visiting Miami-Dade County, boat ownership, fishing/diving club membership, and location of residence. The responses were tallied and are presented in Tables 2.19-1 through 2.19-6.

A comparison of residents and visitors is provided in Table 2.19-1. Resident and visitor Bay users are similar in many respects. The median age of residents and visitors was similar at 42 years and 45 years, respectively. The percentage of male and female respondents was the same for residents and visitors at 60 percent and 40 percent, respectively. Whether a resident or a visitor, about 92 percent of the respondents were white and six percent were black. Residents and visitors had similar probabilities of owning a boat, with 29 percent of residents and 22 percent of visitors saying they owned their own boat. Very few residents and visitors belong to fishing or diving clubs. Only 4 percent of residents and 3 percent of visitors said they belong to such a club.

**Table 2.19-1
Demographic Characteristics of Those Who Recreate on Biscayne Bay
Resident and Visitor Respondents, 2004**

Characteristic	Residents			Visitors		
Median Age of Respondent	42			45		
Sex Of Respondent	Percent			Percent		
Male	58%			62%		
Female	42%			38%		
Race Of Respondent	% of Resident Bay-Users			% of Visitor Bay-Users		
	White	Black	Other	White	Black	Other
	93%	6%	1%	91%	6%	3%
Percent Hispanic, Latino or of Spanish Origin	% of Resident Bay-Users			% of Visitor Bay-Users		
	52%			20%		
Median Household Income	Resident Bay-Users			Visitor Bay-Users		
	\$43,000			\$55,000		
Average Years Living in / Visiting Miami-Dade County	Residents			Visitors		
	20			10		
% Who Own Their Own Boat	Residents			Visitors		
	29%			22%		
% Who Belong to Fishing and/or Diving Clubs	Residents			Visitors		
	4%			3%		

Source: From the Biscayne Bay User Survey responses of 604 residents and 310 visitors who used Biscayne Bay for recreation in the past 12 months .

2.0 Biscayne Bay-Dependent Recreation in 2004

Residents who recreate on Biscayne Bay are more likely to be of Hispanic, Latino or Spanish origin than are visitors. Of the respondents, 52 percent of residents and 20 percent of visitors said they were of Hispanic, Latino or Spanish origin. The median household income of resident Bay users is \$43,000 per year while the median household income of visitors is \$55,000 per year.

Bay using residents have lived in Miami-Dade County an average of 20 years while Bay using visitors have visited the county an average of 10 years. The distribution of years lived in or visited Miami-Dade County by residents and visitors is provided in Table 2.19-2. Two-thirds of resident Bay users have lived in Miami-Dade County from 11 to 40 years. Almost one-half of the county's Bay using visitors have visited the county for the past six to 20 years.

**Table 2.19-2
Years Lived In or Visited Miami-Dade County**

Years	Years Lived in Miami-Dade County		Years Visiting in Miami-Dade County	
	Resident Bay User Respondents		Visitor Bay User Respondents	
	Number	Percent	Number	Percent
< 5	76	12%	134	44%
6 to 10	74	12%	73	24%
11 to 20	213	35%	65	21%
21 to 30	131	22%	22	7%
31 to 40	67	11%	8	3%
41 to 50	35	6%	4	1%
51 to 60	11	2%	1	0.33%
61 to 70	2	0.33%	0	0%
Total	609	100%	307	100%
Average	20		10	

Source: Biscayne Bay User Survey responses of 604 residents and 310 visitors who recreated on Biscayne Bay in the past 12 months.

Residents and visitors were also asked the location of their household and where their trip originated, respectively. Resident respondents to the Biscayne Bay User Survey were asked for their residence zip code. Visitor respondents to the survey were asked for the city, state and/or country where their trip originated.

Resident zip codes were mapped to their location in Miami-Dade County in terms of northeast, northwest, southeast and southwest quadrants. The coordinates for northeast, southeast, northwest, and southwest are as follows. The east/west delineation is Interstate 95 and then, going south, SR 836 to NW 27th Avenue to US 1. The north/south delineation is Interstate 195 that turns into SR 112 and then turns into SR 948.

2.0 Biscayne Bay-Dependent Recreation in 2004

The distribution of resident households by location is provided in Table 2.19-3. The table also includes the percent of the population that lives in each quadrant. For example, 19 percent of residents live in the northeastern county and 22 percent of resident Bay user respondents were from this area. In the northeastern and southwestern parts of the county, the percent of resident Bay user respondents mirrors the percent of county residents who live in these areas. While 25 percent of county residents live in the northwestern part of the county, only 11 percent of the resident Bay user respondents were from this area. Eighteen percent of county residents live in the southeastern county, while 28 percent of the resident Bay users were from this area.

**Table 2.19-3
Household Location of Miami-Dade County
Residents, 2004**

Location	Resident Bay User Respondents		Resident Population
	Number	Percent	Percent
Northeast	133	22%	19%
Northwest	69	11%	25%
Southeast	167	28%	18%
Southwest	235	39%	38%
Total	604	100%	100%

Note: The coordinates for NE, SE, NW and SW are as follows: The east/west delineation is Interstate 95 and then, going south, SR 836 to NW 27th Avenue to US 1. The north/south delineation is Interstate 195 that turns into SR 112 and then turns into SR 948.

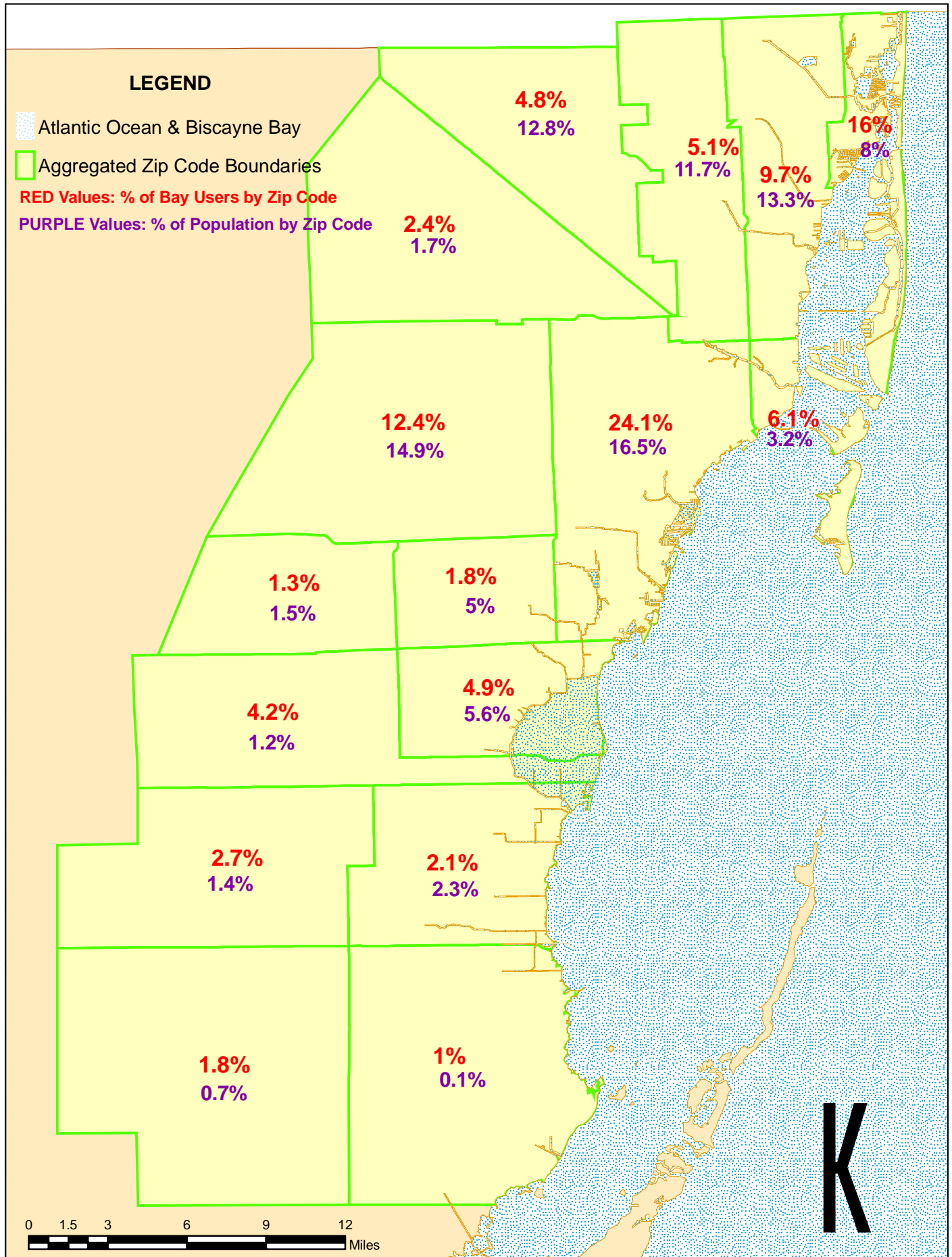
The geographic distribution of resident Bay-users is compared to the distribution of the resident population in Figure 2-2. The top number within each area of the county is the percent of Bay users who live in that area. The bottom number within each area of the county is the percent of the county's population that live in that area.

The countries where Bay-using visitor respondents began their trip to Miami-Dade County are provided in Table 2.19-4. Of the 309 respondents, 81 percent were from the United States. The rest of the visitors were from Central and South America, Europe, and the Far East. The United Kingdom and Germany had the highest percentage of visitors originating from countries outside the United States at three percent each.

The origin states of the 249 visitor respondents from the United States are provided in Table 2.19-5. Visitors came from all over the country, from California to Maine. The predominant state of origin was Florida with 39 percent of respondents. New Jersey, New York and Georgia were the next most frequent states of origin at 8.5 percent, 8.1 percent and 6.1 percent of U.S. Bay-using visitors, respectively.

The origin counties of the 95 Bay using visitor respondents from Florida are provided in Table 2.19-6. Most of the origin counties are located along Florida's coast. The exceptions are Lake,

**Figure 2-2: Biscayne Bay Economic Study
Distribution of Resident Bay Users and County Population
by Geographic Area**



2.0 Biscayne Bay-Dependent Recreation in 2004

Leon, Osceola and Orange counties. Broward County was the predominant county of origin with 56 percent of visitors from Florida. Palm Beach County and Lee County comprised 10 percent and six percent, respectively, of visitors from Florida.

**Table 2.19-4
Origin of Visitors Who Recreate on Biscayne Bay, 2004**

Country of Origin	Number of Visitor Respondents	% of All Respondents
Africa	1	0.33%
Argentina	1	0.33%
Bahamas	1	0.33%
Brazil	1	0.33%
Canada	3	0.98%
Colombia	5	1.63%
France	1	0.33%
Germany	9	2.93%
Guatemala	1	0.33%
Holland	2	0.65%
Honduras	2	0.65%
Hungary	1	0.33%
Indonesia	1	0.33%
Ireland	1	0.33%
Italy	2	0.65%
Jamaica	3	0.98%
Malta	1	0.33%
Mexico	3	0.98%
Norway	2	0.65%
Peru	2	0.65%
South Korea	1	0.33%
Sweden	2	0.65%
Switzerland	1	0.33%
Thailand	1	0.33%
United Kingdom	10	3.26%
USA	247	80.46%
Venezuela	2	0.65%
Total	307	100.00%

Source: Biscayne Bay User Survey of 310 visitors who recreated on Biscayne Bay in past 12 months.

Table 2.19-5
Origin of United States' Visitors Who Recreate on Biscayne Bay, 2004

State	Number of Respondents	% of U.S. Respondents
Arizona	1	0.40%
California	7	2.83%
Colorado	3	1.21%
Connecticut	5	2.02%
Delaware	1	0.40%
District of Columbia	1	0.40%
Florida	95	38.46%
Georgia	15	6.07%
Illinois	8	3.24%
Indiana	1	0.40%
Kentucky	2	0.81%
Maine	2	0.81%
Maryland	8	3.24%
Massachusetts	7	2.83%
Michigan	2	0.81%
Minnesota	1	0.40%
Missouri	4	1.62%
Nevada	3	1.21%
New Jersey	21	8.50%
New York	20	8.10%
North Carolina	5	2.02%
Ohio	3	1.21%
Oklahoma	1	0.40%
Pennsylvania	8	3.24%
Puerto Rico	6	2.43%
Rhode Island	1	0.40%
South Carolina	1	0.40%
Tennessee	6	2.43%
Virginia	7	2.83%
West Virginia	1	0.40%
Wisconsin	1	0.40%
Total	247	100.00%

Source: Biscayne Bay User Survey of 310 visitors who recreated on Biscayne Bay in past 12 months.

**Table 2.19-6
Origin of Florida Visitors Who Recreate on Biscayne Bay, 2004**

County	Number of Respondents	% of Florida Respondents
Broward	53	55.79%
Collier	2	2.11%
Duval	2	2.11%
Flagler	1	1.05%
Hernando	1	1.05%
Hillsborough	3	3.16%
Indian River	3	3.16%
Lake	2	2.11%
Lee	6	6.32%
Leon	1	1.05%
Manatee	2	2.11%
Monroe	1	1.05%
Orange	4	4.21%
Osceola	1	1.05%
Palm Beach	9	9.47%
Pinellas	3	3.16%
St. Lucie	1	1.05%
Total	95	100.00%

Source: Biscayne Bay User Survey of 310 visitors who recreated on Biscayne Bay in past 12 months.

3.0 Biscayne Bay-Dependent Recreation – Historic

This section describes the uses and economic contribution of Biscayne Bay as it has been used for recreation since 1980.

3.1 Methodology

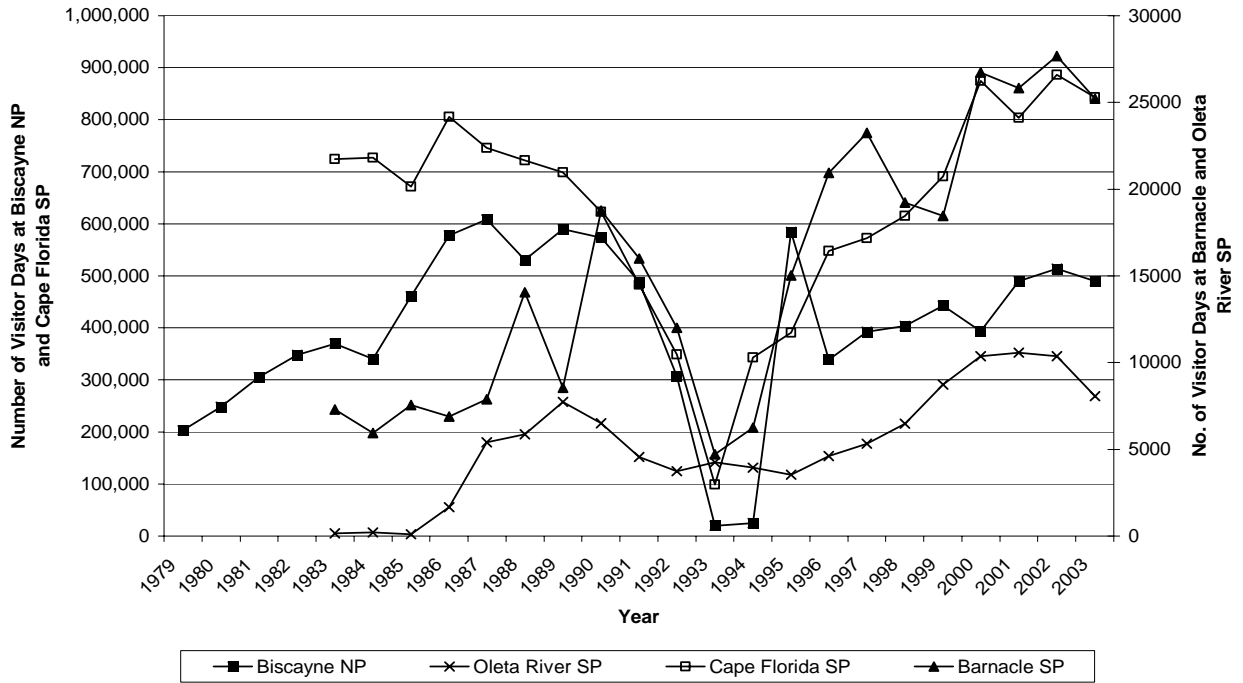
The methodology chosen to estimate the historic uses and economic contribution was based on the types of available data and information. No studies exist that have attempted to estimate the historic uses and economic contribution in terms of person-days and the output, income, employment and tax revenues generated. The Bay is accessible through many parks, marinas, boat ramps and private docks. There is no system of counting persons entering the Bay or participating in activities on or near the Bay. Actual or estimated attendance is available for only four parks surrounding the Bay. Attendance is the number of persons entering the park. These parks are Biscayne National Park, Barnacle Historic State Park, Oleta River State Park and Cape Florida State Park.

Historic Person-Days by Activity. Historic data regarding the number of person-days spent in each Bay-dependent recreation activity is not available. Instead, the 2004 estimates of person-days by activity were trended backward through 1980 based on the trend in the total attendance at Biscayne National Park, Barnacle Historic State Park, Oleta River State Park and Cape Florida State Park. While attendance at these parks represents only a portion of all the activities taking place throughout the Bay, they are the most representative of trends in usage available.

Attendance at Biscayne National Park is estimated by the National Park Service. The method used to estimate attendance at Biscayne National Park changed after 1991. The change was the change in the parameter values used to estimate visitation from boat trailer counts at Homestead Bayfront Park, Black Point Park and Matheson Hammock Park. Because the National Park Service was unable to provide the parameter values used prior to 1992, it is not possible to assess the impact of the change mathematically. Because the trend in attendance at Biscayne National Park mirrors the trends for Barnacle Historic State Park, Oleta River State Park and Cape Florida State Park, it was assumed that the attendance trend for Biscayne National Park is representative of the true attendance trend. The historic attendance at each of these four parks is graphed in Figure 3.1-1.

3.0 Biscayne Bay-Dependent Recreation – Historic

Figure 3.1-1
Attendance at Biscayne National Park and State Parks Along Biscayne Bay
Attendance is Number of Persons Entering the Parks



The total number of persons entering these four parks from 1983 through 2003 is provided in Table 3.1-1. Attendance at Biscayne National Park from 1979 to 1982 is also provided. Total attendance from 1983 through 2003 is graphed in Figure 3.1-2.

The annual percentage changes in total attendance at all four parks from 1983 through 2003 and at Biscayne National Park from 1980 to 1982 are provided in Column (7) of Table 3.1-1. These percentage changes were used to infer historic recreational uses and economic contribution of Biscayne Bay. Because 2004 data were not available, 2003 person-days was set equal to 2004 person-days. Then the number of person-days in an activity in 2002 is equal to the number in 2003 divided by the quantity one plus the growth rate from 2002 to 2003. This method was used to estimate the number of person-days each year by activity. The historic economic contribution of Bay-related recreation was estimated in the same manner. The 2004 estimates of direct, indirect and induced output, income, employment and tax revenue were used as the starting points from which the percent changes in recreation activity at the four parks were applied to obtain estimates for the years 1980 through 2002. The 2003 values were set equal to the 2004 values.

3.0 Biscayne Bay-Dependent Recreation – Historic

Parasailing, windsurfing and kite sailing were combined into one category. During the 1980's, windsurfing was a popular Bay activity in Florida and California while currently, parasailing and kite sailing are popular. The number of person-days spent on glass bottom boats is assumed to be zero from 1980 to 1983. In 1984, the glass bottom boat concession in Biscayne National Park opened so the number of person-days is positive beginning with this year.

Table 3.1-1
Attendance At State and National Parks Along Biscayne Bay
Attendance is Number of Persons Entering the Park

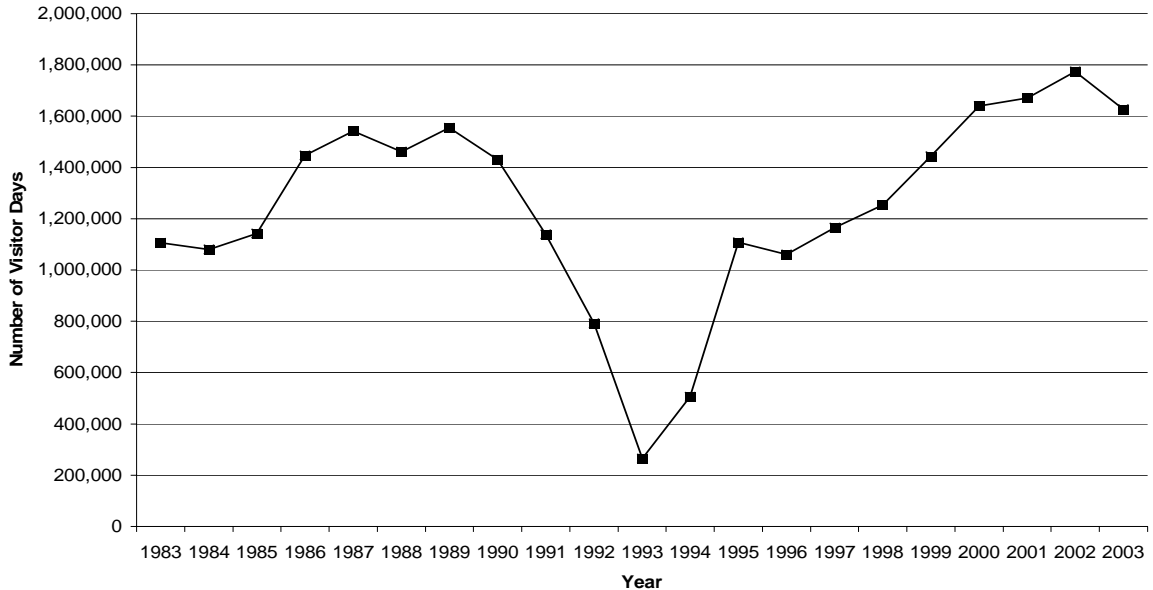
Year	Biscayne National Park	Barnacle Historic State Park	Oleta River State Park	Cape Florida State Park	Total	Annual % Change (a)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1979	202,938	NA	NA	NA	NA	
1980	248,071	NA	NA	NA	NA	22%
1981	305,502	NA	NA	NA	NA	23%
1982	348,219	NA	NA	NA	NA	14%
1983	369,082	7,293	4,840	724,810	1,106,025	6%
1984	340,567	5,941	6,749	727,272	1,080,529	-2%
1985	460,921	7,545	3,069	671,271	1,142,806	6%
1986	578,013	6,875	55,724	805,611	1,446,223	27%
1987	607,968	7,895	179,943	745,728	1,541,534	7%
1988	531,036	14,047	195,281	721,482	1,461,846	-5%
1989	589,957	8,554	257,787	698,756	1,555,054	6%
1990	573,376	18,769	216,551	622,470	1,431,166	-8%
1991	488,134	16,003	151,938	483,310	1,139,385	-20%
1992	307,512	12,012	124,543	348,893	792,960	-30%
1993	19,950	4,711	141,770	99,346	265,777	-66%
1994	25,147	6,247	131,396	342,861	505,651	90%
1995	584,519	15,014	117,978	391,211	1,108,722	119%
1996	338,603	20,930	153,244	548,071	1,060,848	-4%
1997	392,069	23,237	177,282	572,432	1,165,020	10%
1998	403,239	19,212	215,721	615,598	1,253,770	8%
1999	442,585	18,466	291,301	691,515	1,443,867	15%
2000	393,151	26,736	345,221	874,837	1,639,945	14%
2001	489,343	25,824	352,082	804,166	1,671,415	2%
2002	513,397	27,680	345,916	886,455	1,773,448	6%
2003	490,031	25,208	269,097	842,937	1,627,273	-8%

Source: Florida Park Service, Department of Environmental Protection, Tallahassee, Florida. Biscayne National Park visits were estimated by the National Park Service.

(a) From 1980 to 1983, the percent change in Biscayne National Park visitor days was used. From 1984 to 2003, the percent change in visitor days at all four parks was used.

3.0 Biscayne Bay-Dependent Recreation – Historic

**Figure 3.1-2
Total Number of Visitor Days at Biscayne National Park and Three State Parks
Along Biscayne Bay**



The impact of Hurricane Andrew which struck the county on August 24, 1992 is evident from Figure 3.1-2. It affected visitation from September 1992 through calendar year 1994. The destruction caused by this hurricane affected all of the coastal areas of the county, so it is reasonable to assume that it would have significantly reduced the number of person-days in all Bay-related recreation activities. By 1999, attendance returns to pre-1991 levels, increases through 2002 and falls slightly in 2003.

Other trends were also considered. They were rejected because they fail to pick up the impact of Hurricane Andrew on Bay-related recreation activities. These trends are:

- Number of marine inland (bays, estuaries, sounds) recreational fishing trips (person-days) in eastern Florida, 1981 to 2002;¹

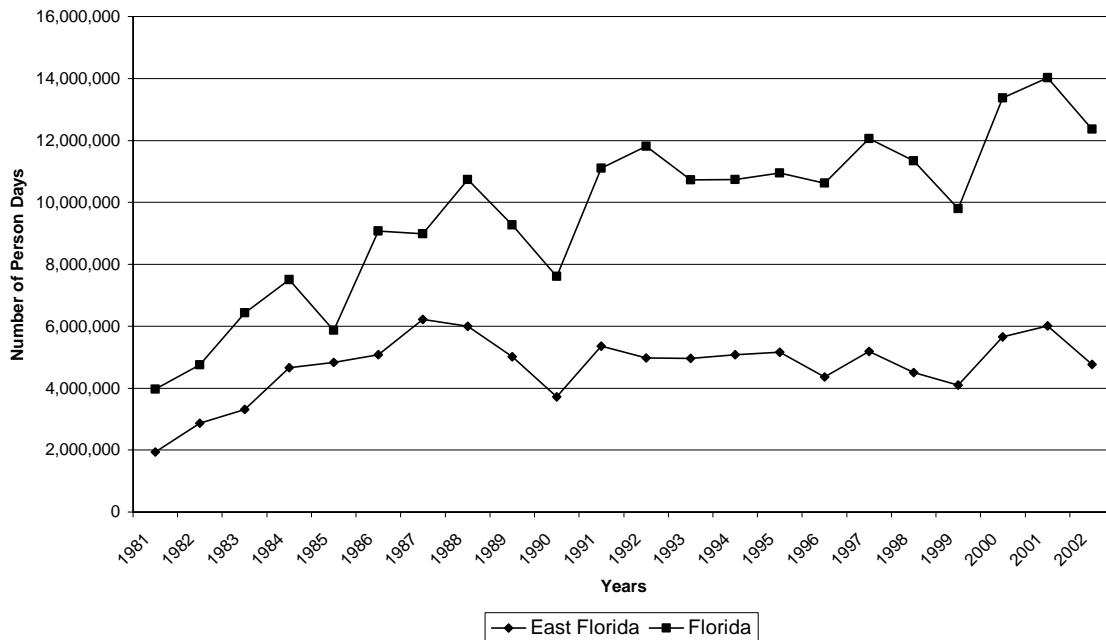
¹ Source: Personal communication from the National Marine Service, Fisheries Statistics and Economics Division, Marine Recreational Fisheries Statistics Survey, www.st.nmfs.gov. The number of marine inland recreational fishing trips in eastern Florida includes Biscayne Bay. The number of trips is lower than that estimated in this study because the National Marine Service counts only those persons 18 years and older who actually fished. This study's estimate of person-days fishing also includes persons from 15 to 17 years of age and those who accompany the fishers and are not fishing.

3.0 Biscayne Bay-Dependent Recreation – Historic

- Number of registered boats for recreation in Miami-Dade and Broward counties (1980 to 2002);²
- Population of Miami-Dade and Broward counties (1980 to 2004);³
- Number of overnight visitor-trips to Miami-Dade County (1992 to 2003);⁴ and
- Number of visiting cars entering Virginia Key and Key Biscayne through the Rickenbacker Causeway (1999 to 2004).⁵

These trends are plotted in Figures 3.1-3 through 3.1-7. The trend in the number of visiting cars entering Virginia Key and Key Biscayne through the Rickenbacker Causeway closely follows the trends observed in the four parks whose data were used in this study. Virginia Key beach, Crandon Park, and Cape Florida State Park are accessible through this causeway. Data prior to 1999 was not available.

Figure 3.1-3
Number of Marine Inland Recreational Fishing Trips (Person Days) in Eastern Florida and Florida, 1981 - 2002



² Source: Data compiled by Jerald S. Ault, Ph.D., University of Miami, Rosenstiel School of Marine and Atmospheric Sciences, 1977 to 2002 based on data from the Bureau of Economic and Business Research, University of Florida, "Florida Statistical Abstract", various years, Gainesville, Florida. Data for the years 1964 to 1976 are from the Florida Department of Environmental Protection, Tallahassee.

³ Source: Lenze, David G., "Florida Long-Term Economic Forecast 2002" and "Florida Long-Term Economic Forecast 1998", Bureau of Economic and Business Research, University of Florida, Gainesville.

⁴ Source: Greater Miami Convention and Visitors Bureau.

⁵ Miami-Dade County Causeway Authority, Miami, Florida, March 2005.

3.0 Biscayne Bay-Dependent Recreation – Historic

Figure 3.1-4
Number of Registered Boats for Recreation In Miami-Dade and Broward Counties

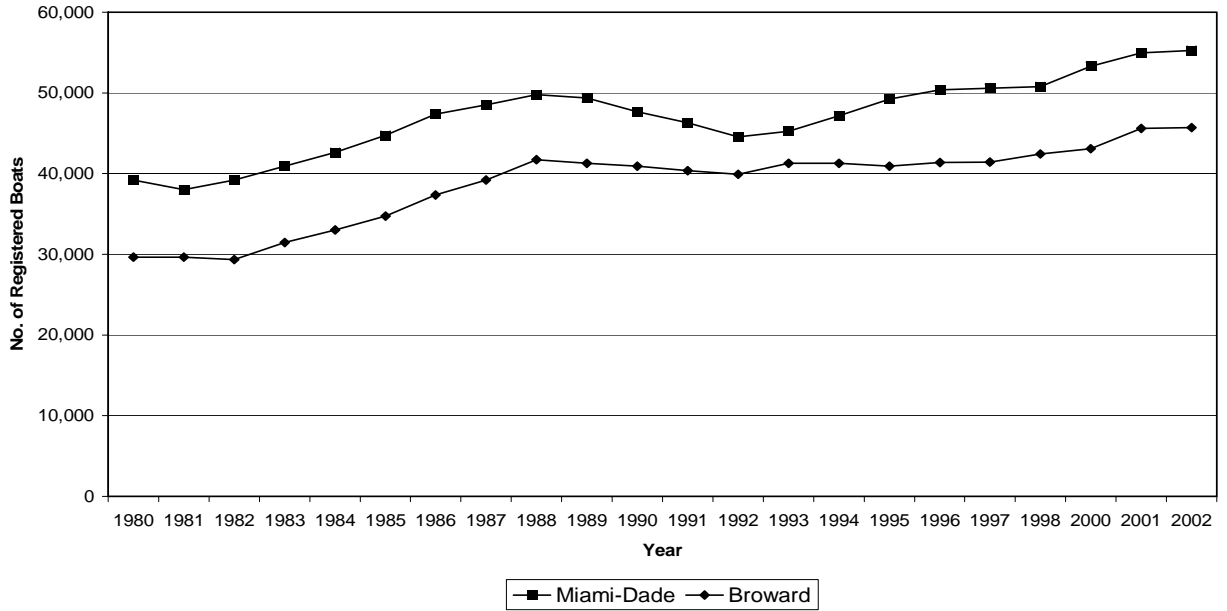
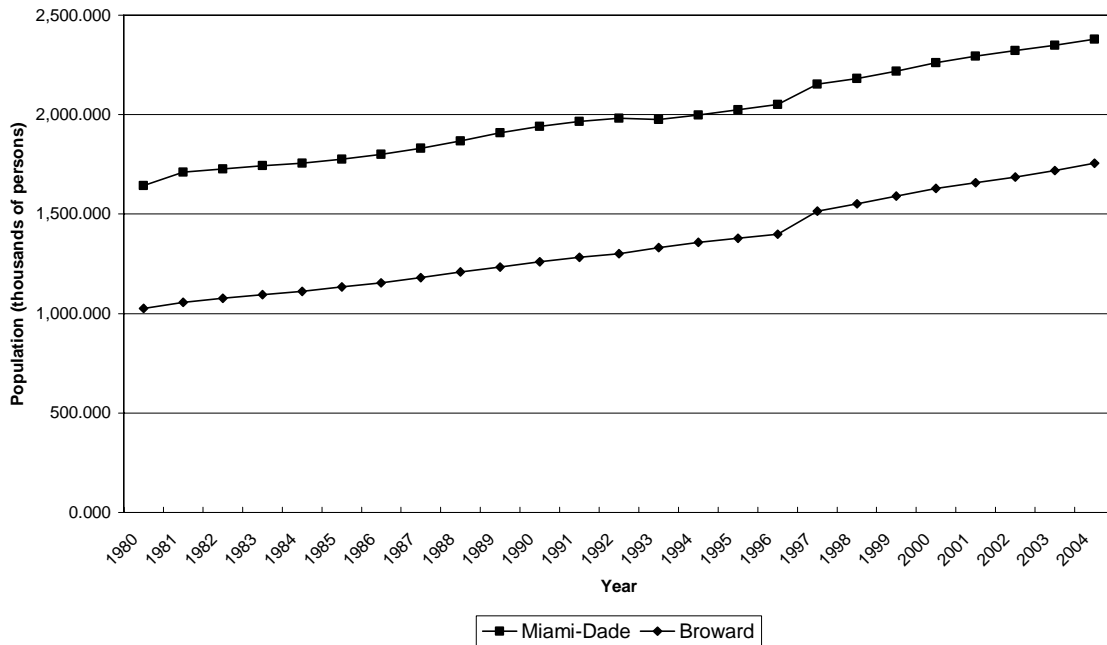


Figure 3.1-5
Population of Miami-Dade and Broward Counties 1980 - 2004



3.0 Biscayne Bay-Dependent Recreation – Historic

Figure 3.1-6
Number of Overnight Visitors to Miami-Dade County, 1992 to 2003

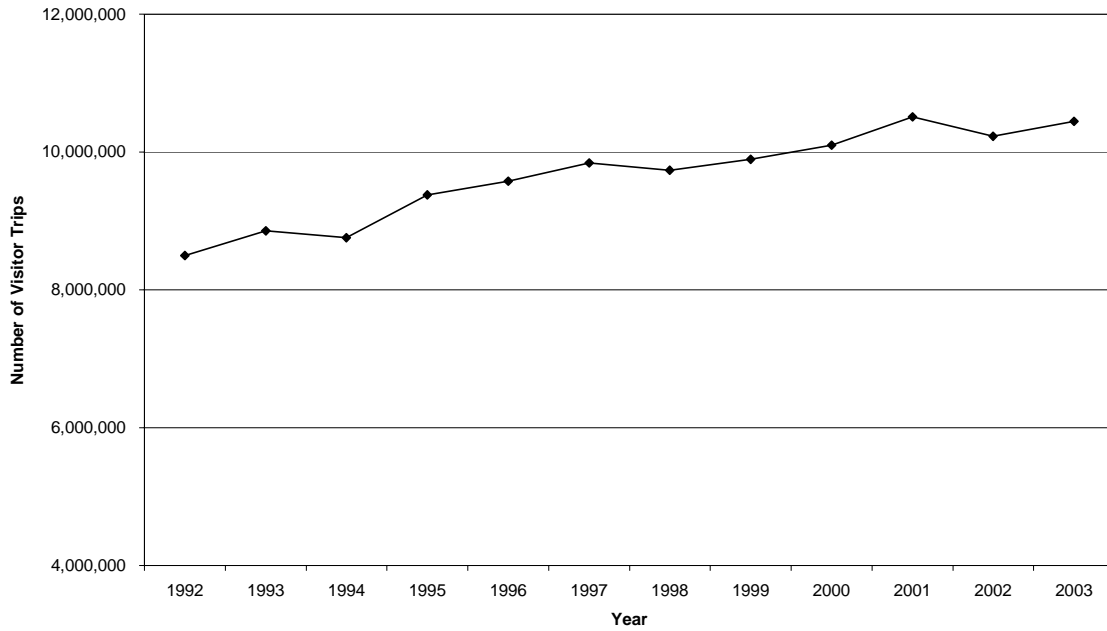
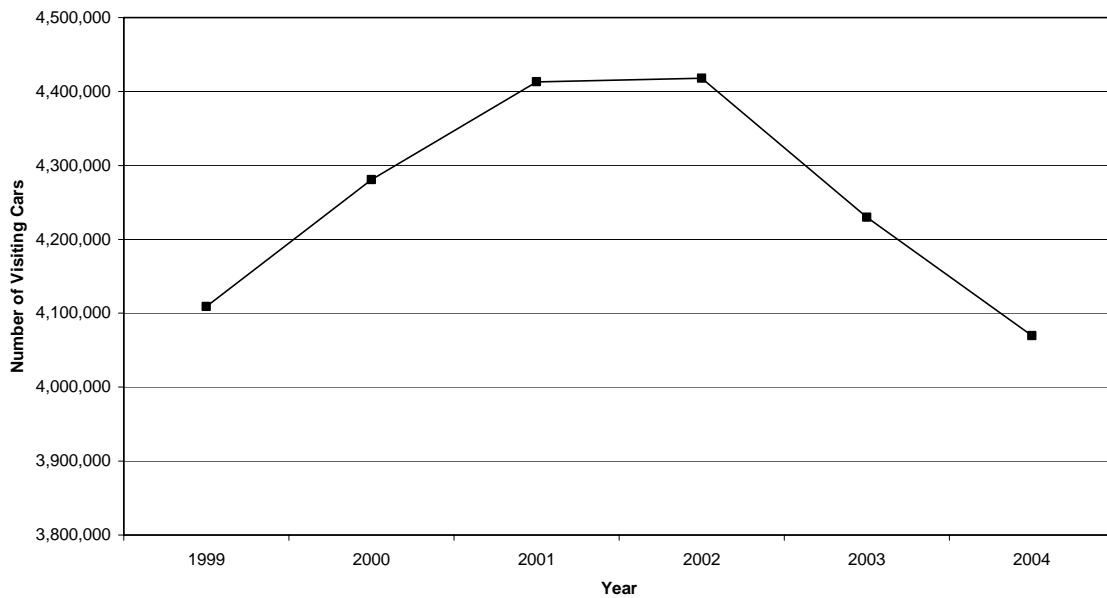


Figure 3.1-7
Number of Visiting Cars Entering Virginia Key and Key Biscayne Through the Rickenbacker Causeway, 1999 to 2004

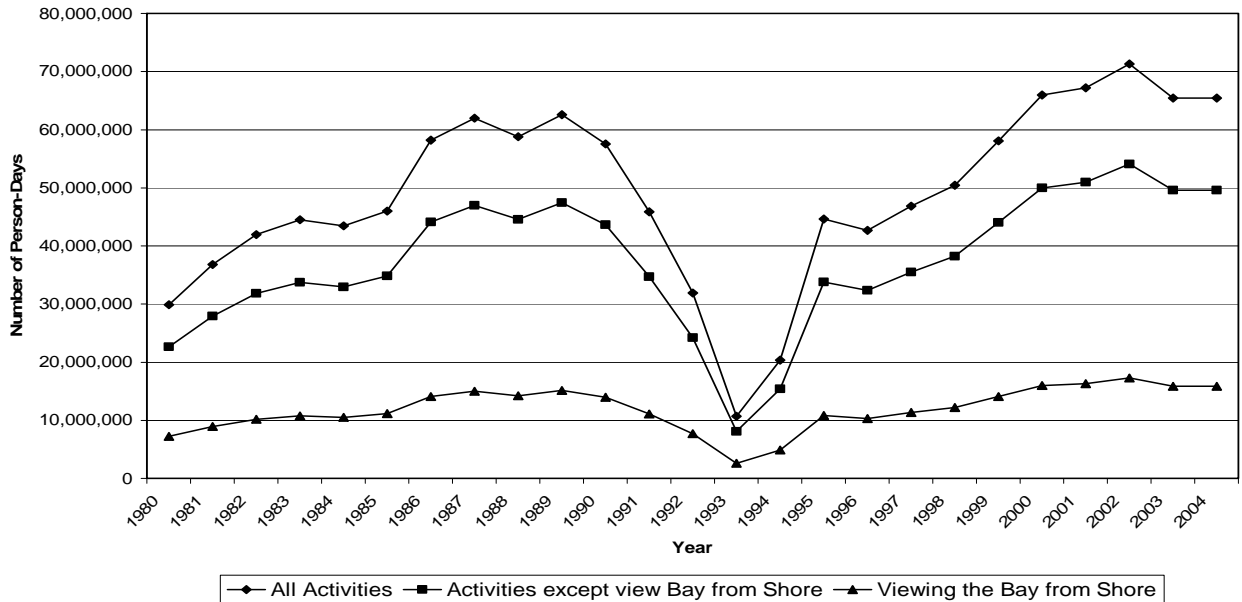


3.0 Biscayne Bay-Dependent Recreation – Historic

3.2 Historic Recreational Uses and Economic Contribution

The current and historic recreational uses of Biscayne Bay in terms of person-days by activity are provided in Table 3.2-1. The total number of person-days in all recreation activities is plotted in Figure 3.2-1. In 1980, Biscayne Bay supported 29.9 million person-days of recreational activity. Recreation reached a peak in 1989 with 62.6 million person-days. After Hurricane Andrew, which struck Miami-Dade County on August 24, 1992, recreational use of the Bay fell to an all-time low of 10.7 million person-days in 1993. Activity recovered quickly and by 2004 the number of person-days had grown to 65.5 million for an overall growth of 120 percent from 1980 to 2004.

Figure 3.2-1
Biscayne Bay Recreation, Number of Person-Days, 1980 to 2004



The survey researchers were instructed that the category “Sailing” is any activity conducted on a sail boat. Thus, all other categories that have the word “boat” in them are power boats. As with all of the activities, the respondent was to provide the primary activity conducted that day. Thus, it is possible that some respondents said snorkeling from a boat if that is what they did all day even if it was from a sailboat. However, most of the sailing is expected to be under the category “sailing”.

3.0 Biscayne Bay-Dependent Recreation – Historic

**Table 3.2-1
Estimated Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 1980 to 2004**

Activity	1980	1981	1982	1983	1984	1985
Fishing - From Shore	1,760,000	2,167,000	2,470,000	2,618,000	2,558,000	2,705,000
Fishing - From Boat	3,966,000	4,884,000	5,567,000	5,901,000	5,765,000	6,097,000
Snorkeling - From Shore	412,000	507,000	578,000	613,000	599,000	633,000
Snorkeling - From Boat	837,000	1,031,000	1,175,000	1,245,000	1,216,000	1,286,000
Scuba Diving	565,000	696,000	793,000	841,000	822,000	869,000
Swimming - From Shore	4,998,000	6,155,000	7,016,000	7,436,000	7,265,000	7,684,000
Swimming - From Boat	1,720,000	2,118,000	2,414,000	2,559,000	2,500,000	2,644,000
Boating for Pleasure/Partying	2,202,000	2,712,000	3,091,000	3,276,000	3,200,000	3,384,000
Water-skiing	97,000	119,000	136,000	144,000	141,000	149,000
Parasailing/Windsurfing/Kite Sailing	194,000	239,000	272,000	288,000	281,000	297,000
Personal Watercraft (jet skis, wave runners, etc.)	166,000	204,000	232,000	246,000	240,000	254,000
Sailing	2,762,000	3,401,000	3,877,000	4,109,000	4,014,000	4,245,000
Canoeing / Kayaking	438,000	540,000	615,000	652,000	637,000	674,000
Viewing the Bay from Shore	7,241,000	8,917,000	10,164,000	10,773,000	10,525,000	11,132,000
Sunset Cruise	219,000	270,000	308,000	326,000	318,000	336,000
Glass Bottom Boat Tour	0	0	0	0	2,000	4,000
Picnicking on Biscayne Bay	2,333,000	2,873,000	3,275,000	3,471,000	3,391,000	3,586,000
Total	29,910,000	36,833,000	41,983,000	44,498,000	43,474,000	45,979,000

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-1, continued
Estimated Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 1980 to 2004

Activity	1986	1987	1988	1989	1990	1991
Fishing - From Shore	3,423,000	3,649,000	3,460,000	3,681,000	3,388,000	2,697,000
Fishing - From Boat	7,716,000	8,225,000	7,800,000	8,297,000	7,636,000	6,079,000
Snorkeling - From Shore	801,000	854,000	810,000	862,000	793,000	631,000
Snorkeling - From Boat	1,627,000	1,734,000	1,644,000	1,749,000	1,610,000	1,282,000
Scuba Diving	1,100,000	1,172,000	1,111,000	1,182,000	1,088,000	866,000
Swimming - From Shore	9,724,000	10,365,000	9,829,000	10,456,000	9,623,000	7,661,000
Swimming - From Boat	3,346,000	3,567,000	3,383,000	3,599,000	3,312,000	2,637,000
Boating for Pleasure/Partying	4,283,000	4,565,000	4,329,000	4,605,000	4,238,000	3,374,000
Water-skiing	189,000	201,000	191,000	203,000	187,000	149,000
Parasailing/Windsurfing/Kite Sailing	376,000	401,000	380,000	404,000	372,000	296,000
Personal Watercraft (jet skis, wave runners, etc.)	322,000	343,000	325,000	346,000	318,000	253,000
Sailing	5,372,000	5,726,000	5,430,000	5,776,000	5,316,000	4,232,000
Canoeing / Kayaking	853,000	909,000	862,000	917,000	844,000	672,000
Viewing the Bay from Shore	14,087,000	15,015,000	14,239,000	15,147,000	13,940,000	11,098,000
Sunset Cruise	425,000	453,000	430,000	457,000	421,000	335,000
Glass Bottom Boat Tour	5,000	5,000	5,000	5,000	5,000	4,000
Picnicking on Biscayne Bay	4,538,000	4,837,000	4,587,000	4,880,000	4,491,000	3,575,000
Total	58,187,000	62,021,000	58,815,000	62,566,000	57,582,000	45,841,000

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-1, continued
Estimated Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 1980 to 2004

Activity	1992	1993	1994	1995	1996	1997
Fishing - From Shore	1,877,000	629,000	1,197,000	2,625,000	2,512,000	2,759,000
Fishing - From Boat	4,231,000	1,418,000	2,697,000	5,913,000	5,658,000	6,214,000
Snorkeling - From Shore	439,000	147,000	280,000	613,000	587,000	645,000
Snorkeling - From Boat	892,000	299,000	568,000	1,245,000	1,191,000	1,308,000
Scuba Diving	603,000	202,000	384,000	843,000	807,000	886,000
Swimming - From Shore	5,332,000	1,787,000	3,400,000	7,454,000	7,132,000	7,832,000
Swimming - From Boat	1,835,000	615,000	1,171,000	2,567,000	2,456,000	2,697,000
Boating for Pleasure/Partying	2,348,000	787,000	1,497,000	3,283,000	3,141,000	3,449,000
Water-skiing	104,000	35,000	67,000	146,000	140,000	154,000
Parasailing/Windsurfing/Kite Sailing	206,000	69,000	131,000	287,000	275,000	302,000
Personal Watercraft (jet skis, wave runners, etc.)	176,000	59,000	113,000	248,000	237,000	260,000
Sailing	2,945,000	987,000	1,877,000	4,115,000	3,937,000	4,324,000
Canoeing / Kayaking	468,000	157,000	299,000	656,000	628,000	690,000
Viewing the Bay from Shore	7,724,000	2,589,000	4,926,000	10,802,000	10,336,000	11,351,000
Sunset Cruise	233,000	78,000	148,000	325,000	311,000	341,000
Glass Bottom Boat Tour	3,000	1,000	1,000	3,000	3,000	3,000
Picnicking on Biscayne Bay	2,488,000	834,000	1,587,000	3,479,000	3,329,000	3,656,000
Total	31,904,000	10,693,000	20,343,000	44,604,000	42,680,000	46,871,000

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-1, continued
Estimated Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 1980 to 2004

Activity	1998	1999	2000	2001	2002	2003 and 2004
Fishing - From Shore	2,969,000	3,419,000	3,883,000	3,958,000	4,200,000	3,854,000
Fishing - From Boat	6,687,000	7,701,000	8,747,000	8,915,000	9,459,000	8,679,000
Snorkeling - From Shore	694,000	799,000	907,000	924,000	980,000	899,000
Snorkeling - From Boat	1,408,000	1,621,000	1,841,000	1,876,000	1,991,000	1,827,000
Scuba Diving	953,000	1,097,000	1,246,000	1,270,000	1,347,000	1,236,000
Swimming - From Shore	8,429,000	9,707,000	11,025,000	11,237,000	11,923,000	10,940,000
Swimming - From Boat	2,902,000	3,342,000	3,796,000	3,869,000	4,105,000	3,767,000
Boating for Pleasure/Partying	3,712,000	4,275,000	4,856,000	4,949,000	5,251,000	4,818,000
Water-skiing	166,000	191,000	217,000	221,000	234,000	215,000
Parasailing/Windsurfing/Kite Sailing	325,000	374,000	425,000	433,000	459,000	421,000
Personal Watercraft (jet skis, wave runners, etc.)	280,000	322,000	366,000	373,000	396,000	363,000
Sailing	4,653,000	5,359,000	6,087,000	6,204,000	6,583,000	6,040,000
Canoeing / Kayaking	743,000	856,000	972,000	991,000	1,051,000	964,000
Viewing the Bay from Shore	12,216,000	14,068,000	15,978,000	16,285,000	17,279,000	15,855,000
Sunset Cruise	367,000	423,000	480,000	489,000	519,000	476,000
Glass Bottom Boat Tour	3,000	4,000	5,000	5,000	5,000	5,000
Picnicking on Biscayne Bay	3,934,000	4,530,000	5,145,000	5,244,000	5,564,000	5,105,000
Total	50,441,000	58,088,000	65,976,000	67,243,000	71,346,000	65,464,000

3.0 Biscayne Bay-Dependent Recreation – Historic

The historic economic contributions to Miami-Dade County of Biscayne Bay-related recreation activities in terms of output, income, tax revenues and employment are provided in Table 3.2-2 through Table 3.2-5, respectively. All dollar values are in 2004 dollars.

These results are plotted in Figure 3.2-2 through Figure 3.2-5. The results reflect the trend in recreation at Biscayne National Park and the three state parks from 1980 to the present. They account for the impact of Hurricane Andrew on the drop in Bay-related recreation after its eye wall passed over the Biscayne National Park Dante Fascell Visitor Center at 4:30 am on August 24, 1992. It also mirrors the recovery of Bay-related recreation activity after the hurricane.

Biscayne Bay-related recreation generated \$1.7 billion in total output to the county in 1980. Output increased to \$3.6 billion in 1989. After Hurricane Andrew, it fell to \$619 million in 1993 and steadily increased to \$3.8 billion by 2004. Income, tax revenues and employment followed a similar pattern. The income received by Miami-Dade County residents that was generated by Bay-related recreation was \$965 million in 1980, reached a peak of \$2.0 billion in 1989, fell to a low of \$345 million in 1993 and recovered to \$2.1 billion in 2004.

The tax revenue collected in the county due to Bay-related recreation was \$118 million in 1980, reached a peak of \$246 million in 1989, fell to \$42 million in 1993 and recovered to \$257 million by 2004. Bay-related recreation generated about 25,900 jobs in the county in 1980. Employment reached a peak of 54,300 jobs in 1989, fell to a low of 9,300 jobs in 1993 and recovered to 57,100 jobs by 2004.

3.0 Biscayne Bay-Dependent Recreation – Historic

Figure 3.2-2
Values of Miami-Dade County Produced Goods and Services
Generated by Biscayne Bay Recreation, 1980 to 2004

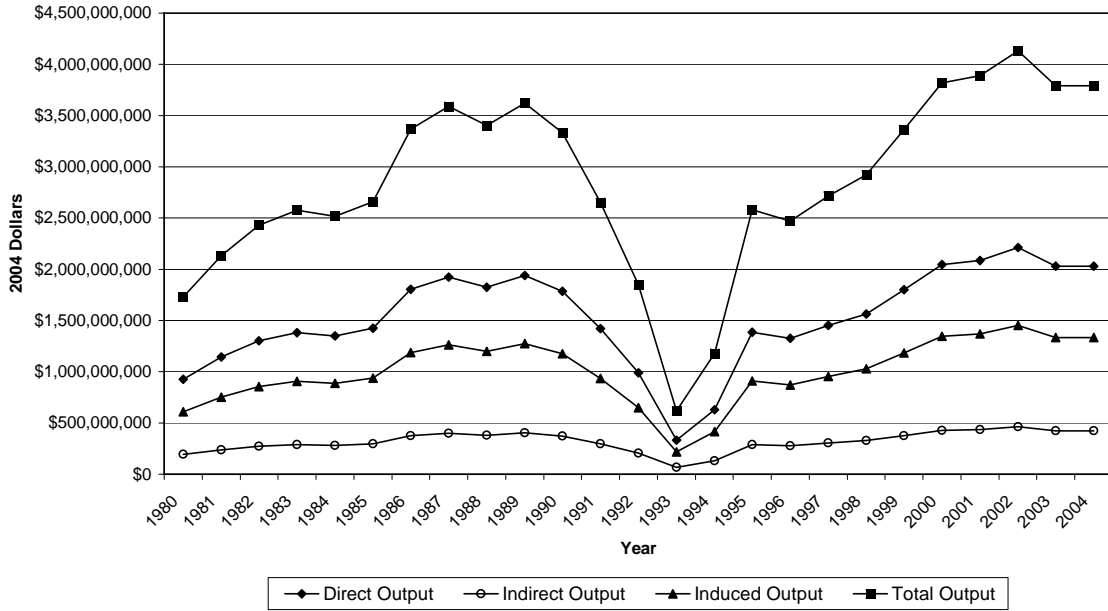
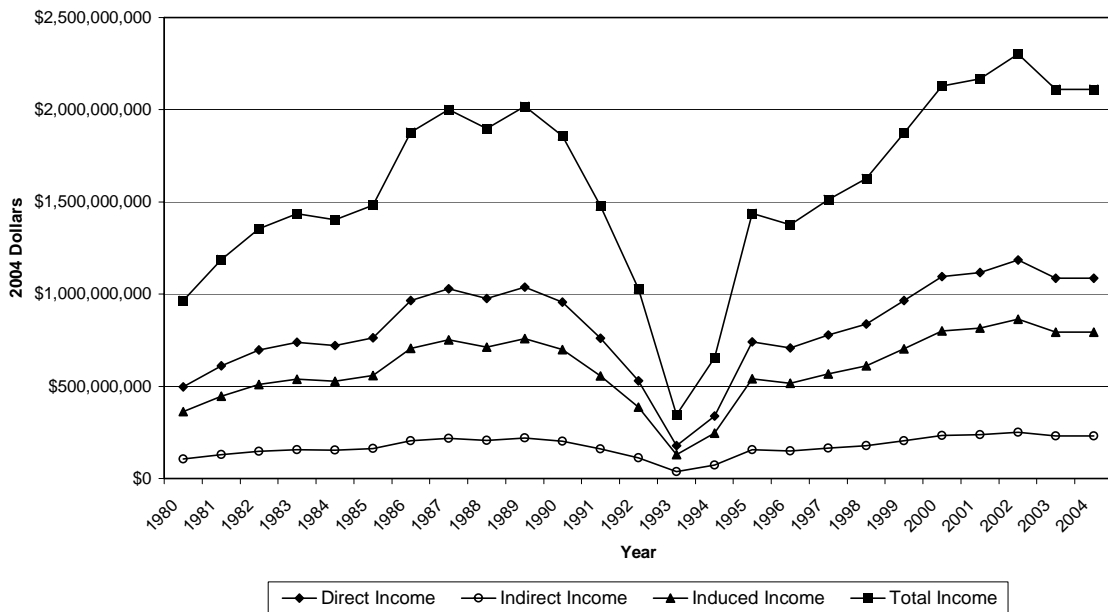


Figure 3.2-3
Income to Miami-Dade County Residents
Generated by Biscayne Bay Recreation, 1980 to 2004



3.0 Biscayne Bay-Dependent Recreation – Historic

Figure 3.2-4
Tax Revenues Collected in Miami-Dade County
Generated by Biscayne Bay Recreation, 1980 to 2004

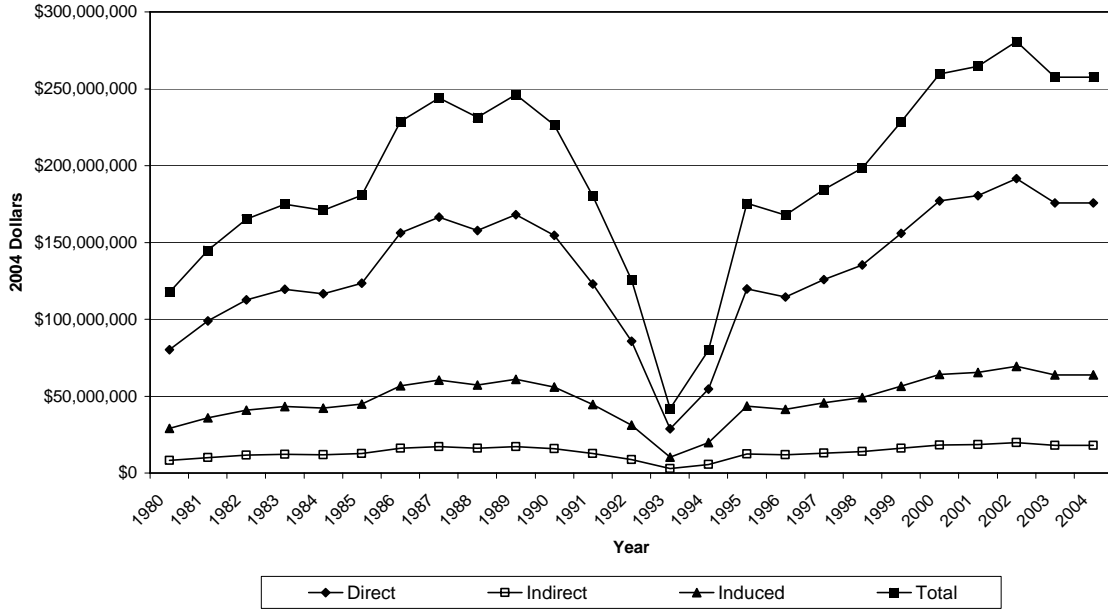
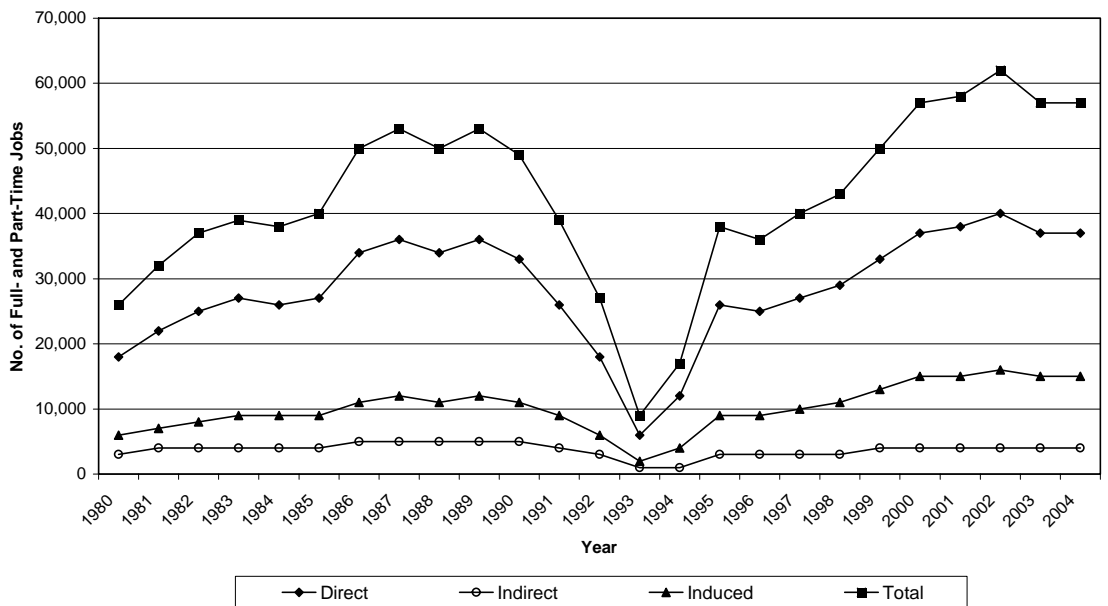


Figure 3.2-5
Employment in Miami-Dade County
Generated by Biscayne Bay Recreation, 1980 to 2004



3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-2
Output Created In Miami-Dade County From Recreational Uses of
Biscayne Bay, 1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	\$927,939,000	\$193,607,000	\$609,668,000	\$1,731,210,000
1981	\$1,142,767,000	\$238,429,000	\$750,813,000	\$2,132,003,000
1982	\$1,302,555,000	\$271,767,000	\$855,796,000	\$2,430,112,000
1983	\$1,380,596,000	\$288,050,000	\$907,070,000	\$2,575,708,000
1984	\$1,348,771,000	\$281,410,000	\$886,160,000	\$2,516,333,000
1985	\$1,426,508,000	\$297,629,000	\$937,234,000	\$2,661,364,000
1986	\$1,805,248,000	\$376,650,000	\$1,186,071,000	\$3,367,961,000
1987	\$1,924,220,000	\$401,473,000	\$1,264,237,000	\$3,589,921,000
1988	\$1,824,749,000	\$380,719,000	\$1,198,884,000	\$3,404,344,000
1989	\$1,941,096,000	\$404,994,000	\$1,275,325,000	\$3,621,407,000
1990	\$1,786,453,000	\$372,729,000	\$1,173,722,000	\$3,332,897,000
1991	\$1,422,237,000	\$296,738,000	\$934,428,000	\$2,653,398,000
1992	\$989,812,000	\$206,516,000	\$650,319,000	\$1,846,644,000
1993	\$331,756,000	\$69,218,000	\$217,968,000	\$618,941,000
1994	\$631,178,000	\$131,689,000	\$414,692,000	\$1,177,560,000
1995	\$1,383,961,000	\$288,750,000	\$909,280,000	\$2,581,991,000
1996	\$1,324,202,000	\$276,282,000	\$870,018,000	\$2,470,502,000
1997	\$1,454,235,000	\$303,412,000	\$955,451,000	\$2,713,098,000
1998	\$1,565,017,000	\$326,526,000	\$1,028,236,000	\$2,919,779,000
1999	\$1,802,305,000	\$376,034,000	\$1,184,137,000	\$3,362,477,000
2000	\$2,047,059,000	\$427,100,000	\$1,344,944,000	\$3,819,103,000
2001	\$2,086,341,000	\$435,296,000	\$1,370,753,000	\$3,892,390,000
2002	\$2,213,703,000	\$461,869,000	\$1,454,432,000	\$4,130,004,000
2003	\$2,031,240,000	\$423,800,000	\$1,334,552,000	\$3,789,592,000
2004	\$2,031,240,000	\$423,800,000	\$1,334,552,000	\$3,789,592,000

Note: Output is the value of the additional goods and services produced in the study area due to the Bay-related recreation expenditures.

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-3
Income Created In Miami-Dade County From Recreational Uses of
Biscayne Bay, 1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	\$496,647,000	\$105,396,000	\$362,647,000	\$964,690,000
1981	\$611,626,000	\$129,796,000	\$446,603,000	\$1,188,026,000
1982	\$697,147,000	\$147,945,000	\$509,050,000	\$1,354,142,000
1983	\$738,915,000	\$156,809,000	\$539,549,000	\$1,435,273,000
1984	\$721,882,000	\$153,194,000	\$527,111,000	\$1,402,187,000
1985	\$763,488,000	\$162,023,000	\$557,491,000	\$1,483,003,000
1986	\$966,196,000	\$205,040,000	\$705,506,000	\$1,876,743,000
1987	\$1,029,872,000	\$218,553,000	\$752,001,000	\$2,000,427,000
1988	\$976,634,000	\$207,255,000	\$713,127,000	\$1,897,017,000
1989	\$1,038,905,000	\$220,470,000	\$758,596,000	\$2,017,972,000
1990	\$956,138,000	\$202,906,000	\$698,160,000	\$1,857,204,000
1991	\$761,204,000	\$161,538,000	\$555,822,000	\$1,478,564,000
1992	\$529,763,000	\$112,423,000	\$386,827,000	\$1,029,013,000
1993	\$177,561,000	\$37,681,000	\$129,653,000	\$344,895,000
1994	\$337,816,000	\$71,690,000	\$246,670,000	\$656,176,000
1995	\$740,717,000	\$157,191,000	\$540,865,000	\$1,438,772,000
1996	\$708,733,000	\$150,404,000	\$517,511,000	\$1,376,647,000
1997	\$778,328,000	\$165,173,000	\$568,329,000	\$1,511,830,000
1998	\$837,620,000	\$177,756,000	\$611,624,000	\$1,627,000,000
1999	\$964,620,000	\$204,707,000	\$704,359,000	\$1,873,686,000
2000	\$1,095,616,000	\$232,506,000	\$800,011,000	\$2,128,134,000
2001	\$1,116,641,000	\$236,968,000	\$815,363,000	\$2,168,972,000
2002	\$1,184,807,000	\$251,434,000	\$865,138,000	\$2,301,379,000
2003	\$1,087,150,000	\$230,710,000	\$793,830,000	\$2,111,690,000
2004	\$1,087,150,000	\$230,710,000	\$793,830,000	\$2,111,690,000

Note: Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the Bay-related recreation expenditures. It is the sum of labor income and other property type income.

3.0 Biscayne Bay-Dependent Recreation – Historic

**Table 3.2-4
Indirect Business Taxes Paid In Miami-Dade County From Recreational
Uses of Biscayne Bay, 1980 to 2004**

Year	Direct	Indirect	Induced	Total
1980	\$80,293,000	\$8,246,000	\$29,112,000	\$117,648,000
1981	\$98,882,000	\$10,155,000	\$35,852,000	\$144,885,000
1982	\$112,708,000	\$11,575,000	\$40,865,000	\$165,144,000
1983	\$119,461,000	\$12,269,000	\$43,313,000	\$175,038,000
1984	\$116,707,000	\$11,986,000	\$42,315,000	\$171,003,000
1985	\$123,433,000	\$12,677,000	\$44,754,000	\$180,859,000
1986	\$156,205,000	\$16,043,000	\$56,636,000	\$228,878,000
1987	\$166,499,000	\$17,100,000	\$60,368,000	\$243,962,000
1988	\$157,892,000	\$16,216,000	\$57,247,000	\$231,351,000
1989	\$167,959,000	\$17,250,000	\$60,897,000	\$246,102,000
1990	\$154,578,000	\$15,876,000	\$56,045,000	\$226,496,000
1991	\$123,063,000	\$12,639,000	\$44,619,000	\$180,319,000
1992	\$85,646,000	\$8,796,000	\$31,053,000	\$125,494,000
1993	\$28,706,000	\$2,948,000	\$10,408,000	\$42,062,000
1994	\$54,615,000	\$5,609,000	\$19,801,000	\$80,025,000
1995	\$119,752,000	\$12,299,000	\$43,417,000	\$175,468,000
1996	\$114,581,000	\$11,768,000	\$41,542,000	\$167,891,000
1997	\$125,833,000	\$12,924,000	\$45,621,000	\$184,377,000
1998	\$135,419,000	\$13,909,000	\$49,096,000	\$198,423,000
1999	\$155,951,000	\$16,018,000	\$56,540,000	\$228,508,000
2000	\$177,129,000	\$18,193,000	\$64,218,000	\$259,539,000
2001	\$180,528,000	\$18,542,000	\$65,450,000	\$264,519,000
2002	\$191,548,000	\$19,674,000	\$69,445,000	\$280,667,000
2003	\$175,760,000	\$18,051,950	\$63,721,500	\$257,533,450
2004	\$175,760,000	\$18,051,950	\$63,721,500	\$257,533,450

Note: Indirect business tax is the sum of excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related recreation expenditures. It excludes taxes on profits and income.

3.0 Biscayne Bay-Dependent Recreation – Historic

**Table 3.2-5
Employment Created In Miami-Dade County From Recreational Uses
of Biscayne Bay, 1980 to 2004**

Year	Direct	Indirect	Induced	Total
1980	17,100	1,900	7,100	25,900
1981	21,100	2,400	8,700	31,900
1982	24,000	2,700	9,900	36,400
1983	25,400	2,900	10,500	38,600
1984	24,800	2,800	10,300	37,700
1985	26,200	3,000	10,900	39,900
1986	33,200	3,800	13,800	50,500
1987	35,400	4,100	14,700	53,800
1988	33,600	3,900	13,900	51,000
1989	35,700	4,100	14,800	54,300
1990	32,900	3,800	13,600	50,000
1991	26,200	3,000	10,800	39,800
1992	18,200	2,100	7,500	27,700
1993	6,100	700	2,500	9,300
1994	11,600	1,400	4,800	17,700
1995	25,500	3,100	10,500	38,900
1996	24,400	3,000	10,000	37,200
1997	26,800	3,300	11,000	40,800
1998	28,800	3,500	11,800	43,900
1999	33,200	4,000	13,600	50,600
2000	37,700	4,500	15,400	57,500
2001	38,400	4,600	15,700	58,600
2002	40,700	4,900	16,700	62,200
2003	37,300	4,500	15,300	57,100
2004	37,300	4,500	15,300	57,100

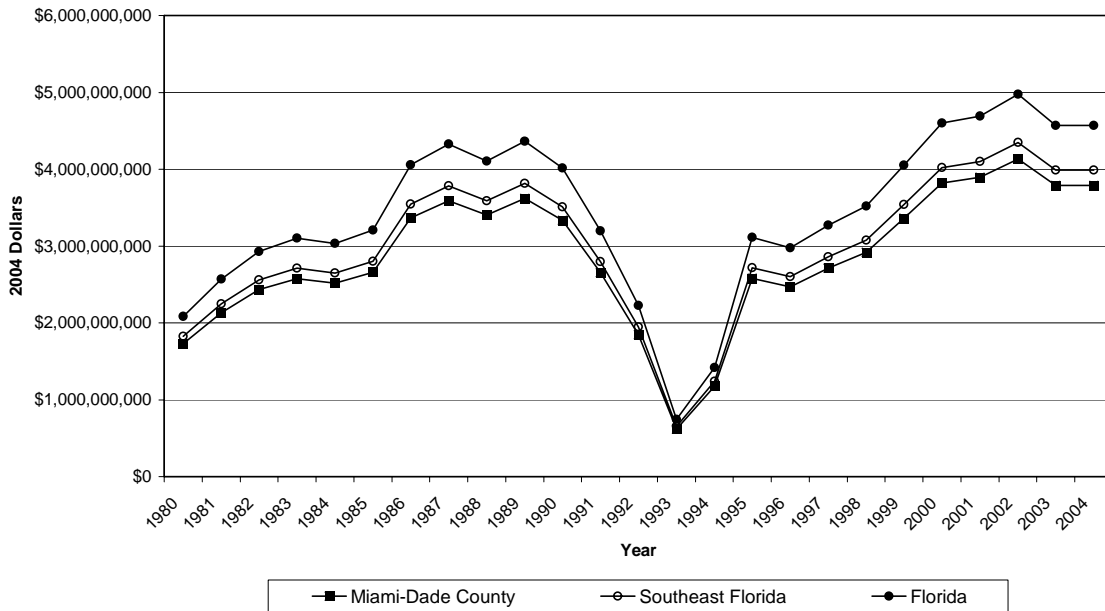
Note: Employment is number of full time and part time jobs.

3.0 Biscayne Bay-Dependent Recreation – Historic

The historic economic contributions to southeast Florida and Florida of Biscayne Bay-related recreation activities in terms of output, income, tax revenues and employment are provided in Table 3.2-6 through Table 3.2-13. All dollar values are in 2004 dollars.

The total output, income, tax revenue and employment in Miami-Dade County, southeast Florida and Florida are plotted in Figure 3.2-6 to Figure 3.2-9, respectively.

Figure 3.2-6
Values of Output Produced in Miami-Dade County, Southeast Florida
and Florida Generated by Biscayne Bay Recreation, 1980 to 2004



3.0 Biscayne Bay-Dependent Recreation – Historic

Figure 3.2-7
Income to Residents in Miami-Dade County, Southeast Florida and Florida Generated by Biscayne Bay Recreation, 1980 to 2004

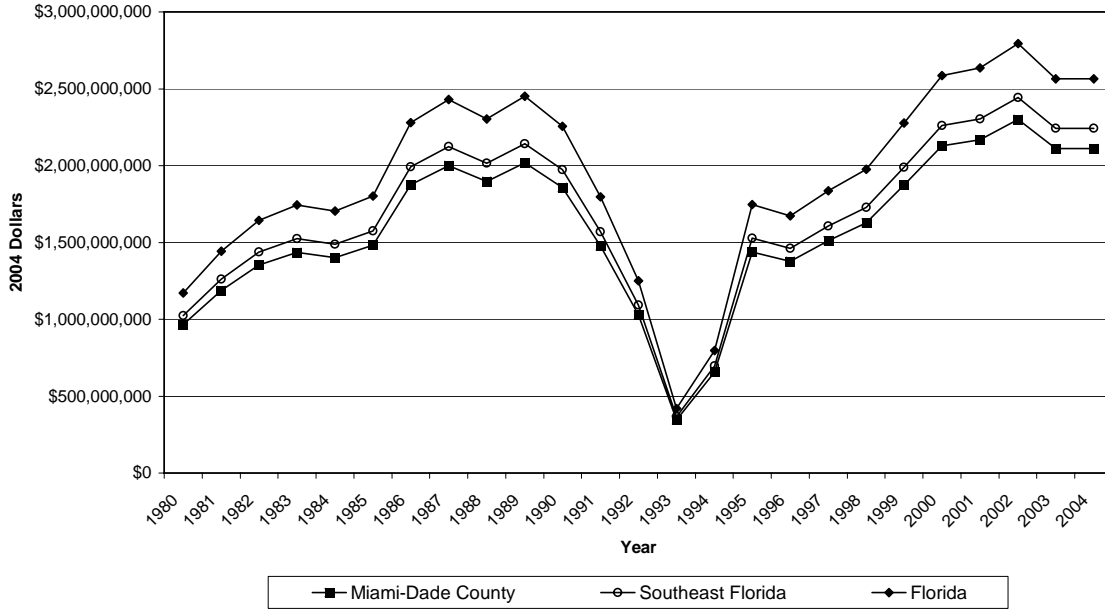
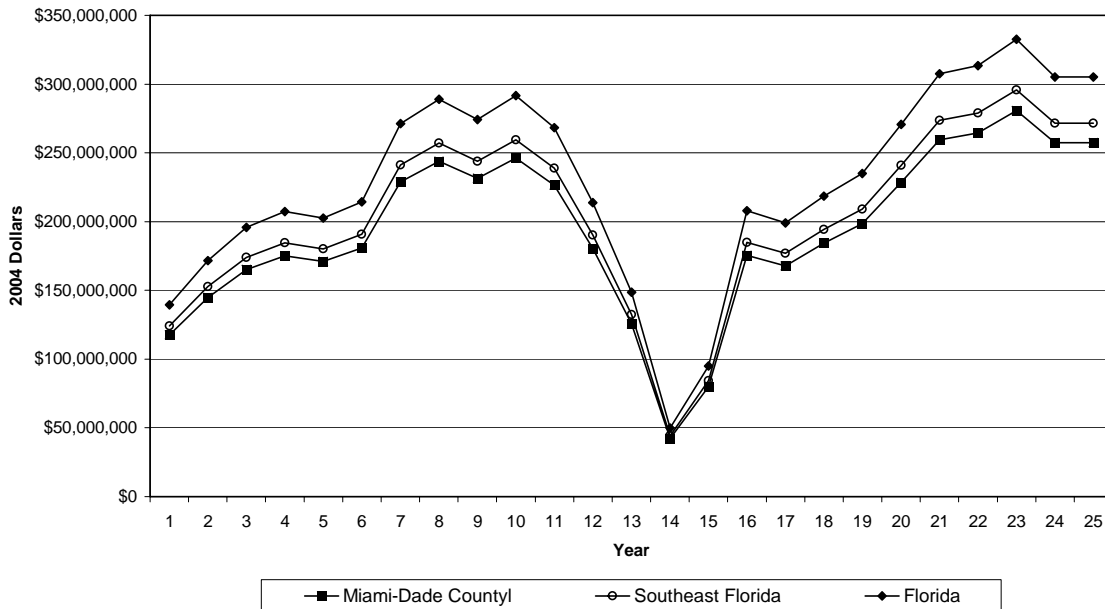
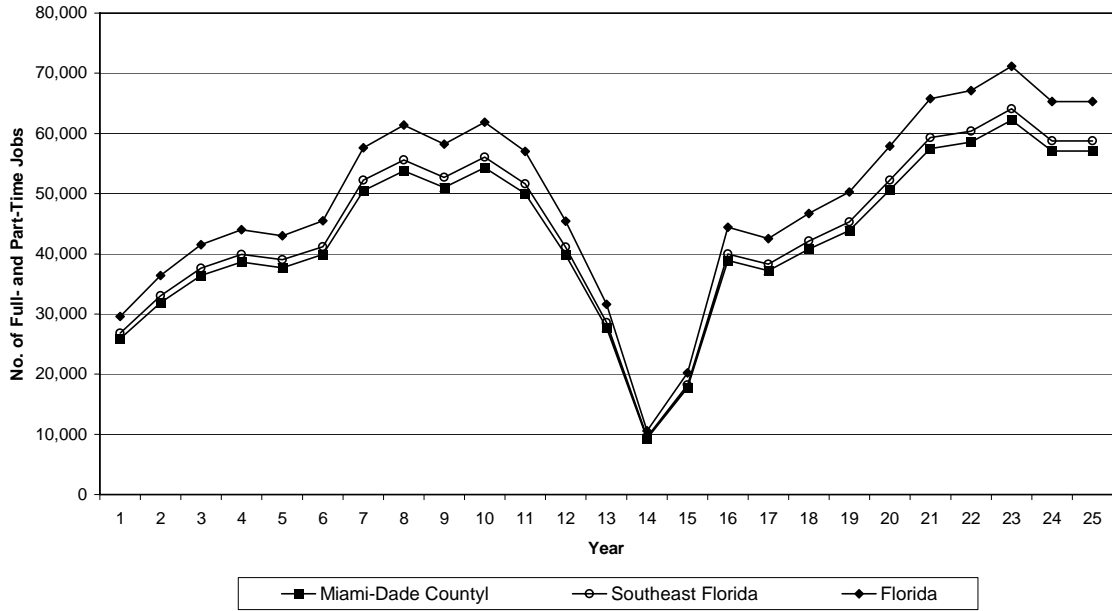


Figure 3.2-8
Tax Revenues Collected in Miami-Dade County, Southeast Florida and Florida Generated by Biscayne Bay Recreation, 1980 to 2004



3.0 Biscayne Bay-Dependent Recreation – Historic

Figure 3.2-9
Employment in Miami-Dade County, Southeast Florida and Florida
Generated by Biscayne Bay Recreation, 1980 to 2004



3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-6
Output Created In Southeast Florida From Recreational Uses of
Biscayne Bay, 1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	\$931,345,000	\$199,682,000	\$692,581,000	\$1,823,610,000
1981	\$1,146,961,000	\$245,910,000	\$852,921,000	\$2,245,794,000
1982	\$1,307,336,000	\$280,295,000	\$972,181,000	\$2,559,813,000
1983	\$1,385,663,000	\$297,088,000	\$1,030,428,000	\$2,713,180,000
1984	\$1,353,721,000	\$290,240,000	\$1,006,675,000	\$2,650,636,000
1985	\$1,431,744,000	\$306,968,000	\$1,064,695,000	\$2,803,407,000
1986	\$1,811,875,000	\$388,469,000	\$1,347,374,000	\$3,547,716,000
1987	\$1,931,284,000	\$414,070,000	\$1,436,170,000	\$3,781,523,000
1988	\$1,831,448,000	\$392,665,000	\$1,361,929,000	\$3,586,041,000
1989	\$1,948,222,000	\$417,701,000	\$1,448,766,000	\$3,814,689,000
1990	\$1,793,011,000	\$384,424,000	\$1,333,346,000	\$3,510,780,000
1991	\$1,427,458,000	\$306,049,000	\$1,061,508,000	\$2,795,015,000
1992	\$993,446,000	\$212,996,000	\$738,761,000	\$1,945,203,000
1993	\$332,974,000	\$71,390,000	\$247,611,000	\$651,975,000
1994	\$633,496,000	\$135,822,000	\$471,090,000	\$1,240,408,000
1995	\$1,389,042,000	\$297,812,000	\$1,032,942,000	\$2,719,797,000
1996	\$1,329,064,000	\$284,953,000	\$988,340,000	\$2,602,358,000
1997	\$1,459,574,000	\$312,935,000	\$1,085,392,000	\$2,857,902,000
1998	\$1,570,763,000	\$336,774,000	\$1,168,076,000	\$3,075,614,000
1999	\$1,808,923,000	\$387,836,000	\$1,345,180,000	\$3,541,939,000
2000	\$2,054,576,000	\$440,504,000	\$1,527,856,000	\$4,022,936,000
2001	\$2,094,003,000	\$448,957,000	\$1,557,175,000	\$4,100,135,000
2002	\$2,221,833,000	\$476,364,000	\$1,652,234,000	\$4,350,431,000
2003	\$2,038,700,000	\$437,100,000	\$1,516,050,000	\$3,991,850,000
2004	\$2,038,700,000	\$437,100,000	\$1,516,050,000	\$3,991,850,000

Note: Output is the value of the additional goods and services produced in the study area due to the Bay-related recreation expenditures.

3.0 Biscayne Bay-Dependent Recreation – Historic

**Table 3.2-7
Income Created In Southeast Florida From Recreational Uses of
Biscayne Bay, 1980 to 2004**

Year	Direct	Indirect	Induced	Total
1980	\$504,019,000	\$109,754,000	\$410,843,000	\$1,024,619,000
1981	\$620,705,000	\$135,163,000	\$505,957,000	\$1,261,829,000
1982	\$707,496,000	\$154,062,000	\$576,703,000	\$1,438,265,000
1983	\$749,884,000	\$163,292,000	\$611,255,000	\$1,524,436,000
1984	\$732,598,000	\$159,528,000	\$597,164,000	\$1,489,295,000
1985	\$774,822,000	\$168,723,000	\$631,582,000	\$1,575,131,000
1986	\$980,539,000	\$213,519,000	\$799,268,000	\$1,993,331,000
1987	\$1,045,160,000	\$227,591,000	\$851,942,000	\$2,124,698,000
1988	\$991,132,000	\$215,826,000	\$807,902,000	\$2,014,864,000
1989	\$1,054,327,000	\$229,587,000	\$859,414,000	\$2,143,333,000
1990	\$970,331,000	\$211,296,000	\$790,946,000	\$1,972,578,000
1991	\$772,503,000	\$168,218,000	\$629,691,000	\$1,570,416,000
1992	\$537,627,000	\$117,072,000	\$438,236,000	\$1,092,938,000
1993	\$180,197,000	\$39,239,000	\$146,884,000	\$366,321,000
1994	\$342,831,000	\$74,654,000	\$279,453,000	\$696,939,000
1995	\$751,713,000	\$163,691,000	\$612,746,000	\$1,528,152,000
1996	\$719,254,000	\$156,623,000	\$586,288,000	\$1,462,167,000
1997	\$789,883,000	\$172,003,000	\$643,860,000	\$1,605,747,000
1998	\$850,055,000	\$185,106,000	\$692,909,000	\$1,728,071,000
1999	\$978,941,000	\$213,172,000	\$797,968,000	\$1,990,082,000
2000	\$1,111,882,000	\$242,121,000	\$906,333,000	\$2,260,336,000
2001	\$1,133,219,000	\$246,767,000	\$923,725,000	\$2,303,711,000
2002	\$1,202,397,000	\$261,831,000	\$980,115,000	\$2,444,343,000
2003	\$1,103,290,000	\$240,250,000	\$899,330,000	\$2,242,870,000
2004	\$1,103,290,000	\$240,250,000	\$899,330,000	\$2,242,870,000

Note: Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the Bay-related recreation expenditures. It is the sum labor income and other property type income.

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-8
Indirect Business Taxes Paid In Southeast Florida From Recreational
Uses of Biscayne Bay, 1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	\$81,237,000	\$8,903,000	\$33,881,000	\$124,022,000
1981	\$100,044,000	\$10,964,000	\$41,725,000	\$152,734,000
1982	\$114,033,000	\$12,497,000	\$47,559,000	\$174,090,000
1983	\$120,865,000	\$13,246,000	\$50,408,000	\$184,520,000
1984	\$118,079,000	\$12,941,000	\$49,246,000	\$180,266,000
1985	\$124,885,000	\$13,687,000	\$52,084,000	\$190,656,000
1986	\$158,042,000	\$17,321,000	\$65,913,000	\$241,275,000
1987	\$168,457,000	\$18,463,000	\$70,257,000	\$257,176,000
1988	\$159,749,000	\$17,509,000	\$66,625,000	\$243,882,000
1989	\$169,935,000	\$18,625,000	\$70,873,000	\$259,432,000
1990	\$156,397,000	\$17,141,000	\$65,227,000	\$238,764,000
1991	\$124,511,000	\$13,646,000	\$51,929,000	\$190,086,000
1992	\$86,654,000	\$9,497,000	\$36,140,000	\$132,291,000
1993	\$29,044,000	\$3,183,000	\$12,113,000	\$44,340,000
1994	\$55,258,000	\$6,056,000	\$23,045,000	\$84,359,000
1995	\$121,162,000	\$13,279,000	\$50,529,000	\$184,971,000
1996	\$115,930,000	\$12,706,000	\$48,347,000	\$176,984,000
1997	\$127,314,000	\$13,954,000	\$53,094,000	\$194,363,000
1998	\$137,013,000	\$15,017,000	\$57,139,000	\$209,169,000
1999	\$157,787,000	\$17,294,000	\$65,802,000	\$240,883,000
2000	\$179,215,000	\$19,642,000	\$74,738,000	\$273,595,000
2001	\$182,654,000	\$20,019,000	\$76,172,000	\$278,845,000
2002	\$193,804,000	\$21,241,000	\$80,822,000	\$295,867,000
2003	\$177,830,000	\$19,490,000	\$74,160,000	\$271,480,000
2004	\$177,830,000	\$19,490,000	\$74,160,000	\$271,480,000

Note: Indirect business tax is the sum of excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related recreation expenditures. It excludes taxes on profits and income.

3.0 Biscayne Bay-Dependent Recreation – Historic

**Table 3.2-9
Employment Created In Southeast Florida From Recreational Uses of
Biscayne Bay, 1980 to 2004**

Year	Direct	Indirect	Induced	Total
1980	17,300	1,900	7,600	26,800
1981	21,300	2,400	9,400	33,000
1982	24,300	2,700	10,700	37,600
1983	25,800	2,900	11,300	39,900
1984	25,200	2,800	11,000	39,000
1985	26,700	3,000	11,600	41,200
1986	33,800	3,800	14,700	52,200
1987	36,000	4,100	15,700	55,600
1988	34,100	3,900	14,900	52,700
1989	36,300	4,100	15,900	56,100
1990	33,400	3,800	14,600	51,600
1991	26,600	3,000	11,600	41,100
1992	18,500	2,100	8,100	28,600
1993	6,200	700	2,700	9,600
1994	11,800	1,400	5,100	18,200
1995	25,900	3,100	11,100	40,000
1996	24,800	3,000	10,600	38,300
1997	27,200	3,300	11,600	42,100
1998	29,300	3,500	12,500	45,300
1999	33,800	4,000	14,400	52,200
2000	38,400	4,500	16,400	59,300
2001	39,100	4,600	16,700	60,400
2002	41,500	4,900	17,700	64,100
2003	38,100	4,500	16,200	58,800
2004	38,100	4,500	16,200	58,800

Note: Employment is number of full time and part time jobs.

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-10
Output Created In Florida From Recreational Uses of Biscayne Bay,
1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	\$1,027,505,000	\$230,896,000	\$828,269,000	\$2,086,672,000
1981	\$1,265,383,000	\$284,351,000	\$1,020,022,000	\$2,569,758,000
1982	\$1,442,316,000	\$324,111,000	\$1,162,647,000	\$2,929,076,000
1983	\$1,528,730,000	\$343,530,000	\$1,232,305,000	\$3,104,567,000
1984	\$1,493,490,000	\$335,611,000	\$1,203,898,000	\$3,033,001,000
1985	\$1,579,568,000	\$354,954,000	\$1,273,285,000	\$3,207,810,000
1986	\$1,998,946,000	\$449,195,000	\$1,611,345,000	\$4,059,489,000
1987	\$2,130,683,000	\$478,798,000	\$1,717,538,000	\$4,327,023,000
1988	\$2,020,540,000	\$454,047,000	\$1,628,752,000	\$4,103,342,000
1989	\$2,149,371,000	\$482,997,000	\$1,732,602,000	\$4,364,973,000
1990	\$1,978,135,000	\$444,518,000	\$1,594,569,000	\$4,017,224,000
1991	\$1,574,840,000	\$353,891,000	\$1,269,474,000	\$3,198,207,000
1992	\$1,096,017,000	\$246,292,000	\$883,496,000	\$2,225,806,000
1993	\$367,353,000	\$82,550,000	\$296,122,000	\$746,025,000
1994	\$698,903,000	\$157,055,000	\$563,384,000	\$1,419,342,000
1995	\$1,532,458,000	\$344,368,000	\$1,235,312,000	\$3,112,137,000
1996	\$1,466,287,000	\$329,498,000	\$1,181,972,000	\$2,977,757,000
1997	\$1,610,272,000	\$361,854,000	\$1,298,038,000	\$3,270,163,000
1998	\$1,732,941,000	\$389,420,000	\$1,396,921,000	\$3,519,281,000
1999	\$1,995,690,000	\$448,464,000	\$1,608,723,000	\$4,052,876,000
2000	\$2,266,706,000	\$509,366,000	\$1,827,189,000	\$4,603,259,000
2001	\$2,310,203,000	\$519,141,000	\$1,862,252,000	\$4,691,594,000
2002	\$2,451,231,000	\$550,832,000	\$1,975,935,000	\$4,977,997,000
2003	\$2,249,190,000	\$505,430,000	\$1,813,070,000	\$4,567,690,000
2004	\$2,249,190,000	\$505,430,000	\$1,813,070,000	\$4,567,690,000

Note: Output is the value of the additional goods and services produced in the study area due to the Bay-related recreation expenditures.

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-11
Income Created In Florida From Recreational Uses of Biscayne Bay,
1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	\$553,157,000	\$128,312,000	\$490,339,000	\$1,171,807,000
1981	\$681,219,000	\$158,017,000	\$603,858,000	\$1,443,093,000
1982	\$776,471,000	\$180,112,000	\$688,293,000	\$1,644,874,000
1983	\$822,992,000	\$190,903,000	\$729,531,000	\$1,743,424,000
1984	\$804,020,000	\$186,502,000	\$712,714,000	\$1,703,235,000
1985	\$850,360,000	\$197,251,000	\$753,792,000	\$1,801,402,000
1986	\$1,076,132,000	\$249,622,000	\$953,925,000	\$2,279,678,000
1987	\$1,147,053,000	\$266,073,000	\$1,016,792,000	\$2,429,917,000
1988	\$1,087,757,000	\$252,319,000	\$964,230,000	\$2,304,305,000
1989	\$1,157,113,000	\$268,407,000	\$1,025,710,000	\$2,451,229,000
1990	\$1,064,928,000	\$247,024,000	\$943,994,000	\$2,255,945,000
1991	\$847,814,000	\$196,662,000	\$751,536,000	\$1,796,011,000
1992	\$590,040,000	\$136,868,000	\$523,035,000	\$1,249,942,000
1993	\$197,764,000	\$45,874,000	\$175,306,000	\$418,944,000
1994	\$376,254,000	\$87,277,000	\$333,527,000	\$797,057,000
1995	\$824,997,000	\$191,368,000	\$731,313,000	\$1,747,678,000
1996	\$789,374,000	\$183,105,000	\$699,735,000	\$1,672,214,000
1997	\$866,888,000	\$201,085,000	\$768,447,000	\$1,836,420,000
1998	\$932,927,000	\$216,403,000	\$826,987,000	\$1,976,317,000
1999	\$1,074,378,000	\$249,214,000	\$952,375,000	\$2,275,967,000
2000	\$1,220,279,000	\$283,057,000	\$1,081,708,000	\$2,585,045,000
2001	\$1,243,696,000	\$288,489,000	\$1,102,466,000	\$2,634,651,000
2002	\$1,319,618,000	\$306,100,000	\$1,169,767,000	\$2,795,486,000
2003	\$1,210,850,000	\$280,870,000	\$1,073,350,000	\$2,565,070,000
2004	\$1,210,850,000	\$280,870,000	\$1,073,350,000	\$2,565,070,000

Note: Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the Bay-related recreation expenditures. It is the sum of labor income and other property type income.

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-12
Indirect Business Taxes Paid In Florida From Recreational Uses of
Biscayne Bay, 1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	\$89,006,000	\$10,249,000	\$40,138,000	\$139,388,000
1981	\$109,612,000	\$12,622,000	\$49,430,000	\$171,658,000
1982	\$124,939,000	\$14,387,000	\$56,342,000	\$195,660,000
1983	\$132,424,000	\$15,249,000	\$59,718,000	\$207,383,000
1984	\$129,371,000	\$14,897,000	\$58,341,000	\$202,602,000
1985	\$136,827,000	\$15,756,000	\$61,703,000	\$214,279,000
1986	\$173,155,000	\$19,939,000	\$78,085,000	\$271,171,000
1987	\$184,566,000	\$21,253,000	\$83,231,000	\$289,042,000
1988	\$175,025,000	\$20,154,000	\$78,928,000	\$274,100,000
1989	\$186,185,000	\$21,439,000	\$83,961,000	\$291,577,000
1990	\$171,352,000	\$19,731,000	\$77,272,000	\$268,348,000
1991	\$136,417,000	\$15,708,000	\$61,518,000	\$213,638,000
1992	\$94,940,000	\$10,932,000	\$42,814,000	\$148,682,000
1993	\$31,821,000	\$3,664,000	\$14,350,000	\$49,834,000
1994	\$60,541,000	\$6,970,000	\$27,301,000	\$94,811,000
1995	\$132,745,000	\$15,283,000	\$59,862,000	\$207,889,000
1996	\$127,013,000	\$14,623,000	\$57,277,000	\$198,912,000
1997	\$139,485,000	\$16,059,000	\$62,901,000	\$218,445,000
1998	\$150,111,000	\$17,282,000	\$67,693,000	\$235,086,000
1999	\$172,871,000	\$19,902,000	\$77,957,000	\$270,730,000
2000	\$196,347,000	\$22,605,000	\$88,544,000	\$307,495,000
2001	\$200,115,000	\$23,039,000	\$90,243,000	\$313,396,000
2002	\$212,331,000	\$24,445,000	\$95,752,000	\$332,528,000
2003	\$194,830,000	\$22,430,000	\$87,860,000	\$305,120,000
2004	\$194,830,000	\$22,430,000	\$87,860,000	\$305,120,000

Note: Indirect business tax is the sum of excise taxes, property taxes, fees, licenses, and sales taxes collected due to the Bay-related recreation expenditures. It excludes taxes on profits and income.

3.0 Biscayne Bay-Dependent Recreation – Historic

Table 3.2-13
Employment Created In Florida From Recreational Uses of Biscayne Bay, 1980 to 2004

Year	Direct	Indirect	Induced	Total
1980	17,900	2,600	9,400	29,600
1981	22,000	3,200	11,600	36,400
1982	25,100	3,700	13,200	41,500
1983	26,600	3,900	14,000	44,000
1984	26,000	3,800	13,700	43,000
1985	27,500	4,000	14,500	45,500
1986	34,800	5,000	18,400	57,600
1987	37,100	5,300	19,600	61,400
1988	35,200	5,000	18,600	58,200
1989	37,400	5,300	19,800	61,900
1990	34,400	4,900	18,200	57,000
1991	27,400	3,900	14,500	45,400
1992	19,100	2,700	10,100	31,600
1993	6,400	900	3,400	10,600
1994	12,200	1,700	6,500	20,200
1995	26,700	3,700	14,300	44,400
1996	25,500	3,500	13,700	42,500
1997	28,000	3,800	15,000	46,700
1998	30,100	4,100	16,100	50,300
1999	34,700	4,700	18,500	57,900
2000	39,400	5,300	21,000	65,800
2001	40,200	5,400	21,400	67,100
2002	42,700	5,700	22,700	71,200
2003	39,200	5,200	20,800	65,300
2004	39,200	5,200	20,800	65,300

Note: Employment is number of full time and part time jobs.

4.0 Biscayne Bay-Related Commercial Fishing

This section describes the economic contribution of Biscayne Bay as it is used for commercial fishing.

4.1 Methodology

The contribution of Biscayne Bay to commercial fishing is two-fold. First, commercial fishing takes place in the Bay for the harvest of fish and shellfish, particularly pink shrimp. Second, Biscayne Bay and Florida Bay are very important grounds for the lifecycle of many fish species that are commercially harvested in Miami-Dade County.¹ These species are ballyhoo, barracuda, goggle-eye, several grouper species (black, gag and red), grunts, hog snapper, several species of jack (almaco, crevalle, yellow), mullet, parrotfish, snapper (all species), white snapper, spiny lobster, live marine life, bait shrimp, pink shrimp and white shrimp. Both Biscayne Bay and Florida Bay are essential habitats for these species, so their values are attributable to both bays. These bays support commercial fisheries throughout southeast Florida. However, because the distribution of adult species that originate from Biscayne Bay has not been completely documented, only the harvest of Bay-dependent species in Miami-Dade County is included in the economic contribution reported in this study.

The total exvessel² value of Biscayne Bay-dependent fish species landed in Miami-Dade County was obtained from 1985 through 2002. The total exvessel value of fish harvested in Biscayne Bay was obtained from 1986 to 2002. These are the years for which data were available. The methods used to estimate the economic contribution of the fish caught in Biscayne Bay and the economic contribution of species dependent on the Bay are described as follows.

Fish Harvested in Biscayne Bay. The total annual exvessel value of commercial fish harvested in Biscayne Bay was used as input to the IMPLAN Regional Economic Input Output Model representing Miami-Dade County, southeast Florida and Florida. The model provided the direct, indirect and induced output, income, employment and tax revenues generated in these areas as a result of commercial fish harvests from Biscayne Bay. This method was implemented for each year from 1986 through 2002.

Harvested Fish Species Dependent on Biscayne Bay. The IMPLAN model was also used to estimate the economic contribution of Biscayne Bay-dependent species landed in Miami-Dade County net of these species caught in Biscayne Bay. As with the economic contribution of fish harvested in Biscayne Bay, three IMPLAN models were used, each representing one of the three study areas: Miami-Dade County, southeast Florida and Florida.

¹ Telephone conversation with Jerald Ault, Ph.D., Associate Professor, Division of Marine Biology and Fisheries, University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, Florida.

² Exvessel value means the value of the fish at dockside (just off the boat).

The annual value of Bay-dependent fish harvested in the ocean and landed in Miami-Dade County was input into three IMPLAN models to obtain estimates of their economic contribution to the county, to Southeast Florida and to Florida. This method was implemented for each year from 1985 through 2002.

The economic data used to construct the IMPLAN economic input-output model was as follows. For the years 1986 through 1997, the IMPLAN model represents 1995 conditions. For the years 1998 through 2002, the IMPLAN model represents 2000 conditions.

Other Commercial Fishery Benefits of Biscayne Bay. Biscayne Bay-related commercial fishing generates additional benefits beyond the exvessel values of marine landings. The capital expenditures associated with vessel purchases and refurbishments generate additional economic contributions. The value added from the marketing and retailing of marine landings also generates economic contributions. Annual estimates of these values were input into the IMPLAN economic input-output model to obtain estimates of these contributions.

The remainder of this section presents the landings and value data input into the IMPLAN model and the results of the IMPLAN analysis.

4.2 Commercial Fish Harvested in Biscayne Bay

The landings and value of each species harvested from the Bay from 1986 through 2002 are provided in Tables F-1 and F-2 of Appendix F. These species include snapper, mullet, sardines, baitfish, blue crabs, stone crabs, spiny lobster and pink shrimp. These data are from Jerald S. Ault, et. al. (2001) and from Doug Harper, Fisheries Biologist, NOAA, Southeast Fisheries Science Center, Miami. The information provided in Appendix F was summarized as total annual pounds and exvessel value of commercial fish harvested from Biscayne Bay. These data are provided in Table 4.2-1. Graphs depicting historic pounds and exvessel values are provided in Figures 4.2-1 and 4.2-2, respectively. The large increases in landings and value after 1995 are due to the growth in blue crab and pink shrimp harvests.

**Table 4.2-1
Commercial Landings and Value of Fish Caught in Biscayne Bay, 1986 to 2002**

Year	Landings in Pounds, Fish and Shellfish			Exvessel Value Fish and Shellfish, nominal dollars	Number of Sponges	Total Exvessel Value, All Species	
	Fish	Shellfish	Total			Nominal Dollars	2004 dollars
1986	36,300	3,288	39,588	\$34,062	0	\$34,062	\$51,267
1987	66,308	4,911	71,219	\$82,232	0	\$82,232	\$120,620
1988	46,384	4,357	50,741	\$36,756	0	\$36,756	\$52,270
1989	25,594	10,854	36,448	\$49,625	76,629	\$135,312	\$185,230
1990	21,863	23,312	45,175	\$93,939	53,016	\$155,311	\$204,991
1991	19,605	39,232	58,837	\$163,400	24,478	\$191,990	\$244,235
1992	19,444	54,316	73,760	\$136,345	385	\$136,780	\$169,733
1993	20,732	73,831	94,563	\$232,866	0	\$232,866	\$282,558
1994	10,776	86,137	96,913	\$173,230	0	\$173,230	\$205,773
1995	11,187	136,321	147,508	\$385,346	0	\$385,346	\$448,302
1996	36,394	232,895	269,289	\$1,080,769	0	\$1,080,769	\$1,233,653
1997	34,297	545,245	579,542	\$1,492,876	0	\$1,492,876	\$1,674,820
1998	29,898	513,067	542,965	\$1,364,864	117,634	\$1,459,459	\$1,617,699
1999	31,717	747,440	779,157	\$1,598,965	108,359	\$1,681,380	\$1,839,535
2000	49,026	986,362	1,035,388	\$2,158,938	119,197	\$2,254,674	\$2,417,912
2001	25,336	710,773	736,109	\$1,848,510	60,577	\$1,899,325	\$1,990,264
2002	16,634	734,894	751,528	\$1,972,284	10,469	\$1,983,499	\$2,042,347

Source: Landings and value data for 1997 to 1999 and landings data for 1986 through 1996 from Ault, Jerald S., Steven G. Smith, Geoffrey A. Meester, Jiangang Luo, and James A. Bohnsack, "Site Characterization for Biscayne National Park: Assessment of Fisheries Resources and Habitats, NOAA Technical Memorandum NMFS-SEFSE-468, National Oceanic and Atmospheric Administration, US Department of Commerce, Miami Florida, October 2001, pages 45 and 46. Landings and value data for 2000 through 2002 from Doug Harper, Fisheries Biologist, National Oceanic and Atmospheric Administration, Southeast Fisheries Science Center, Miami, Florida. Exvessel value per pound from National Marine Fisheries Service web site.

Figure 4.2-1
Commercial Landings of Fish and Shellfish Caught in Biscayne Bay, Barnes Sound and Card Sound, in pounds, 1986 to 2002

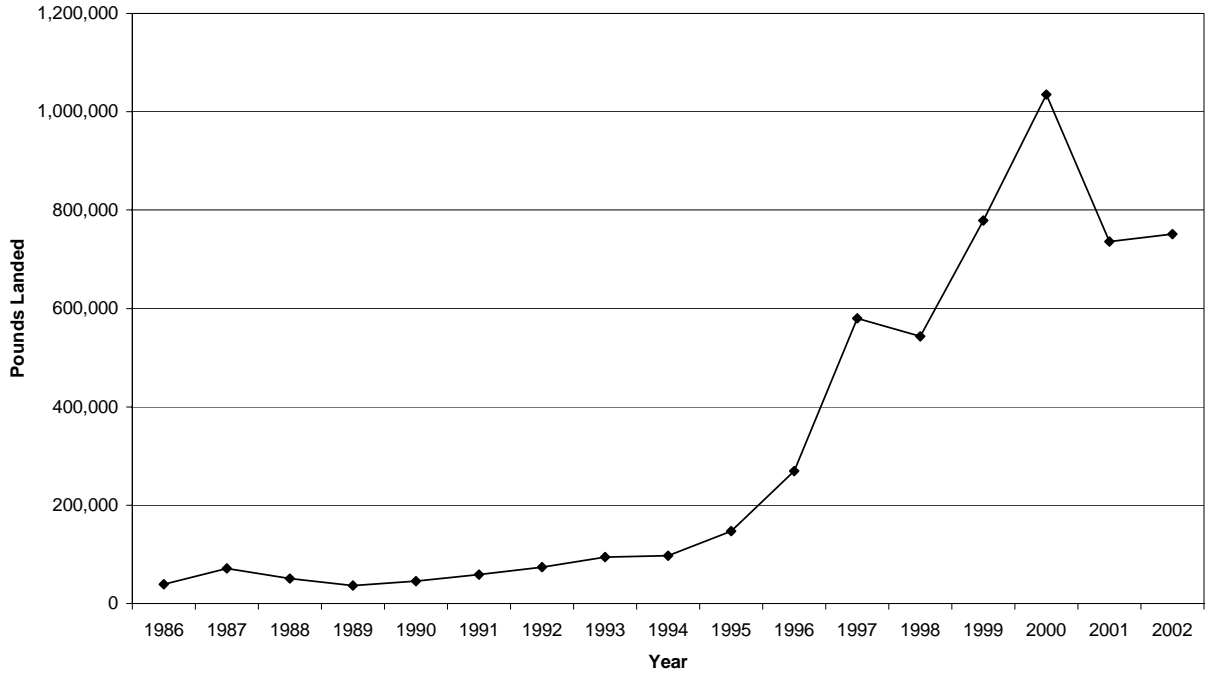
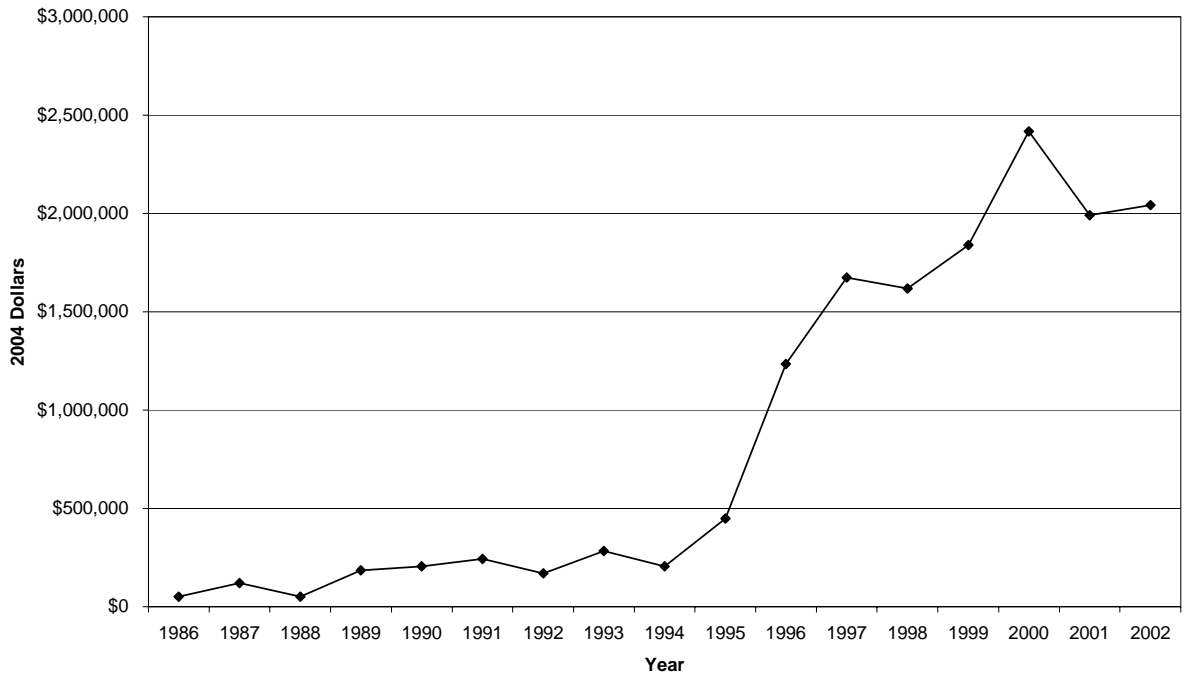


Figure 4.2-2
Commercial Exvessel Value of Fish, Shellfish and Marine Life Caught in Biscayne Bay, Barnes Sound and Card Sound, 1986 to 2002 in 2004 Dollars



4.3 Biscayne Bay-Dependent Fish Harvest

The historic exvessel value of commercial fish, shellfish and marine life landings in Miami-Dade County for species dependent on Biscayne Bay in 2004 dollars are presented in Table 4.3-1. The units and exvessel value of Bay-dependent fish species landed in Miami-Dade County for 2002 by species are provided in Table F-3 in Appendix F.

These exvessel values were used in conjunction with the IMPLAN economic input output model to estimate total direct, indirect and induced output, income, employment and tax revenues generated as a result of commercially harvesting Bay-dependent fish species. Prior to inputting the exvessel values into the IMPLAN model, the exvessel value of Bay-dependent species that are caught in the Bay was deducted from the Miami-Dade County exvessel values presented in Table 4.3-1. The exvessel values deducted were included in the exvessel values used to estimate the economic contribution of species caught in the Bay. Miami-Dade County commercially harvested fish species that are dependent on Biscayne Bay itemized by location caught is provided in Table 4.3-2. Column (3) of this table was input into the IMPLAN model for Bay-dependent species caught in Miami-Dade County. This column is plotted in Figure 4.3-1.

Table 4.3-1
Historic Exvessel Value of Commercial Fish, Shellfish and Marine Life
Landings in Miami-Dade County for Species Dependent on Biscayne Bay
Real Value in 2004 Dollars

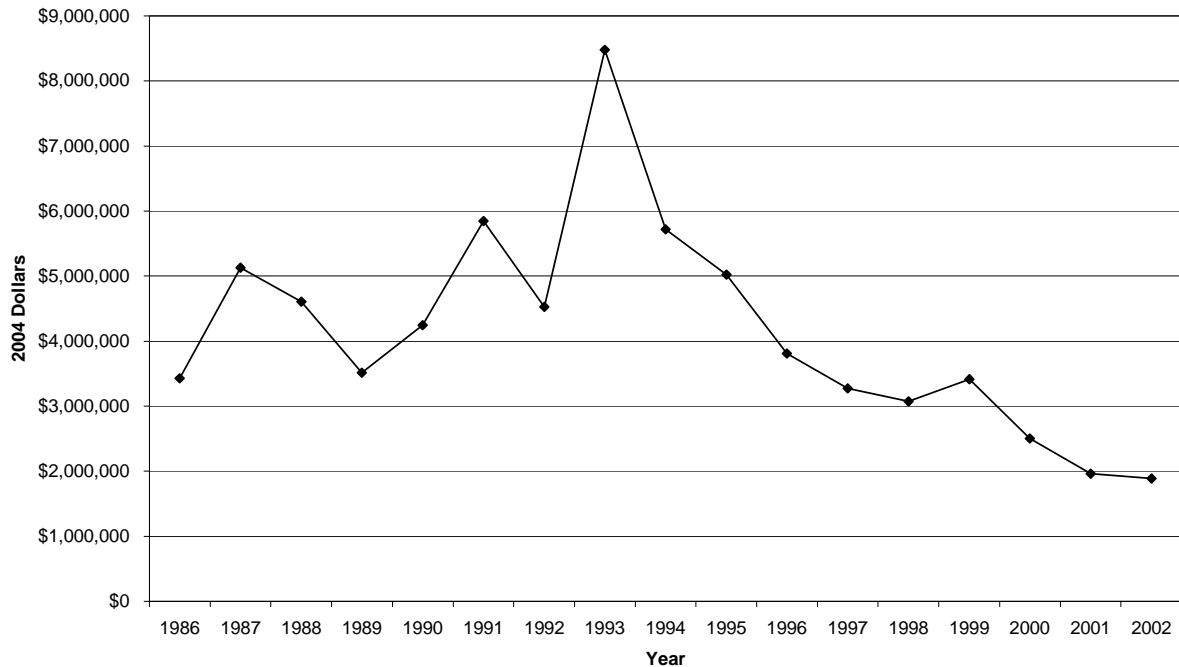
Year	Fish and Shellfish	Marine Life	Total
1985	\$2,355,017	\$0	\$2,355,017
1986	\$3,461,568	\$0	\$3,461,568
1987	\$5,217,902	\$0	\$5,217,902
1988	\$4,639,115	\$0	\$4,639,115
1989	\$3,573,228	\$0	\$3,573,228
1990	\$3,654,912	\$705,353	\$4,360,264
1991	\$5,292,633	\$757,022	\$6,049,655
1992	\$3,821,567	\$802,463	\$4,624,030
1993	\$7,753,511	\$803,092	\$8,556,603
1994	\$5,065,180	\$779,791	\$5,844,970
1995	\$4,670,601	\$639,483	\$5,310,084
1996	\$4,069,938	\$444,132	\$4,514,070
1997	\$4,334,357	\$421,969	\$4,756,326
1998	\$4,147,286	\$232,409	\$4,379,695
1999	\$4,771,881	\$167,033	\$4,938,914
2000	\$4,154,904	\$261,897	\$4,416,800
2001	\$3,369,029	\$257,109	\$3,626,139
2002	\$3,448,091	\$255,620	\$3,703,710

Source: Rick Beaver, Fisheries and Wildlife Biologist, Florida Marine Research Institute, Florida Fish and Wildlife Conservation Commission, December 2003.

Table 4.3-2
Exvessel Value of Commercial Fish, Shellfish and Marine Life Landings in
Miami-Dade County for Species Dependent on or Caught in Biscayne Bay
Itemized By Location of Catch

Year	Species Dependent on Biscayne Bay and Caught Outside of Bay		Species Caught In Bay	
	nominal dollars	2004 dollars	nominal dollars	2004 dollars
(1)	(2)	(3)	(4)	(5)
1986	\$2,277,738	\$3,428,275	\$34,062	\$51,267
1987	\$3,496,236	\$5,128,387	\$82,232	\$120,620
1988	\$3,238,548	\$4,605,514	\$36,756	\$52,270
1989	\$2,570,291	\$3,518,483	\$135,312	\$185,230
1990	\$3,216,989	\$4,246,030	\$155,311	\$204,991
1991	\$4,596,400	\$5,847,188	\$191,990	\$244,235
1992	\$3,646,653	\$4,525,192	\$136,780	\$169,733
1993	\$6,988,651	\$8,480,006	\$232,866	\$282,558
1994	\$4,815,273	\$5,719,870	\$173,230	\$205,773
1995	\$4,317,706	\$5,023,116	\$385,346	\$448,302
1996	\$3,337,043	\$3,809,095	\$1,080,769	\$1,233,653
1997	\$2,920,940	\$3,276,928	\$1,492,876	\$1,674,820
1998	\$2,775,334	\$3,076,246	\$1,459,459	\$1,617,699
1999	\$3,123,863	\$3,417,701	\$1,681,380	\$1,839,535
2000	\$2,334,502	\$2,503,519	\$2,254,674	\$2,417,912
2001	\$1,870,188	\$1,959,732	\$1,899,325	\$1,990,264
2002	\$1,830,924	\$1,885,245	\$1,983,499	\$2,042,347

Figure 4.3-1
Commercial Exvessel Value of Fish, Shellfish and Marine Life of Species Dependent on Biscayne Bay and Landed in Miami-Dade County (excludes species caught in Bay), 1986 to 2002 in 2004 Dollars



4.4 Commercial Vessel Sales and Refurbishments

The capital investments commercial fishers need to make in order to harvest Biscayne Bay-related species includes the cost of the vessel and the vessel refurbishments made from time to time to keep the vessel seaworthy. The annual expenditures made for these investments are the estimated annual depreciation of the typical vessel type per vessel times the number of full time equivalent vessels that participate in the Biscayne Bay-related commercial fishery. These annual expenditures were then input into the IMPLAN regional economic input-output model.

While a variety of vessels are used to capture Bay-related marine species, they are typically about 20 to 30 feet in length.³ The typical cost of a new commercial fishing vessel of this size is about \$100,000 as inferred from commercial vessel sales asking prices of all models and years listed in www.shipsusa.com. This is a large web site that posts fishing vessel boats for sale throughout the United States by type of vessel. The \$100,000 estimate represents the 30 foot trawlers and the 20 foot wing netters and snapper/lobster boats. This \$100,000 value was divided by 10 years to get the average ten year depreciation of the vessel or \$10,000 per vessel per year. The use of 10 years is made under the assumption that the vessel would undergo significant refurbishment about every ten years. This value is consistent with Milon, et.al. (1999) when a 10 year depreciation schedule is used instead of the 18 year schedule used by Milon et.al. Regular maintenance and repair are included in the IMPLAN economic contribution estimates made using the annual exvessel fishery values.

³ Based on conversations with experts at the Southwest Fisheries Science Center, NOAA, Miami, Florida, April 2005.

The number of full time equivalent fishing vessels that participate in the Bay-related commercial fishery was estimated as the direct employment associated with the Bay-related commercial fishery (number of fishers) divided by an average approximate crew size of 1.5 persons per vessel.⁴ The number of vessels times the average depreciation per vessel was then calculated. The results are presented in Table 4.4-1. The estimated annual sales generated from commercial fishing vessel purchases and refurbishments range from \$505,000 in 1985 to \$1.9 million in 1993. It was assumed that all of these purchases are made in Miami-Dade County.

Table 4.4-1
Estimated Annual Sales Generated from Commercial Fishing
Vessel Purchases and Refurbishments

Year	No. of Vessels Participating in Biscayne Bay-Related Commercial Fishing - FTE (a)	Annual Sales (b)
1985	51	\$505,333
1986	75	\$747,917
1987	113	\$1,128,259
1988	100	\$1,001,177
1989	80	\$796,102
1990	96	\$956,734
1991	131	\$1,309,333
1992	101	\$1,009,160
1993	188	\$1,883,487
1994	127	\$1,273,699
1995	118	\$1,176,065
1996	108	\$1,083,924
1997	106	\$1,064,364
1998	113	\$1,126,600
1999	126	\$1,261,796
2000	118	\$1,181,199
2001	95	\$948,044
2002	94	\$942,667

(a) Number of vessels participating is direct employment generated by Biscayne Bay-related commercial fishing divided by 1.5. Represents number of full time equivalent vessels.

(b) Number of vessels participating times \$10,000 annual vessel depreciation per vessel. This value is consistent with Milon, et.al. 1999 when a 10 year depreciation schedule is used instead of the 18 year schedule used by Milon et.al.

⁴ The commercial fishing data used in the IMPLAN model was checked against U.S. Census data reported for Miami-Dade County. Changes to the IMPLAN model data were made to reflect the number of commercial fishing proprietors in Miami-Dade County based on U.S. Census data reported in their NonEmployer Statistics dataset.

4.5 Marketing and Retailing Biscayne Bay-Related Commercial Marine Landings

A summary of the Biscayne Bay-related marine species harvested commercially in 2002 is provided in Table 4.5-1. Shrimp for bait and for human consumption comprised 44 percent of the total value of Bay-related commercial marine landings in 2002. Spiny lobster comprised 30 percent and finfish comprised 15 percent. Income and jobs are created as these species are marketed to the retail level. The retail levels used in the IMPLAN model for these commercial marine landings are bait and pet shops and restaurants. One half of the landings were assumed to be sold in bait or pet shops and the other half were assumed to be sold in restaurants. All sales are assumed to take place in Miami-Dade County.

The only available data on the marketing margin that converts exvessel values to retail values is from Berkeley, et.al (1985). This Florida Sea Grant technical paper reports exvessel, wholesale and retail prices for bait shrimp harvested from Biscayne Bay. The exvessel price to wholesale price margin is 1.62. The wholesale price to retail price margin is 1.92. The total margin from exvessel price to retail price is 3.11. These factors were used to convert exvessel values to wholesale values and retail values. The results are provided in Table 4.5-2. These values and margins were input into the IMPLAN model to obtain estimates of the economic contribution of the marketing and retailing of Bay-dependent marine products.

**Table 4.5-1
Distribution of Biscayne Bay-Related Commercial Marine Landings by
Species, 2002**

Marine Species	Value of Bay Caught and Bay- Dependent Landings in 2002		Percent of Total Landings
	2002 dollars	2004 Dollars	
Shrimp, bait and pink	\$1,688,178	\$1,738,264	44%
Spiny Lobster	\$1,129,638	\$1,163,153	30%
Marine Life	\$248,254	\$255,620	7%
Finfish	\$573,932	\$590,959	15%
Blue crabs and stone crabs	\$174,421	\$179,596	5%
Total	\$3,814,423	\$3,927,592	100%

Source: NOAA and NMFS described in Sections 4.1 through 4.3.

**Table 4.5-2
Annual Exvessel Values for Bay-Related Commercial Marine Landings and Associated Estimated Marketing Margins, 2004 Dollars**

Year	Annual Exvessel Value	Exvessel to Wholesale Margin (a)	Wholesale to Retail Margin (a)	Total Retail Value
(1)	(2)	(3) = (2) x (1.62-1)	(4) = [(3)+(2)] x (1.92-1)	(5) = (2) + (3) + (4)
1985	\$2,355,017	\$1,454,570	\$3,520,982	\$7,330,569
1986	\$3,479,543	\$2,149,129	\$5,202,257	\$10,830,929
1987	\$5,249,007	\$3,242,034	\$7,847,780	\$16,338,821
1988	\$4,657,784	\$2,876,867	\$6,963,844	\$14,498,495
1989	\$3,703,713	\$2,287,587	\$5,537,413	\$11,528,713
1990	\$4,451,021	\$2,749,160	\$6,654,712	\$13,854,893
1991	\$6,091,423	\$3,762,350	\$9,107,275	\$18,961,047
1992	\$4,694,925	\$2,899,806	\$7,019,373	\$14,614,104
1993	\$8,762,564	\$5,412,172	\$13,100,893	\$27,275,629
1994	\$5,925,642	\$3,659,956	\$8,859,416	\$18,445,014
1995	\$5,471,418	\$3,379,405	\$8,180,306	\$17,031,130
1996	\$5,042,747	\$3,114,638	\$7,539,402	\$15,696,787
1997	\$4,951,748	\$3,058,433	\$7,403,349	\$15,413,529
1998	\$4,693,945	\$2,899,201	\$7,017,908	\$14,611,055
1999	\$5,257,236	\$3,247,116	\$7,860,083	\$16,364,435
2000	\$4,921,432	\$3,039,708	\$7,358,023	\$15,319,163
2001	\$3,949,996	\$2,439,704	\$5,905,632	\$12,295,332
2002	\$3,927,592	\$2,425,866	\$5,872,135	\$12,225,593

(a) Margins are from "Bait Shrimp Fishery of Biscayne Bay" by Steven A. Berkeley, Donald W. Pybas and Wilfredo L. Campos, Florida Sea Grant College, Technical Paper No. 40, November 1985, page 5. Exvessel to Wholesale margin is 1.62. Wholesale to retail margin is 1.92. Total exvessel to retail margin is 3.11.

4.6 Economic Contribution as Biscayne Bay Supports Commercial Fisheries

A summary of the sales associated with the Biscayne Bay-related commercial fishery is provided in Table 4.6-1 and plotted in Figure 4.6-1. The values in this table were the inputs to the IMPLAN regional input-output model. The total annual Biscayne Bay-related commercial fishery sales ranged from \$7.8 million in 1985 to \$29 million in 1993. By 2002, sales were \$13.1 million.

The current and historic economic contribution to Miami-Dade County as Biscayne Bay is used for commercial fishing (all Bay-related) is provided in Table 4.6-2. In 1985, Biscayne Bay-related commercial fishing generated \$16.4 million in output, \$9.2 million in income, 274 jobs and \$1.1 million in tax revenues in Miami-Dade County. The economic contribution peaked in 1993, with \$61.1 million in output, \$35.5 million in income, 1,019 jobs and \$4.2 million in tax revenues. By 2002, output was \$28.3 million, income was \$17.4 million, tax revenues were \$1.8 million and 469 jobs existed due to Biscayne Bay-related commercial fishing.

Table 4.6-1
Sales of Commercial Fish, Shellfish and Marine Life Landings
Of Species Dependent or Caught on Biscayne Bay , 2004 Dollars

Year	Exvessel Value		Exvessel to Retail Margin	Commercial Vessel Sales, Refurbishments	Total Value, 2004 Dollars
	Species Caught in Bay	Bay Dependent Caught Outside Bay			
1985	NA	\$2,355,000	\$4,976,000	\$505,000	\$7,836,000
1986	\$51,000	\$3,428,000	\$7,351,000	\$748,000	\$11,579,000
1987	\$121,000	\$5,128,000	\$11,090,000	\$1,128,000	\$17,467,000
1988	\$52,000	\$4,606,000	\$9,841,000	\$1,001,000	\$15,500,000
1989	\$185,000	\$3,518,000	\$7,825,000	\$796,000	\$12,325,000
1990	\$205,000	\$4,246,000	\$9,404,000	\$957,000	\$14,812,000
1991	\$244,000	\$5,847,000	\$12,870,000	\$1,309,000	\$20,270,000
1992	\$170,000	\$4,525,000	\$9,919,000	\$1,009,000	\$15,623,000
1993	\$283,000	\$8,480,000	\$18,513,000	\$1,883,000	\$29,159,000
1994	\$206,000	\$5,720,000	\$12,519,000	\$1,274,000	\$19,719,000
1995	\$448,000	\$5,023,000	\$11,560,000	\$1,176,000	\$18,207,000
1996	\$1,234,000	\$3,809,000	\$10,654,000	\$1,084,000	\$16,781,000
1997	\$1,675,000	\$3,277,000	\$10,462,000	\$1,064,000	\$16,478,000
1998	\$1,618,000	\$3,076,000	\$9,917,000	\$1,127,000	\$15,738,000
1999	\$1,840,000	\$3,418,000	\$11,107,000	\$1,262,000	\$17,626,000
2000	\$2,418,000	\$2,504,000	\$10,398,000	\$1,181,000	\$16,500,000
2001	\$1,990,000	\$1,960,000	\$8,345,000	\$948,000	\$13,243,000
2002	\$2,042,000	\$1,885,000	\$8,298,000	\$943,000	\$13,168,000

Figure 4.6-1
Sales Associated with the Biscayne Bay-Related Commercial Fishery

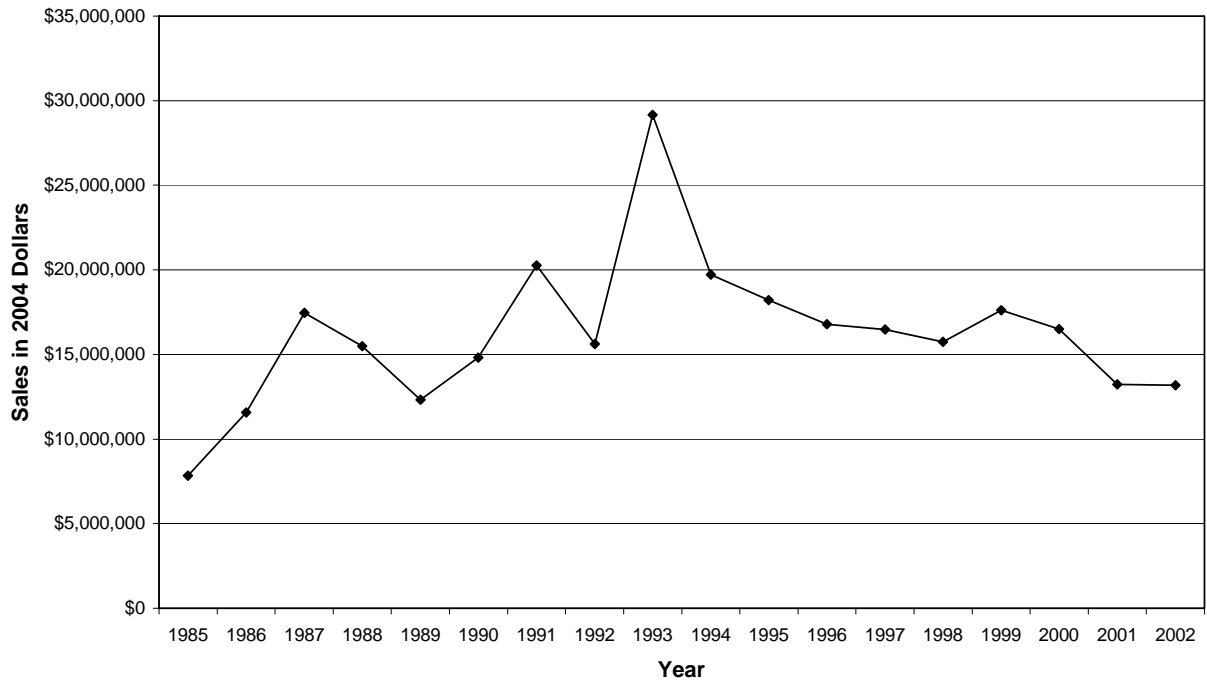


Table 4.6-2
Current and Historic Economic Contribution to Miami-Dade County
As Biscayne Bay is Used for Commercial Fishing (a)

Year	Output	Income	Employment	Tax Revenues
1985	\$16,422,000	\$9,265,000	274	\$1,129,000
1986	\$24,266,000	\$13,691,000	405	\$1,668,000
1987	\$36,606,000	\$20,654,000	610	\$2,516,000
1988	\$32,483,000	\$18,327,000	542	\$2,232,000
1989	\$25,830,000	\$14,573,000	431	\$1,775,000
1990	\$31,041,000	\$17,514,000	517	\$2,133,000
1991	\$42,481,000	\$23,968,000	708	\$2,920,000
1992	\$32,742,000	\$18,473,000	546	\$2,250,000
1993	\$61,110,000	\$34,479,000	1019	\$4,200,000
1994	\$41,325,000	\$23,316,000	689	\$2,840,000
1995	\$38,158,000	\$21,529,000	636	\$2,622,000
1996	\$35,168,000	\$19,842,000	586	\$2,417,000
1997	\$34,533,000	\$19,484,000	576	\$2,373,000
1998	\$33,865,000	\$20,800,000	560	\$2,195,000
1999	\$37,929,000	\$23,296,000	628	\$2,459,000
2000	\$35,506,000	\$21,808,000	587	\$2,302,000
2001	\$28,497,000	\$17,503,000	471	\$1,847,000
2002	\$28,336,000	\$17,404,000	469	\$1,837,000

(a) 2004 dollars except for employment which is number of full-time and part-time jobs.

The current and historic economic contribution to Southeast Florida as Biscayne Bay is used for commercial fishing is provided in Table 4.6-3. In 1985, Biscayne Bay-related commercial fishing generated \$17.2 million in output, \$9.7 million in income, 283 jobs and \$1.2 million in tax revenues in southeast Florida. The economic contribution peaked in 1993, with \$64 million in output, \$36.1 million in income, 1,053 jobs and \$4.4 million in tax revenues. By 2002, output was \$29.9 million, income was \$18.2 million, tax revenues were \$2.0 million and 473 jobs existed due to Biscayne Bay-related commercial fishing.

The current and historic economic contribution to Florida as Biscayne Bay is used for commercial fishing is provided in Table 4.6-4. In 1985, Biscayne Bay-related commercial fishing generated \$17.6 million in output, \$9.9 million in income, 294 jobs and \$1.2 million in tax revenues in Florida. The economic contribution peaked in 1993, with \$65.5 million in output, \$36.8 million in income, 1,096 jobs and \$4.5 million in tax revenues. By 2002, output was \$31.1 million, income was \$19 million, tax revenues were \$2.0 million and 500 jobs existed due to Biscayne Bay-related commercial fishing.

Table 4.6-3
Current and Historic Economic Contribution to Southeast Florida
As Biscayne Bay is Used for Commercial Fishing (a)

Year	Output	Income	Employment	Tax Revenues
1985	\$17,189,000	\$9,707,000	283	\$1,170,000
1986	\$25,400,000	\$14,343,000	418	\$1,729,000
1987	\$38,316,000	\$21,637,000	631	\$2,608,000
1988	\$34,001,000	\$19,200,000	560	\$2,314,000
1989	\$27,036,000	\$15,267,000	445	\$1,840,000
1990	\$32,491,000	\$18,348,000	535	\$2,211,000
1991	\$44,466,000	\$25,110,000	732	\$3,026,000
1992	\$34,272,000	\$19,353,000	564	\$2,333,000
1993	\$63,965,000	\$36,121,000	1,053	\$4,353,000
1994	\$43,256,000	\$24,427,000	712	\$2,944,000
1995	\$39,940,000	\$22,554,000	657	\$2,718,000
1996	\$36,811,000	\$20,787,000	606	\$2,505,000
1997	\$36,147,000	\$20,412,000	595	\$2,460,000
1998	\$35,685,000	\$21,792,000	565	\$2,335,000
1999	\$39,967,000	\$24,407,000	633	\$2,615,000
2000	\$37,415,000	\$22,848,000	593	\$2,448,000
2001	\$30,029,000	\$18,338,000	476	\$1,965,000
2002	\$29,859,000	\$18,234,000	473	\$1,954,000

(a) 2004 dollars except for employment which is number of full-time and part-time jobs.

**Table 4.6-4
Current and Historic Economic Contribution to Florida
As Biscayne Bay is Used for Commercial Fishing (a)**

Year	Output	Income	Employment	Tax Revenues
1985	\$17,610,000	\$9,894,000	294	\$1,200,000
1986	\$26,022,000	\$14,620,000	435	\$1,773,000
1987	\$39,255,000	\$22,054,000	656	\$2,675,000
1988	\$34,834,000	\$19,570,000	582	\$2,374,000
1989	\$27,699,000	\$15,561,000	463	\$1,887,000
1990	\$33,287,000	\$18,701,000	557	\$2,268,000
1991	\$45,555,000	\$25,594,000	762	\$3,104,000
1992	\$35,111,000	\$19,726,000	587	\$2,392,000
1993	\$65,532,000	\$36,817,000	1,096	\$4,465,000
1994	\$44,315,000	\$24,897,000	741	\$3,020,000
1995	\$40,918,000	\$22,989,000	684	\$2,788,000
1996	\$37,713,000	\$21,188,000	630	\$2,570,000
1997	\$37,032,000	\$20,805,000	619	\$2,523,000
1998	\$37,190,000	\$22,657,000	597	\$2,379,000
1999	\$41,653,000	\$25,376,000	669	\$2,665,000
2000	\$38,992,000	\$23,755,000	626	\$2,495,000
2001	\$31,295,000	\$19,066,000	503	\$2,002,000
2002	\$31,118,000	\$18,958,000	500	\$1,991,000

(a) 2004 dollars except for employment which is number of full-time and part-time jobs.

The economic contributions of Biscayne Bay-related commercial fishing to Miami-Dade County, southeast Florida and Florida are plotted in Figures 4.6-2 through 4.6-5, where output, income, employment and tax revenue are presented, respectively, for each study area. The pattern is similar among the figures with 1985 being the year with the smallest economic contribution and 1993 being the year with the largest economic contribution. The most recent year, 2002, is at the midpoint of the 1985 and 1993 levels. The trends are similar for each of the three study areas. Most of the economic contribution of Biscayne Bay-related commercial fishing occurs in Miami-Dade County.

The itemization of economic contributions to Miami-Dade County by type of benefiting industry in 2002 is provided in Table 4.6-5. The current and historic direct, indirect and induced economic contributions for each study area are provided in Tables F-4 through F-6 in Appendix F.

Figure 4.6-2
Output Generated from Biscayne Bay-Related Commercial Fishing

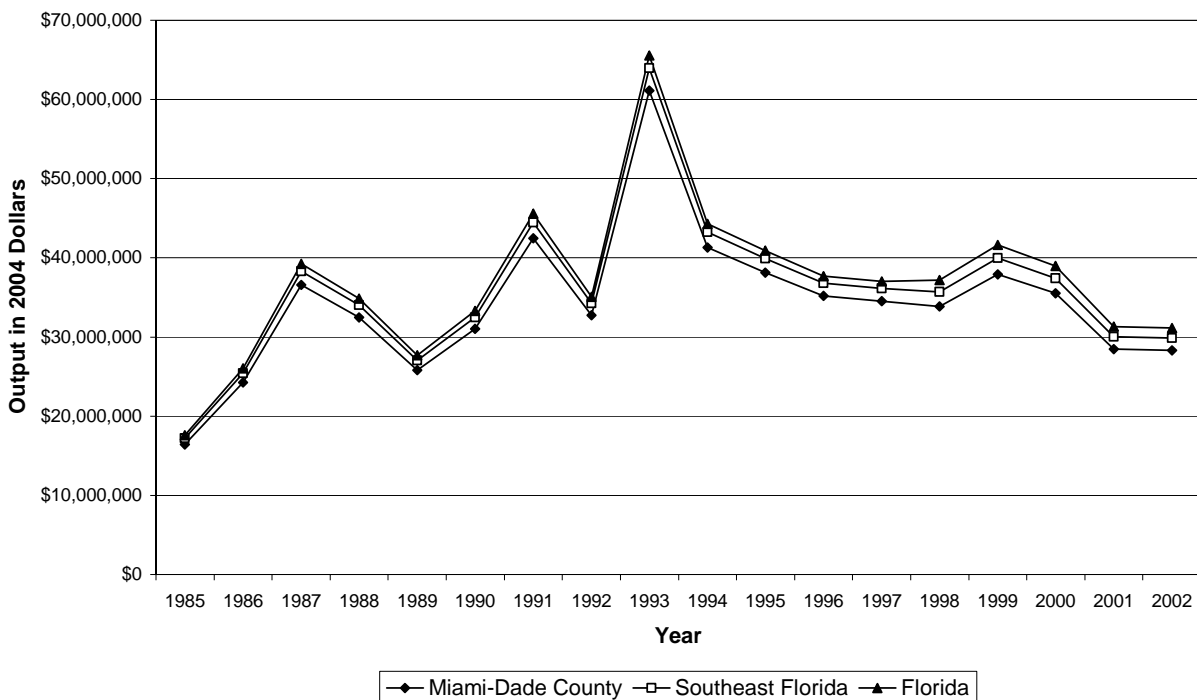


Figure 4.6-3
Income Generated from Biscayne Bay-Related Commercial Fishing

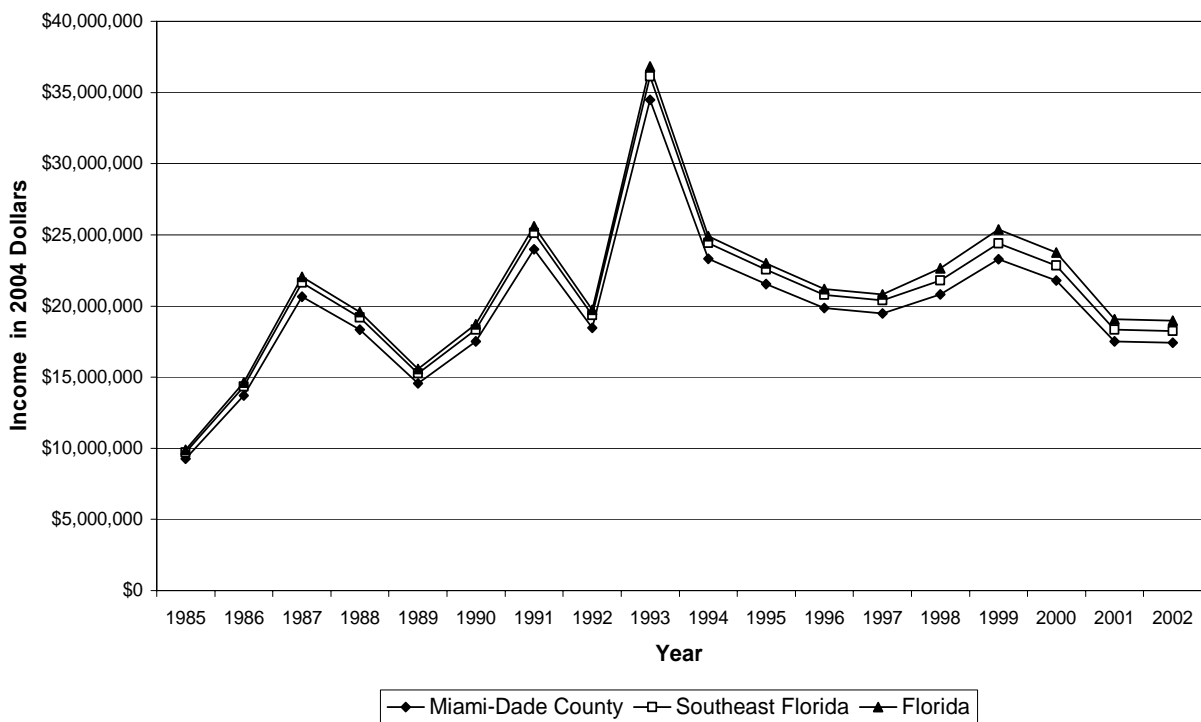


Figure 4.6-4
Employment Generated from Biscayne Bay-Related Commercial Fishing

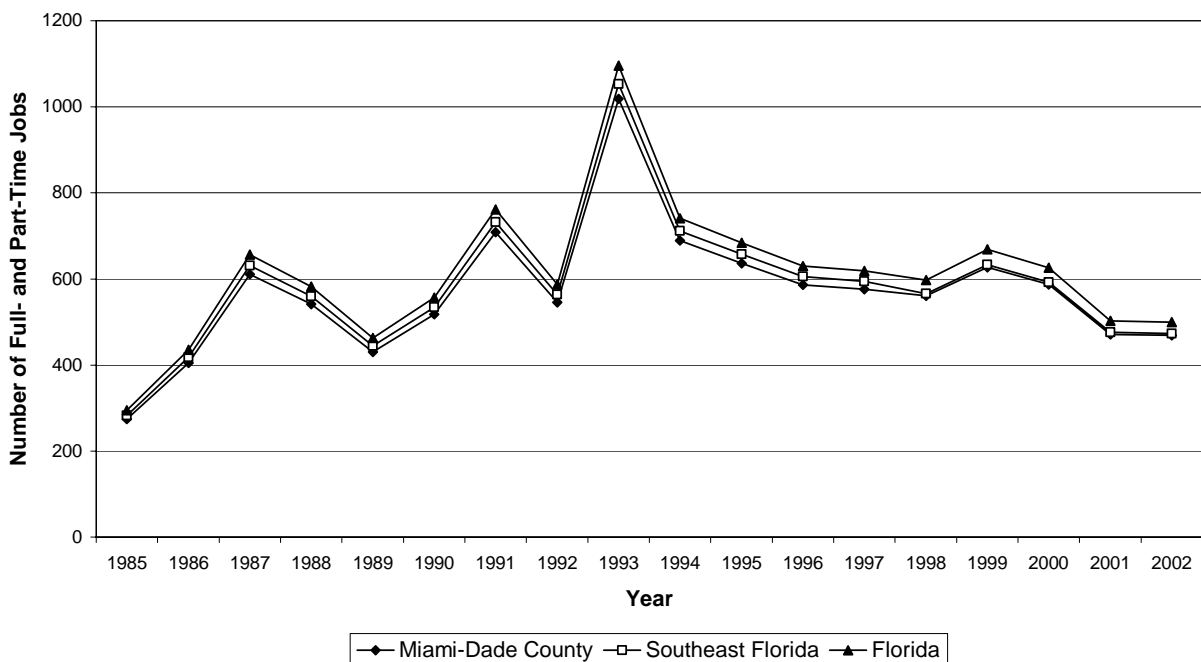
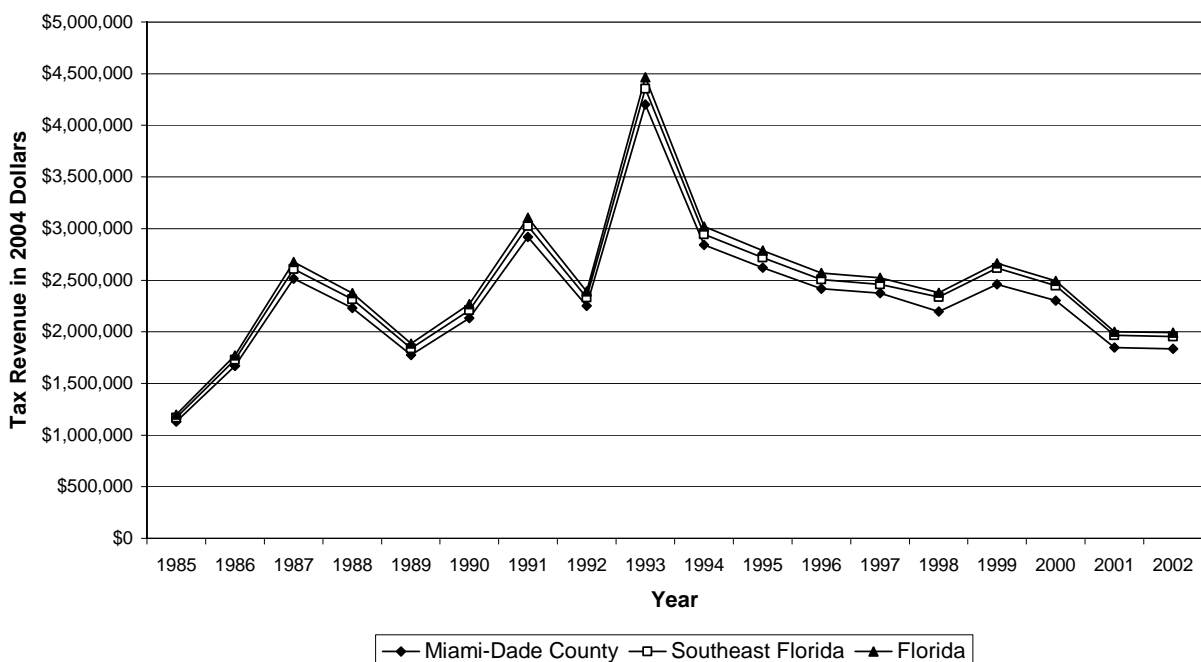


Figure 4.6-5
Tax Revenue Generated from Biscayne Bay-Related Commercial Fishing



4.0 Biscayne Bay-Related Commercial Fishing

**Table 4.6-5
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$13,171	\$53,033	\$66,204
Commercial Fishing	\$3,914,950	\$315	\$64	\$3,915,328
Mining	\$0	\$372	\$1,144	\$1,516
Construction	\$0	\$81,425	\$1,586,917	\$1,668,342
Manufacturing: Food Products	\$0	\$105,957	\$156,387	\$262,344
Textiles	\$0	\$332	\$7,049	\$7,382
Apparel and Fabric Products	\$0	\$6,471	\$69,054	\$75,525
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$26,620	\$118,145	\$144,765
Printing, Publishing and Allied Products	\$0	\$95,587	\$73,097	\$168,685
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$9,033	\$121,724	\$130,757
Ship Building and Repairing	\$0	\$2	\$8	\$10
Boat Building and Repairing	\$942,667	\$354	\$329	\$943,350
All other products	\$0	\$40,161	\$250,015	\$290,176
Transportation: Water Transportation	\$0	\$34,507	\$27,270	\$61,777
All Other Transportation	\$0	\$77,246	\$198,037	\$275,283
Communications, Electric, Gas and Sanitary Services	\$0	\$192,126	\$321,185	\$513,311
Wholesale Trade	\$2,425,558	\$294,245	\$772,467	\$3,492,270
Retail Trade: Food Stores	\$0	\$1,067	\$203,624	\$204,691
Automotive Dealers and Service Stations	\$0	\$7,895	\$256,036	\$263,931
Eating and Drinking Establishments	\$2,834,944	\$31,579	\$436,009	\$3,302,532
All Other Retail Stores	\$2,935,834	\$6,697	\$581,155	\$3,523,686
Finance, Insurance and Real Estate	\$0	\$394,427	\$2,334,301	\$2,728,728
Services: Hotels and Lodging Places	\$0	\$43,198	\$129,838	\$173,036
Automobile Rental and Leasing	\$0	\$28,231	\$57,135	\$85,366
Amusement and Recreation Services, n.e.c.	\$0	\$259	\$55,786	\$56,045
All Other Service Industries	\$0	\$779,897	\$3,038,372	\$3,818,269
Government - State, Local, Federal	\$116,904	\$59,582	\$1,985,977	\$2,162,463
Total	\$13,170,857	\$2,330,758	\$12,834,157	\$28,335,772

4.0 Biscayne Bay-Related Commercial Fishing

Table 4.6-5, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Labor Income, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$0	\$5,116	\$19,885	\$25,001
Commercial Fishing	\$2,334,916	\$188	\$38	\$2,335,142
Mining	\$0	\$20	\$61	\$81
Construction	\$0	\$50,421	\$443,959	\$494,380
Manufacturing: Food Products	\$0	\$20,563	\$22,492	\$43,055
Textiles	\$0	\$73	\$1,641	\$1,714
Apparel and Fabric Products	\$0	\$2,585	\$17,475	\$20,060
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$4,315	\$32,262	\$36,578
Printing, Publishing and Allied Products	\$0	\$33,860	\$25,082	\$58,942
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,362	\$27,673	\$29,034
Ship Building and Repairing	\$0	\$1	\$4	\$5
Boat Building and Repairing	\$341,657	\$128	\$119	\$341,905
All other products	\$0	\$11,619	\$69,802	\$81,420
Transportation: Water Transportation	\$0	\$6,136	\$4,850	\$10,986
All Other Transportation	\$0	\$28,584	\$77,440	\$106,024
Communications, Electric, Gas and Sanitary Services	\$0	\$56,640	\$81,182	\$137,821
Wholesale Trade	\$1,016,381	\$123,298	\$323,687	\$1,463,365
Retail Trade: Food Stores	\$0	\$634	\$121,077	\$121,711
Automotive Dealers and Service Stations	\$0	\$3,523	\$114,255	\$117,778
Eating and Drinking Establishments	\$1,117,256	\$12,445	\$171,832	\$1,301,533
All Other Retail Stores	\$1,406,657	\$3,301	\$283,062	\$1,693,020
Finance, Insurance and Real Estate	\$0	\$81,367	\$402,744	\$484,111
Services: Hotels and Lodging Places	\$0	\$17,581	\$52,842	\$70,424
Automobile Rental and Leasing	\$0	\$8,608	\$17,421	\$26,029
Amusement and Recreation Services, n.e.c.	\$0	\$106	\$22,913	\$23,020
All Other Service Industries	\$0	\$403,052	\$1,654,976	\$2,058,029
Government - State, Local, Federal	\$3,311	\$31,114	\$1,563,504	\$1,597,929
Total	\$6,220,179	\$906,640	\$5,552,278	\$12,679,097

4.0 Biscayne Bay-Related Commercial Fishing

Table 4.6-5, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Other Property Type Income, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$0	\$2,162	\$9,066	\$11,229
Commercial Fishing	\$1,216,843	\$98	\$20	\$1,216,961
Mining	\$0	\$16	\$52	\$68
Construction	\$0	\$4,338	\$54,613	\$58,951
Manufacturing: Food Products	\$0	\$15,155	\$15,929	\$31,084
Textiles	\$0	\$16	\$354	\$370
Apparel and Fabric Products	\$0	\$667	\$4,368	\$5,036
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$2,067	\$7,885	\$9,952
Printing, Publishing and Allied Products	\$0	\$11,281	\$8,546	\$19,827
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,161	\$26,952	\$28,114
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$48,568	\$18	\$17	\$48,603
All other products	\$0	\$3,972	\$12,885	\$16,856
Transportation: Water Transportation	\$0	\$2,313	\$1,828	\$4,140
All Other Transportation	\$0	\$7,916	\$20,730	\$28,646
Communications, Electric, Gas and Sanitary Services	\$0	\$34,753	\$77,281	\$112,034
Wholesale Trade	\$314,507	\$38,153	\$100,161	\$452,820
Retail Trade: Food Stores	\$0	\$165	\$31,590	\$31,755
Automotive Dealers and Service Stations	\$0	\$1,186	\$38,447	\$39,633
Eating and Drinking Establishments	\$268,103	\$2,986	\$41,234	\$312,323
All Other Retail Stores	\$435,203	\$1,015	\$88,002	\$524,220
Finance, Insurance and Real Estate	\$0	\$154,811	\$1,015,789	\$1,170,599
Services: Hotels and Lodging Places	\$0	\$6,671	\$20,051	\$26,723
Automobile Rental and Leasing	\$0	\$7,874	\$15,936	\$23,810
Amusement and Recreation Services, n.e.c.	\$0	\$39	\$8,335	\$8,373
All Other Service Industries	\$0	\$52,410	\$167,526	\$219,936
Government - State, Local, Federal	\$1,680	\$3,188	\$318,016	\$322,884
Total	\$2,284,903	\$354,431	\$2,085,611	\$4,724,946

4.0 Biscayne Bay-Related Commercial Fishing

Table 4.6-5, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$277	\$1,002	\$1,279
Commercial Fishing	\$127,272	\$10	\$2	\$127,284
Mining	\$0	\$4	\$11	\$15
Construction	\$0	\$373	\$9,888	\$10,260
Manufacturing: Food Products	\$0	\$858	\$8,760	\$9,618
Textiles	\$0	\$3	\$63	\$66
Apparel and Fabric Products	\$0	\$55	\$417	\$471
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$131	\$818	\$949
Printing, Publishing and Allied Products	\$0	\$1,121	\$848	\$1,969
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$122	\$1,303	\$1,425
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$8,312	\$3	\$3	\$8,318
All other products	\$0	\$434	\$2,613	\$3,047
Transportation: Water Transportation	\$0	\$751	\$594	\$1,345
All Other Transportation	\$0	\$1,083	\$3,046	\$4,130
Communications, Electric, Gas and Sanitary Services	\$0	\$7,290	\$16,432	\$23,723
Wholesale Trade	\$346,108	\$41,986	\$110,225	\$498,319
Retail Trade: Food Stores	\$0	\$170	\$32,527	\$32,697
Automotive Dealers and Service Stations	\$0	\$1,221	\$39,588	\$40,809
Eating and Drinking Establishments	\$193,312	\$2,153	\$29,731	\$225,197
All Other Retail Stores	\$448,113	\$1,045	\$90,612	\$539,770
Finance, Insurance and Real Estate	\$0	\$29,578	\$201,495	\$231,073
Services: Hotels and Lodging Places	\$0	\$3,120	\$9,379	\$12,499
Automobile Rental and Leasing	\$0	\$2,230	\$4,513	\$6,744
Amusement and Recreation Services, n.e.c.	\$0	\$14	\$3,026	\$3,040
All Other Service Industries	\$0	\$12,657	\$40,227	\$52,884
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$1,123,117	\$106,691	\$607,123	\$1,836,931

4.0 Biscayne Bay-Related Commercial Fishing

Table 4.6-5, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	0	0	1	1
Commercial Fishing	140	0	0	140
Mining	0	0	0	0
Construction	0	1	11	12
Manufacturing: Food Products	0	0	1	1
Textiles	0	0	0	0
Apparel and Fabric Products	0	0	1	1
Lumber, Wood Products, Furniture, Paper and Allied Products	0	0	1	1
Printing, Publishing and Allied Products	0	1	1	1
Chemicals, Petroleum, Rubber and Leather Products	0	0	1	1
Ship Building and Repairing	0	0	0	0
Boat Building and Repairing	7	0	0	7
All other products	0	0	1	1
Transportation: Water Transportation	0	0	0	0
All Other Transportation	0	1	2	3
Communications, Electric, Gas and Sanitary Services	0	1	1	2
Wholesale Trade	19	2	6	28
Retail Trade: Food Stores	0	0	6	6
Automotive Dealers and Service Stations	0	0	3	3
Eating and Drinking Establishments	65	1	10	76
All Other Retail Stores	68	0	13	82
Finance, Insurance and Real Estate	0	2	8	10
Services: Hotels and Lodging Places	0	1	2	2
Automobile Rental and Leasing	0	0	0	1
Amusement and Recreation Services, n.e.c.	0	0	2	2
All Other Service Industries	0	12	47	59
Government - State, Local, Federal	0	0	30	30
Total	299	23	147	469

4.7 Trends in Number of Registered Boats for Commercial Use

To provide a broader picture of the trends in commercial fishing in and near Biscayne Bay, the number of registered boats for commercial use in Miami-Dade and Monroe counties from 1985 to 2002 is provided in Figure 4.7-1. There is a steady increase from 1987 to 1998. Since 1998, the number of registered boats has declined a bit in Miami-Dade County and has fallen significantly in Monroe County. A longer time series, from 1964 to 2002, is plotted in Figure 4.7-2. The number of registered boats in Monroe County was somewhat cyclical. In 2000, the number of registered boats dropped significantly. The number of registered boats for commercial use in Miami-Dade County tended to follow the Monroe County trend but the drop in 1999 was not as sharp.

The number of registered boats for commercial use in Southeast Florida and Florida from 1964 to 2002 is provided in Figure 4.7-3. The trends are similar to those for Miami-Dade and Monroe counties. These data for the four southeast Florida counties and the State of Florida are provided in Table 4.7-1 for the years 1964 through 2002.

**Figure 4.7-1
Number of Registered Boats for Commercial Use in Miami-Dade and Monroe Counties, 1985 to 2002**

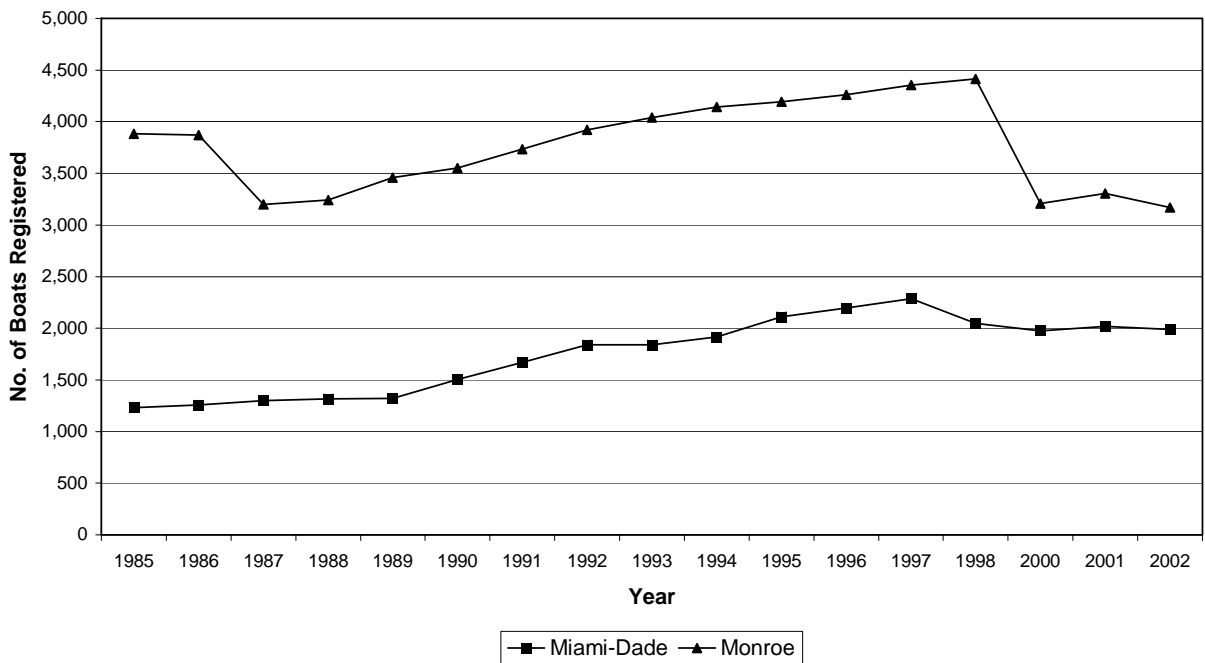


Figure 4.7-2
Number of Registered Boats for Commercial Use in Miami-Dade and Monroe Counties, 1964 to 2002

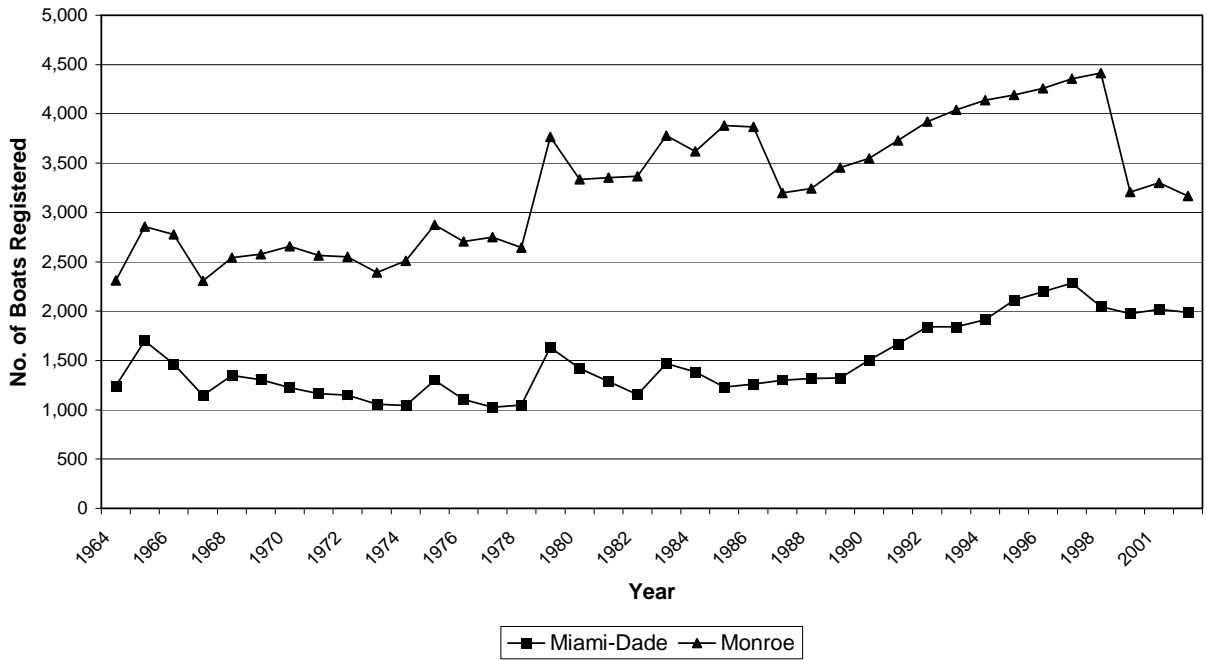
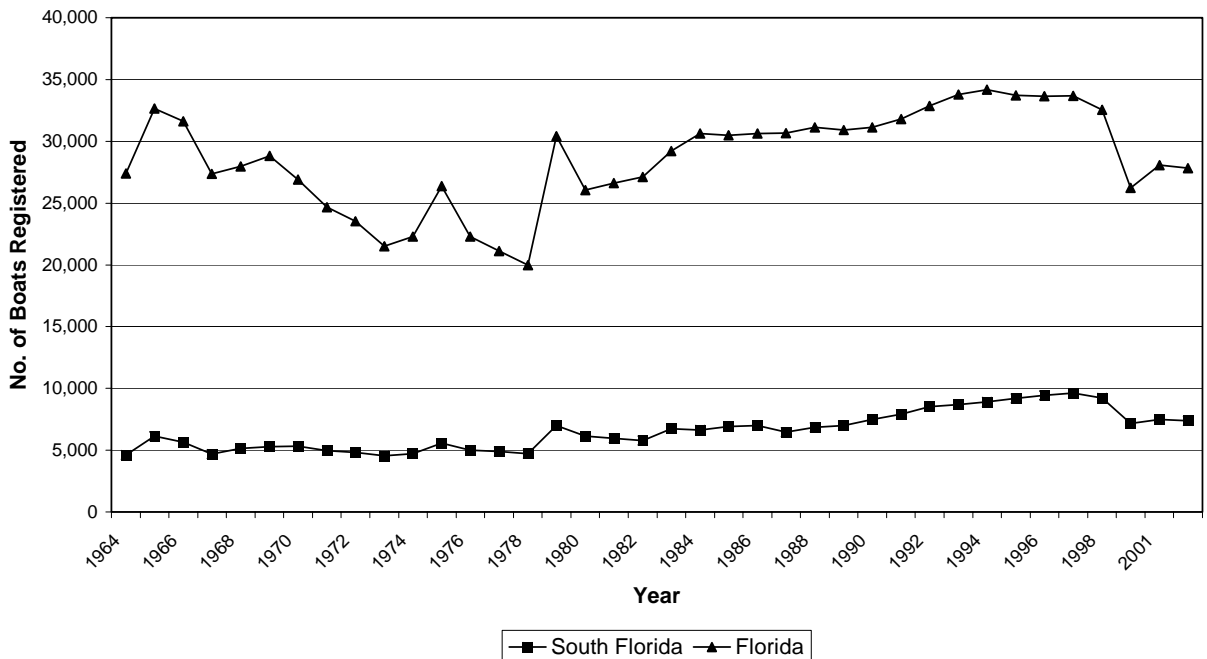


Figure 4.7-3
Number of Registered Boats for Commercial Use in Southeast Florida and Florida, 1964 to 2002



4.0 Biscayne Bay-Related Commercial Fishing

**Table 4.7-1
Number of Registered Boats for Commercial Uses in Study Areas, 1964 to 2002**

Year	Miami-Dade	Monroe	Broward	Palm Beach	South Florida	Florida
1964	1,242	2,311	355	710	4,618	27,394
1965	1,698	2,856	601	986	6,141	32,641
1966	1,466	2,778	641	754	5,639	31,608
1967	1,144	2,309	611	636	4,700	27,377
1968	1,350	2,542	572	698	5,162	27,955
1969	1,303	2,576	753	669	5,301	28,821
1970	1,224	2,657	692	735	5,308	26,921
1971	1,162	2,563	556	705	4,986	24,672
1972	1,149	2,550	500	644	4,843	23,525
1973	1,056	2,392	518	593	4,559	21,525
1974	1,043	2,512	563	606	4,724	22,305
1975	1,299	2,873	688	722	5,582	26,372
1976	1,103	2,706	586	598	4,993	22,296
1977	1,026	2,749	583	526	4,884	21,116
1978	1,046	2,645	540	491	4,722	19,998
1979	1,633	3,768	835	770	7,006	30,431
1980	1,420	3,337	734	659	6,150	26,044
1981	1,287	3,353	639	697	5,976	26,606
1982	1,153	3,369	543	735	5,800	27,131
1983	1,469	3,782	659	832	6,742	29,201
1984	1,386	3,621	940	674	6,621	30,619
1985	1,230	3,881	1,146	677	6,934	30,496
1986	1,258	3,870	1,161	708	6,997	30,624
1987	1,298	3,197	1,281	697	6,473	30,667
1988	1,317	3,242	1,546	757	6,862	31,121
1989	1,323	3,458	1,467	743	6,991	30,922
1990	1,505	3,550	1,646	780	7,481	31,126
1991	1,669	3,732	1,755	772	7,928	31,792
1992	1,839	3,922	1,920	824	8,505	32,877
1993	1,840	4,042	1,944	886	8,712	33,783
1994	1,914	4,140	1,901	941	8,896	34,188
1995	2,113	4,194	1,901	992	9,200	33,705
1996	2,196	4,260	2,043	950	9,449	33,650
1997	2,285	4,355	2,045	919	9,604	33,679

Table 4.7-1
Number of Registered Boats for Commercial Uses in Study Areas, 1964 to 2002

Year	Miami-Dade	Monroe	Broward	Palm Beach	South Florida	Florida
1998	2,046	4,414	1,867	904	9,231	32,554
2000 (a)	1,975	3,207	985	1,017	7,184	26,225
2001	2,018	3,303	1,111	1,071	7,503	28,072
2002	1,988	3,168	1,125	1,096	7,377	27,840

(a) There is a one year gap in this dataset due to a change in the temporal reporting of this statistic. The State of Florida changed from a fiscal year reporting to a calendar year reporting system.

Source: Data compiled by Jerald S. Ault, Ph.D., University of Miami, Rosenstiel School of Marine and Atmospheric Sciences, 1977 to 2002; Bureau of Economic and Business Research, University of Florida, "Florida Statistical Abstract", various years, Gainesville, Florida. 1964 to 1976 from Florida Department of Environmental Protection, Tallahassee.

5.0 Miami-Dade County Shipping Industry

5.1 Introduction

This chapter provides estimates of the economic contribution of the Port of Miami in Biscayne Bay and the Miami River as they support shipping activities in Miami-Dade County. The economic contribution of this industry as estimated during this study answers the following question:

How do shipping activities at the Miami River and the Port of Miami contribute to the economy of Miami-Dade County and what is the economic impact of these activities on the economies of southeast Florida, and Florida?

For southeast Florida and Florida, this question has a different answer than a related set of questions that are not addressed in this study. These alternative questions are: “If the Port of Miami and shipping operations on the Miami River ceased operation, how would businesses in the county, in southeast Florida and Florida cope with the loss of port capacity? What would be the resulting economic impact to southeast Florida and Florida?” The answer to this question involves the movement of imports and exports to other U.S. seaports, including other Florida ports¹, capacity investments at other ports, and the movement of the shipping industry and import/export businesses to other areas of the State, the country and the world.

Presumably, most, if not all, of the shipping-related industry would leave the county, so the answers to both questions would likely be the same when evaluating the Miami-Dade County economy. When looking at the economies of southeast Florida and Florida, in the long run, the reduction in jobs and income may not be as great under these alternative questions as under the question addressed in this study. This is because at least some of the shipping industry of Miami-Dade County would move to other areas of Florida thus preserving some of the economic contribution currently being provided by Miami’s ports. However, in the short run, the costs of moving Miami-Dade County’s shipping activities to other Florida ports would put a strain on the Florida economy until the adjustment process is complete. Overall, the present value of net economic benefits from closing Miami-Dade County’s ports is likely to be negative.

Studies that estimate the economic contribution of the Port of Miami and the Miami River were not available for use in this study. Instead, the available data and information were collected and evaluated to estimate the current economic contribution of the Port of Miami and the Miami River as they are used for shipping. Economic contribution is measured as the direct, indirect and induced output, income, employment and tax revenue generated in

¹ Florida has 14 seaports located throughout the State: Port of Pensacola, Port of Panama City, Port of Port St. Joe, Port of Tampa, Port Manatee, Port of Key West, Port of Miami, Port Everglades (Ft. Lauderdale), Port of Palm Beach, Port of Fort Pierce, Port Canaveral, Port of Jacksonville, and Port of Fernandina.

Miami-Dade County, southeast Florida and Florida as a result of the shipping-related activities at these ports.

5.2 Methodology

The Port of Miami, the Miami River Commission, the Miami River Marine Group, the U.S. Army Corps of Engineers and the City of Miami were contacted regarding the existence of economic studies related to the Port of Miami and the Miami River. A study of the Port of Miami's economic contribution is being prepared by the Port but is not yet completed or available as of this writing. Also, a study of the Miami River is being prepared by the City of Miami but it too is not yet completed. Completed studies were reviewed including the Economic Impact Statement to dredge the Miami River and the Miami Harbor Navigation Study General Reevaluation Report both prepared by the U.S. Army Corps of Engineers Jacksonville District. These studies did not include estimates of economic contribution. The data provided in these reports were from publicly available information sources that were also used in this study.

The most relevant economic analyses of Florida shipping ports are provided in three studies:

- “An Analysis of the Economic and Fiscal Impact of Florida’s Seaports” prepared for the Florida Ports Financing Commission and submitted by MGT of America, Inc., Tallahassee dated February 4, 1999;
- “A Forecast of Florida’s International Trade Flows and the Economic Impact of Florida Seaports” prepared for the Florida Seaport Transportation and Economic Development Council and submitted by The Washington Economics Group, Inc. dated November 23, 2003; and
- “The Miami River Economic Study 2000”, prepared by J. Kenneth Lipner, Ph.D., on behalf of the Miami River Commission.

The Miami River Economic Study 2000 provided needed information to estimate the direct, indirect and induced economic contribution of the Miami River as will be explained later in this chapter. The other two studies focused exclusively on the total economic contribution of all seaports in Florida, including the Port of Miami and excluding the Miami River. Unfortunately, the results from these two Florida studies could not be used to infer the economic contribution of the Port of Miami because the results were aggregated among all the seaports.

Three factors prevented the results from being disaggregated. First, the economic contribution of a seaport is dependent on the amount of cargo entering and leaving the port and the number of cruise ship passengers. The levels of these activities vary among ports. So there is no single measure of port size that could be used to calculate the proportion of the total economic contribution that would be attributed to the Port of Miami. Second, the economic contribution estimates provided in these two reports include the impact to Florida

5.0 Miami-Dade County Shipping Industry

businesses if seaports did not exist in Florida. It appears that the 1999 report² assumes that the Florida phosphate industry, near the Tampa Bay area, will not be economically viable without local port facilities such as the Port of Tampa. The 2003 report³ assumes that 42 percent of Florida-origin exports would be lost without Florida ports. These relatively large economic impacts are embedded in the results of these studies. Third, these reports present the results for the Florida economy only and not the Miami-Dade County or southeast Florida economies.

As a result, it was decided to estimate the economic contribution of the Port of Miami from the available information and the IMPLAN Economic Input Output Model. The Florida seaport studies were consulted in terms of the methodology used to estimate economic contribution.

Economic Importance of Shipping. The Port of Miami and the Miami River comprise the Miami-Dade County shipping industry. Both ports provide inbound and outbound cargo shipping services. The Port of Miami also provides cruise ship services. While the Port of Miami supports large deep draft ships, the Miami River provides services to the smaller ships coming from and going to Caribbean ports that tend to accommodate only shallow draft ships.⁴ The value of cargo shipped into and out of the Miami River is estimated to be \$4 billion while the value through the Port of Miami is estimated to be \$17 billion.⁵ This \$21 billion worth of goods represents about 42 percent of the value of all cargo passing through Florida's seaports.⁶ About 4 million people boarded cruise ships at the Port of Miami in 2003 which is 29 percent of all cruise ship passengers using Florida's seaports.⁷

The Miami-Dade County shipping industry provides many economic benefits. A summary of the benefits, their expected relative size, and whether their economic contribution was

² MGT of America, Inc., "An Analysis of the Economic and Fiscal Impact of Florida's Seaports" prepared for the Florida Ports Financing Commission, Tallahassee, Florida, February 4, 1999, page 3-12.

³ Washington Economics Group, Inc., "A Forecast of Florida's International Trade Flows and the Economic Impact of Florida Seaports" prepared for the Florida Seaport Transportation and Economic Development Council, November 23, 2003, page 42.

⁴ Jainarain, Charles, "Miami River Study 1990, Miami, Florida," Beacon Council, Miami, Florida, November 1990.

⁵ The Miami River value is from "Miami River Economic Study, 2000", prepared by J. Kenneth Lipner, Ph.D. as reported in the Miami River Commission newsletter titled, "One Voice for the River", no date. The Port of Miami value is from the Florida Ports Council website, www.flaports.org and represents 2003.

⁶ The total value of all cargo shipped through Florida's ports is from the Florida Ports Council website, www.flaports.org and represents 2003.

⁷ The cruise ship passenger numbers are from the Florida Ports Council website, www.flaports.org and represents 2003.

5.0 Miami-Dade County Shipping Industry

included in this study is provided in Table 5.2-1. As indicated in the table, the bulk of the economic contribution of Miami's ports was estimated.

**Table 5.2-1
Economic Benefits of Biscayne Bay and
The Miami River As They Are Used for Shipping**

Economic Benefit	Relative Size of Benefit	Included in This Study
Shipping companies can provide cargo and cruise services to importers, exporters, and tourists, including vessel loading and unloading	Large	Yes
Local freight forwarders and brokers provide cargo-related services to importers and exporters	Moderate	Yes
Port construction provides jobs and income	Small	Yes
Local businesses provide ship building and repair services to cargo and cruise ship companies	Small	Yes
Local airlines and travel agencies assist cruise ship passengers in accessing cruise ships from the Port of Miami	Large	Yes
Cruise passengers and crew spend money in the county prior to embarkation and during ports of call	Moderate	Yes
Local businesses have a nearby port from which to ship their goods	Moderate	Yes
Florida's inland transportation industry (trucking and rail) transports goods coming into or going out of the country through Miami's ports	Small	No
Provides imports to consumers at lower transportation cost	Small	No

The methods used to estimate each of the economic benefits listed in the table are provided as follows.

Overall Approach. The IMPLAN Economic Input-Output Model was used to estimate the direct, indirect and induced output, income, employment and tax revenues generated from shipping-related activities at the Port of Miami and the Miami River. To use this model, estimates of the revenues, or sales, received by businesses that provide goods and services to exporters, importers and cruise passengers are needed. To estimate the economic contribution of Miami's ports as they promote the local production of exports, estimates of the value of exports that are produced due to the location of the Port of Miami and the Miami River are needed.

5.0 Miami-Dade County Shipping Industry

The estimated sales in Miami-Dade County that were used as input to the IMPLAN model to estimate the economic contribution to the county are provided in Table 5.2-2. The estimated sales in southeast Florida and Florida that were used as input to the IMPLAN model to estimate the economic contribution to southeast Florida and Florida are provided in Table 5.2-3. The method used to estimate each sales value is discussed in turn.

**Table 5.2-2
Estimated Sales in Miami-Dade County of Businesses That Directly Benefit from Miami-Dade County's Shipping Ports in 2004, 2004 Dollars**

IMPLAN No.	Description	Data Source	Attributed to Port of Miami	Attributed to Miami River
Shipping and Cruise Operations				
436	Water Transportation	(1)	\$2,380,306,481	\$135,115,623
437	Air Transportation	(1)	\$455,722,771	\$25,621,747
439	Arrangement of Passenger Transportation	(1)	\$148,619,512	\$0
440	Transportation Services	(1)	\$161,665,158	\$9,089,174
392	Ship Building and Repairing	(2)	\$17,556,297	\$987,054
49	Port of Miami Construction	(1)	\$91,934,929	\$0
51	River dredging, Bridge Replacement	(3)	\$0	\$18,134,280
523	Miami River Security	(3)	\$0	\$2,816,000
Cruise Passenger and Crew Expenditures in Miami-Dade County				
454	Eating and Drinking Places	(1)	\$75,539,468	\$0
455	Miscellaneous Retail Stores	(1)	\$88,070,822	\$0
463	Hotels and Lodging Places	(1)	\$111,962,374	\$0
434	Local, Interurban and Passenger Transit	(1)	\$47,431,759	\$0
492	Hospitals	(1)	\$819,808	\$0
Export Contribution from Shipping				
447	Wholesale Trade	(4)	\$240,063,643	\$115,014,406
407	Surgical and Medical Instrument	(4)	\$1,807,400	\$865,925
411	Electromedical Apparatus	(4)	\$1,595,044	\$764,185
124	Apparel Made From Purchased Materials	(4)	\$1,273,417	\$610,094
190	Cyclic Crudes-Inter.&Indus.OrganicChem.	(4)	\$766,308	\$367,138
405	Analytical Instruments	(4)	\$669,814	\$320,908
195	Drugs	(4)	\$605,395	\$290,045
347	Refrigeration and Heating Equipment	(4)	\$386,694	\$185,265
412	Ophthalmic Goods	(4)	\$367,022	\$175,840
220	Miscellaneous Plastics Products	(4)	\$343,254	\$164,453
18	Vegetables	(4)	\$306,873	\$147,023
408	All Other Exports	(4)	\$8,087,758	\$3,874,842
Total			\$3,835,902,000	\$314,544,000

Data Source Codes:

- (1) Four Gates Company, Inc., consultant to Port of Miami.
- (2) IMPLAN model, Year 2000
- (3) Miami River Commission
- (4) Hazen and Sawyer

5.0 Miami-Dade County Shipping Industry

**Table 5.2-3
Estimated Sales in Southeast Florida and Florida of Businesses That Directly Benefit from
Miami-Dade County's Shipping Ports in 2004, 2004 Dollars**

IMPLAN No.	Description	Data Source	Attributed to Port of Miami	Attributed to Miami River
Shipping and Cruise Operations				
436	Water Transportation	(1)	\$2,380,306,481	\$135,115,623
437	Air Transportation	(1)	\$455,722,771	\$25,621,747
439	Arrangement of Passenger Transportation	(1)	\$148,619,512	\$0
440	Transportation Services	(1)	\$161,665,158	\$9,089,174
392	Ship Building and Repairing	(2)	\$17,556,297	\$987,054
49	Port of Miami Construction	(1)	\$91,934,929	\$0
51	River dredging, Bridge Replacement	(3)	\$0	\$18,134,280
523	Miami River Security	(3)	\$0	\$2,816,000
Cruise Passenger and Crew Expenditures in Miami-Dade County				
454	Eating and Drinking Places	(1)	\$75,539,468	\$0
455	Miscellaneous Retail Stores	(1)	\$88,070,822	\$0
463	Hotels and Lodging Places	(1)	\$111,962,374	\$0
434	Local, Interurban and Passenger Transit	(1)	\$47,431,759	\$0
492	Hospitals	(1)	\$819,808	\$0
Export Contribution from Shipping				
447	Wholesale Trade	(4)	\$262,664,399	\$125,842,420
373	Radio and TV Communication Equipment	(4)	\$15,811,459	\$7,575,052
372	Telephone and Telegraph Apparatus	(4)	\$7,110,737	\$3,406,539
407	Surgical and Medical Instrument	(4)	\$3,239,032	\$1,551,607
411	Electromedical Apparatus	(4)	\$2,722,831	\$1,304,295
124	Apparel Made From Purchased Materials	(4)	\$2,274,594	\$1,089,545
342	Computer Peripheral Equipment-	(4)	\$2,221,221	\$1,063,974
378	Electronic Components- N.E.C.	(4)	\$1,431,945	\$685,832
195	Drugs	(4)	\$1,385,076	\$663,377
190	Cyclic Crudes- Interm. & Indus. Organic Chem.	(4)	\$1,270,966	\$608,707
405	Analytical Instruments	(4)	\$1,204,452	\$576,840
18	Vegetables	(4)	\$1,143,598	\$547,685
160	Furniture and Fixtures- N.E.C	(4)	\$1,094,500	\$524,162
220	Miscellaneous Plastics Products	(4)	\$987,071	\$472,693
347	Refrigeration and Heating Equipment	(4)	\$906,416	\$434,051
393	Boat Building and Repairing	(4)	\$888,933	\$425,675
339	Electronic Computers	(4)	\$843,346	\$403,835
191	Plastics Materials and Resins	(4)	\$827,165	\$396,082
377	Semiconductors and Related Devices	(4)	\$822,354	\$393,777
364	Electric Housewares and Fans	(4)	\$788,472	\$377,544
412	Ophthalmic Goods	(4)	\$696,124	\$333,301
356	All Other Exports	(4)	\$27,086,931	\$12,977,127
Total			\$3,917,051,000	\$353,418,000

Data Source Codes – See Table 5.2-2.

5.2.1 Shipping and Cruise Operations

These operations are comprised of Water Transportation, Air Transportation, Arrangement of Passenger Transportation, Transportation Services, Ship Building and Repairing and Port Construction. Port Construction is comprised of the construction activities underway in 2004 at the Port of Miami and the Miami River and were assigned to the appropriate IMPLAN industry sectors as presented in the first columns of Tables 5.2-2 and 5.2-3. IMPLAN code 49 is New Industrial and Commercial Buildings and IMPLAN code 51 is New Highways and Streets.

Water Transportation. Water Transportation industries refer to businesses that provide water transportation of passengers and cargo using water craft such as ships, barges and boats including marine cargo handling. It does not include sightseeing transportation, marinas or charter boat operations. The sales of these industries in Miami-Dade County in 2004 were obtained from Four Gates Company, Inc. which is a consultant to the Port of Miami. The Port of Miami asked Four Gates to provide this and other sales information. The sales value of \$2.5 billion is similar in magnitude to Hazen and Sawyer's in-house estimate of \$1.9 billion.

This sales value was allocated to the Port of Miami and the Miami River using the proportion of cargo tonnage going through each port: 9 million short tons through the Port of Miami and 506,000 short tons through the Miami River or 95 percent and 5 percent, respectively.⁸ Thus, the shipping and cruise ship water transportation sales is estimated to be \$2.4 billion for the Port of Miami and \$135 million for the Miami River.

Air Transportation and Arrangement of Passenger Transportation. Air Transportation includes establishments that furnish domestic and foreign transportation by air and also those operating airports and flying fields and furnishing terminal services. Arrangement of Passenger Transportation refers to travel agencies, tour operators, and the like that provided services to cruise ship passengers. The sales in Miami-Dade County associated with these industries that are dependent on the county's shipping infrastructure was provided by Four Gates Company, Inc. as described above.

The sales value associated with Air Transportation was estimated to be \$482 million. While these industries are believed to benefit primarily from cruise ship passengers using the Port of Miami, five percent of this value was allocated to the Miami River to account for cargo

⁸ Tonnage through the Port of Miami is from the Port of Miami Comprehensive Annual Financial Report, 2003. The tonnage through the Miami River is from the U.S. Army Corps of Engineers, Institute for Water Resources, "Waterborne Commerce of the United States, 2002, Part 1 - Waterways and Harbors, Atlantic Coast", IWR-WCUS-02-1, page 188. The five percent value for the Miami River may be slightly on the high side because cruise ship operations are not considered in the allocation between the two ports. However, this will not significantly affect the overall results of this study.

5.0 Miami-Dade County Shipping Industry

shipped to and from the river via air.⁹ Thus, \$455 million was allocated to the Port of Miami and \$26 million was allocated to the Miami River.

The sales value associated with Arrangement of Passenger Transportation was estimated to be \$149 million. All of this value was allocated to the Port of Miami. The Miami River does not provide cruise ship services.

Transportation Services. This category includes businesses that arrange for the transportation of freight and cargo such as freight forwarders¹⁰ and brokers, establishments engaged in packing, crating and otherwise preparing goods for shipping, and businesses that inspect and weigh goods.

The sales value associated with shipping activities in Miami-Dade County was estimated to be \$171 million and was obtained from the Four Gates Company, Inc. This sales value was allocated to the Port of Miami and the Miami River using the proportion of cargo tonnage going through each port or 95 percent and 5 percent, respectively. Thus, the transportation services sales is estimated to be \$162 million for the Port of Miami and \$9 million for the Miami River.

Ship Building and Repairing. The investments made by the Water Transportation businesses to keep ships in operating condition is an additional benefit of the county's shipping ports. The Ship Building and Repairing industry includes businesses that build and repair ships, barges and lighters, whether self-propelled or towed by other craft and includes the conversion and alteration of ships. It is distinct from the business category called Boat Building and Repairing which includes smaller vessels not used for shipping.

According to the IMPLAN model's 2000 database, the sales associated with the Ship Building and Repairing industry in Miami-Dade County was \$19 million in 2004 dollars. This sales value was allocated to the Port of Miami and the Miami River using the proportion of cargo tonnage going through each port or 95 percent and 5 percent, respectively. Thus, the Ship Building and Repairing sales value was estimated to be \$18 million for the Port of Miami and \$1 million for the Miami River.

Port Construction. Each year improvements are built at the Port of Miami and the Miami River for the purposes of rehabilitation and/or expansion. According to the Four Gates Company, the Port of Miami spent \$92 million in 2004 dollars on construction related maintenance and expansion of this port in 2004. The Miami River Commission provided

⁹ It is not known how much, if any, of the Miami River cargo is shipped through local airports. Changes to this value will not significantly change the results of this study.

¹⁰ A freight forwarder is a person or persons who represents the cargo owner and who arranges shipments for that owner. Freight forwarders provide a wide range of services from air freight, shipping, rail freight, trucking, specialized transportation, customs brokerage, and export documentation and licensing.

construction costs expended in 2004 by type of improvement. A summary of the construction costs is provided in Table 5.2-4.

**Table 5.2-4
Port Related Construction Expenditures at the Port of Miami
and Miami River in 2004, 2004 dollars**

Port / Cost Item	Value
Port of Miami, all construction (a)	\$91,900,000
Miami River	
River Dredging (b)	\$11,400,000
Bridge Replacements and Renourishments (b)	\$6,700,000
Security (c)	\$2,800,000
Total	\$20,900,000

(a) The Four Gates Company, Inc.

(b) Brett Bibeau, Managing Director, Miami River Commission.

(c) Based on information provided by Fran Bohnsack, Executive Director, Miami River Marine Group and the Miami-Dade County Marine Patrol. Also includes estimates of costs incurred by the City of Miami and the Florida Fish and Wildlife Conservation Commission.

5.2.2 Cruise Passenger and Crew Expenditures in Miami-Dade County

Cruise ship passengers and crew members tend to spend money in the county prior to embarking on their cruise or when the ship makes a call at the Port of Miami. The Four Gates Company provided estimates of the amount of money spent in the county by these persons in 2004. The estimates are from recent surveys of cruise ship passengers and crew members at the Port of Miami conducted by Curtis & Kimball. Total expenditures in Miami-Dade County in 2004 by cruise passengers and crew are estimated to total \$324 million or about \$81 per cruise ship passenger (\$324 million / 4 million passengers through the Port of Miami).

5.2.3 Contribution of Miami's Ports to the Local Export Industry

Local businesses export goods to other countries via the Miami River and the Port of Miami. Without these two ports, other ports would likely need to expand in order to accommodate the significant increase in cargo. If export businesses would still be located in Miami-Dade County, goods would need to be transported via truck or rail to other ports. Transportation costs would increase and would be absorbed through lower profits and/or higher prices. It is possible that some business operations would not be located in Miami-Dade County or southeast Florida but would exist upstate or in other parts of the country close to other ports. Estimates of the contribution of the Port of Miami and the Miami River in attracting export businesses to the county and to southeast Florida are discussed as follows.

In the absence of the Port of Miami and the Miami River, goods would need to be shipped through other ports such as Port Everglades and the Port of Palm Beach. Because these ports are relatively close to Miami-Dade County it is not known the extent to which the county's export businesses would be located outside of the county in order to be closer to these ports.

5.0 Miami-Dade County Shipping Industry

In 2003, \$7.1 billion worth of goods were shipped to other countries via the Port of Miami.¹¹ About 99 percent of all goods shipped from the Port are destined for countries other than North America.¹² After consulting with the Port of Miami, the Miami River Commission, and port organizations in Florida, it is not known how much of this value is produced by firms within Miami-Dade County and within southeast Florida.

The value of goods produced in Miami-Dade County and exported to other countries via the Port of Miami was estimated using Miami-Dade County export data for the year 2000 obtained from the IMPLAN model. This model provides the value of exports of each commodity produced in the county. From this list of export values by commodity, items likely to be exported to other countries via water transportation were identified and their values summed together. These selected exported goods and their export values are provided in Table 5.2-5. The top 11 exports are presented by type of good. The total value of exports produced in Miami-Dade County that are believed to be shipped through either the Port of Miami or the Miami River is \$2.4 billion in 2000. In 2004 dollars, this value is \$2.5 billion.

Table 5.2-5
Miami-Dade County Produced Exports by IMPLAN Sector That Are Shipped Via Water Or Are Dependent on Water Transportation, 2000

IMPLAN No.	Industry	All Foreign Exports From Miami-Dade County, 2000 \$	
		%	Value (a)
447	Wholesale Trade	37.82%	\$906,560,120
407	Surgical and Medical Instrument	6.93%	\$166,189,499
411	Electromedical Apparatus	6.12%	\$146,663,452
124	Apparel Made From Purchased Materials	4.88%	\$117,090,096
190	Cyclic Crudes- Interm. & Indus. Organic Chem.	2.94%	\$70,461,632
405	Analytical Instruments	2.57%	\$61,589,100
195	Drugs	2.32%	\$55,665,806
347	Refrigeration and Heating Equipment	1.48%	\$35,556,351
412	Ophthalmic Goods	1.41%	\$33,747,463
220	Miscellaneous Plastics Products	1.32%	\$31,561,995
18	Vegetables	1.18%	\$28,216,782
408	All Other Exports	31.03%	\$743,665,312
	Total	100.00%	\$2,396,967,606

(a) From IMPLAN Model for Miami-Dade County.

¹¹ From Florida Ports Council website, www.flaports.org and represents 2003.

¹² From Port of Miami Comprehensive Annual Financial Report, for the fiscal year ended September 30, 2002, page 56.

5.0 Miami-Dade County Shipping Industry

The wholesale trade industry represents 38 percent of the estimated value of goods exported to other countries from Miami-Dade County. Wholesalers provide the following services: bringing buyer and seller together; maintaining inventories of goods; extending credit; physically assembling, sorting, and grading goods in large lots; breaking bulk and redistribution in smaller lots; delivery; refrigeration; and various types of promotion such as advertising and label designing.¹³ The wholesale trade value represents the value of services provided by wholesalers in the county to those businesses and entities located outside of the county, including foreign countries and neighboring counties. It was assumed that all of this wholesale trade is related to the shipping industry although some of it could be related to the air, rail or trucking industry. Data was insufficient to disaggregate the wholesale trade export value in any meaningful way so the entire value was used. The other exported items in Table 5.2-5 are manufactured goods (or grown goods in the case of vegetables).

The \$2.5 billion in exports produced in Miami-Dade County was apportioned to the Port of Miami and the Miami River based on the percent of the value of exported goods through each port. This value for the Port of Miami is published and is \$7.1 billion as discussed previously. The value for the Miami River was estimated to be \$3.4 billion using the \$4 billion value of all cargo as reported by the Miami River Commission and the percent of Miami River cargo tonnage that is inbound (14 percent) versus outbound (86 percent) as reported by the U.S. Army Corps of Engineers.¹⁴ Thus, the distribution of the county-produced export value between the two ports is estimated to be \$1.7 billion for the Port of Miami and \$833 million for the Miami River.

The next step is to estimate the Port of Miami's and the Miami River's contribution to this \$2.5 billion worth of the county production. There are two potential impacts to local businesses if the Port of Miami and Miami River shipping did not exist. They are as follows.

1. Exported goods would still be manufactured and wholesaled in the county, but the higher transportation costs would increase prices and reduce demand. According to the 1999 Florida seaport report, for producers located in states without convenient access to seaports, the cost differentials would result in an expected rise in final prices of about one percent.¹⁵ In this 1999 study, the impact of this price increase on demand was estimated using a weighted average price elasticity of demand for Florida exported goods of -1.5.¹⁶

¹³ Definition taken from "Standard Industrial Classification Manual", Executive Office of the President, Office of Management and Budget, 1987, page 287.

¹⁴ U.S. Army Corps of Engineers, Institute for Water Resources, "Waterborne Commerce of the United States – 2002, Part 1, Atlantic Region", IWR-WCUS-02-1.

¹⁵ MGT of America, Inc. "An Analysis of the Economic and Fiscal Impact of Florida's Seaports", prepared for the Florida Ports Financing Commission, February 1999, page 3-11.

¹⁶ The price elasticity of demand is the percent change in quantity demanded caused by a one percent change in price.

5.0 Miami-Dade County Shipping Industry

Therefore, Florida’s producers would see a 1.5 percent reduction in export demand and thus production from a one percent increase in export prices (1.0 percent price rise times -1.5 price elasticity).¹⁷

2. Businesses in Miami-Dade County that produce or wholesale exported goods would not be located in the county but would instead be located closer to other ports. Whether this would be the case depends on the motivations of these businesses to be located in the county. One of these motivations is certainly access to nearby ports but the extent to which it is the one factor that would influence location is not known. Information regarding the identity of these exporting firms is not available. In fact, the only available information on county exports is from the IMPLAN database. Identifying and surveying or interviewing these firms is necessary to make a meaningful assessment. Such effort was beyond the scope of this study.

Due to the lack of information regarding the motivations of businesses to locate in Miami-Dade County, the following assumptions were made.

- A. Of the exports produced in Miami-Dade County that are shipped through the Port of Miami or the Miami River, the location of only one industry, Wholesale Trade, would be affected if the county ports did not exist. The hypothesized primary reason for the location of the export industries is summarized in Table 5.2-6.

**Table 5.2-6
Hypothesized Reasons for Miami-Dade County Business Location by Exporting Industry**

IMPLAN Sector No.	Industry	Primary Reason
447	Wholesale Trade	Dependent on Miami-Dade County Shipping
407	Surgical and Medical Instruments	Dependent on health care infrastructure of county (University of Miami, Jackson Memorial Hospital)
411	Electromedical Apparatus	Dependent on health care infrastructure of county (University of Miami, Jackson Memorial Hospital)
124	Apparel Made from Purchased Materials	Dependent on relatively low cost labor in county.
190	Cyclic Crudes - Interm. & Indus. Organic Chem.	Dependence unknown
405	Analytical Instruments	Dependent on health care infrastructure of county (University of Miami, Jackson Memorial, etc.)
195	Drugs	Dependent on health care infrastructure of county (University of Miami, Jackson Memorial Hospital)
347	Refrigeration and Heating Equipment	Dependent on historic manufacturing and demand ties to south Florida.
412	Ophthalmic Goods	Dependent on local area demand (location quotient = 0.9)
220	Miscellaneous Plastics Products	Dependent on local area demand (location quotient = 1.0)
18	Vegetables	Dependent on local area demand (location quotient = 1.0)

¹⁷ Ibid, page 3-12.

5.0 Miami-Dade County Shipping Industry

Location quotients were calculated for each of these industries. A location quotient for a particular industry is the employment in Miami-Dade County for that industry as a percent of total county employment divided by the employment in Florida for that industry as a percent of total Florida employment. If the quotient is significantly greater than one, then the production of that product is probably greater than local demand, so the excess is exported to other areas. All industries listed in Table 5.2-6 had location quotients significantly greater than one except for Ophthalmic Goods, Miscellaneous Plastics Products, and Vegetables, which had location quotients equal to 0.90 or 1.0. Thus, these three industries rely mostly on local demand and therefore would not move if county shipping ports did not exist. For the other industries, an assessment of the primary reason for their location in the county was made. These assessments are provided in Table 5.2-6.

As a result, some of the Wholesale Trade businesses would leave the county if the county's ports did not exist. The reduced sales (or sales attributable to the local ports) were estimated using the percent change in Wholesale Trade employment that would cause the location quotient to equal 1.0. The location quotient stands at 1.54. If employment in Wholesale Trade were to fall by 35 percent, then the location quotient would be 1.00. Thus, the \$907 million in sales (in 2000 dollars) to Wholesale Trade businesses in the county would fall by 35 percent or \$341 million in 2004 dollars. This value represents the additional Wholesale Trade that exists in the county due to the existence of the local ports. This value is used for the three study areas: Miami-Dade County, southeast Florida and Florida. Because some wholesale trade businesses might move to other areas within southeast Florida and Florida, this value may overestimate the economic importance of Miami-Dade County's ports to these two larger areas.

The \$341 million was allocated to the Port of Miami and the Miami River based on the percent of Miami-Dade County produced export values going through each port, 68 percent and 32 percent, respectively.¹⁸ Thus, the sales contribution of the ports in attracting Wholesale Trade businesses is \$232 million for the Port of Miami and \$109 million for the Miami River.¹⁹

- B. The other export businesses would remain in the county but their transportation costs would increase and their demand would fall. Using the approach of the 1999 Florida seaport report cited above, the \$1.7 billion and \$833 million in export value through the Port of Miami and the Miami River, respectively, was multiplied by 1.5 percent to obtain an estimate of the lost export services and production in 2004 that would result if the local ports did not exist. This lost value of exports is \$26 million for the Port of Miami and \$12 million for the Miami River in 2004. These values were

¹⁸ The total export values are \$1.7 billion for the Port of Miami and \$833 million for the Miami River.

¹⁹ These values are not shown in any of the tables. It is a component of the Wholesale Trade's value in Tables 5.5-2 and 5.2-3.

5.0 Miami-Dade County Shipping Industry

distributed to the different types of Miami-Dade County produced export goods based on the distribution of those goods as provided in Table 5.2-5 above.

When looking at southeast Florida, it was assumed that all of the \$7.1 billion in exports through the Port of Miami and all of the \$3.4 billion in exports through the Miami River are produced in this four county area. Although some exports are produced outside of southeast Florida, an estimate of the proportion was not available. Furthermore, it was assumed that exports produced in Palm Beach and Broward counties that move through Miami-Dade County ports would be transported via truck or rail further up the coast from their existing business location, thus increasing transportation costs.

Using the same method as was used for the county, the \$7.1 billion and the \$3.4 billion was multiplied by 1.5 percent to obtain an estimate of the lost export value as businesses in southeast Florida reduce their production in response to higher prices and lower demand. This value is \$107 million for the Port of Miami and \$51 million for the Miami River.²⁰ These values were distributed to the different types of southeast Florida produced export goods based on the distribution of those goods as provided in Table 5.2-7 below. These same values were also used to estimate the economic contribution of Miami-Dade County's ports to Florida.

- C. The sum of the Wholesale Trade impact and the longer transportation impact is shown in Tables 5.2-2 and 5.2-3 under Export Contribution From Shipping.

5.2.4 Use of the IMPLAN Economic Input Output Model

The sales values presented in Tables 5.2-2 and 5.2-3 were allocated to the appropriate IMPLAN industry sector. The model was then used to estimate the impact of these sales on the value of output, income, employment and tax revenues in Miami-Dade County, in southeast Florida and in Florida. A summary of the allocation of sales values to the appropriate IMPLAN industry sector is provided in Table 5.2-8. The IMPLAN industry sector chosen for All Other Exports was based on how well it represented the income and employment generated from the types of exports included in this category. The results for 2004 and estimates of the historic economic contribution of Miami's ports are provided in the next two sections.

²⁰ These values are not shown in any of the tables. It is included in the export contribution from shipping values in Tables 5.5-2 and 5.2-3.

Table 5.2-7
Southeast Florida Produced Exports by IMPLAN Sector That Are Shipped Via Water Or
Are Dependent on Water Transportation, 2000

IMPLAN No.	Industry	All Foreign Exports From Southeast FLA, 2000 \$	
		% (a)	Value (a)
447	Wholesale Trade	30.28%	\$1,844.30
373	Radio and TV Communication Equipment	14.75%	\$898.33
372	Telephone and Telegraph Apparatus	6.63%	\$403.97
407	Surgical and Medical Instrument	3.02%	\$183.99
411	Electromedical Apparatus	2.54%	\$154.66
124	Apparel Made From Purchased Materials	2.12%	\$129.19
342	Computer Peripheral Equipment-	2.07%	\$126.16
378	Electronic Components- N.E.C.	1.34%	\$81.32
195	Drugs	1.29%	\$78.65
190	Cyclic Crudes- Interm. & Indus. Organic Chem.	1.18%	\$72.17
405	Analytical Instruments	1.12%	\$68.39
18	Vegetables	1.07%	\$64.93
160	Furniture and Fixtures- N.E.C	1.02%	\$62.14
220	Miscellaneous Plastics Products	0.92%	\$56.04
347	Refrigeration and Heating Equipment	0.84%	\$51.46
393	Boat Building and Repairing	0.83%	\$50.46
339	Electronic Computers	0.79%	\$47.87
191	Plastics Materials and Resins	0.77%	\$46.95
377	Semiconductors and Related Devices	0.77%	\$46.68
364	Electric Housewares and Fans	0.73%	\$44.76
412	Ophthalmic Goods	0.65%	\$39.51
356	All Other Exports	25.27%	\$1,538.97
	Total	100.00%	\$6,090.91

(a) From IMPLAN Model for Southeast Florida.

**Table 5.2-8
IMPLAN Code Assignments**

Economic Generator	IMPLAN Industry		% of Value
	Number	Name	
Water Transportation	436	Water Transportation	100.00%
Air Transportation	440	Air Transportation	100.00%
Arrangement of Passenger Transportation	439	Arrangement of Passenger Transportation	100.00%
Transportation Services	440	Transportation Services	100.00%
Ship Building and Repairing	392	Ship Building and Repairing	100.00%
Sales from Port Construction:			
Port of Miami	49	New Industrial and Commercial Buildings	100.00%
Miami River:			
River Dredging, Bridge Repair/Renourish	51	New Highways and Streets	100.00%
Security	523	State and Local Gov't - Non-Education	100.00%
Eating and Drinking Places	454	Eating and Drinking Places	100.00%
Purchases of gifts and sundries	455	Miscellaneous Retail Stores	100.00%
Hotels and Lodging Places	463	Hotels and Lodging Places	100.00%
Taxi cabs, public transportation	434	Local, Interurban and Passenger Transit	100.00%
Medical supplies and assistance	492	Hospitals	100.00%
Export Production, % of Total Export Value, Miami-Dade County (a)			
Wholesale Trade	447	Wholesale Trade	37.82%
Surgical and Medical Instrument	407	Surgical and Medical Instrument	6.93%
Electromedical Apparatus	411	Electromedical Apparatus	6.12%
Apparel Made From Purchased Materials	124	Apparel Made From Purchased Materials	4.88%
Cyclic Crudes-Interm.&Indus. Organic Chem.	190	Cyclic Crudes-Interm.&Indus.OrganicChem.	2.94%
Analytical Instruments	405	Analytical Instruments	2.57%
Drugs	195	Drugs	2.32%
Refrigeration and Heating Equipment	347	Refrigeration and Heating Equipment	1.48%
Ophthalmic Goods	412	Ophthalmic Goods	1.41%
Miscellaneous Plastics Products	220	Miscellaneous Plastics Products	1.32%
Vegetables	18	Vegetables	1.18%

**Table 5.2-8
IMPLAN Code Assignments**

Economic Generator	IMPLAN Industry		% of Value
	Number	Name	
All Other Exports	408	Surgical Appliances and Supplies	31.03%
Total		All Exports	100.00%
Export Production, % of Total Export Value, Southeast Florida and Florida (b)			
Wholesale Trade	447	Wholesale Trade	30.28%
Radio and TV Communication Equipment	373	Radio and TV Communication Equipment	14.75%
Telephone and Telegraph Apparatus	372	Telephone and Telegraph Apparatus	6.63%
Surgical and Medical Instrument	407	Surgical and Medical Instrument	3.02%
Electromedical Apparatus	411	Electromedical Apparatus	2.54%
Apparel Made From Purchased Materials	124	Apparel Made From Purchased Materials	2.12%
Computer Peripheral Equipment-	342	Computer Peripheral Equipment-	2.07%
Electronic Components- N.E.C.	378	Electronic Components- N.E.C.	1.34%
Drugs	195	Drugs	1.29%
Cyclic Crudes-Interm.&Indus.Organic Chem.	190	Cyclic Crudes-Interm.&Indus.OrganicChem.	1.18%
Analytical Instruments	405	Analytical Instruments	1.12%
Vegetables	18	Vegetables	1.07%
Furniture and Fixtures- N.E.C	160	Furniture and Fixtures- N.E.C	1.02%
Miscellaneous Plastics Products	220	Miscellaneous Plastics Products	0.92%
Refrigeration and Heating Equipment	347	Refrigeration and Heating Equipment	0.84%
Boat Building and Repairing	393	Boat Building and Repairing	0.83%
Electronic Computers	339	Electronic Computers	0.79%
Plastics Materials and Resins	191	Plastics Materials and Resins	0.77%
Semiconductors and Related Devices	377	Semiconductors and Related Devices	0.77%
Electric Housewares and Fans	364	Electric Housewares and Fans	0.73%
Ophthalmic Goods	412	Ophthalmic Goods	0.65%
All Other Exports	356	Switchgear and Switchboard Apparatus	25.27%
Total		All Exports	100.00%

(a) % represents distribution of Miami-Dade County produced exports by type of industry in 2000 from IMPLAN model database.

(b) % represents distribution of southeast Florida produced exports by type of industry in 2000 from IMPLAN model database.

5.3 Port of Miami Shipping

The economic contribution of shipping activities through the Port of Miami is provided in Table 5.3-1. Total gross sales, personal income and employment of the three study areas are provided in Table 5.3-2. The economic contribution of the Port of Miami as a percent of the area economies is provided in Table 5.3-3.

**Table 5.3-1
Economic Contribution of the Port of Miami as it is Used for Shipping, 2004 (a)**

Study Area	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Miami-Dade County	\$8,231,254,000	\$3,857,275,000	73,958	\$331,011,000
Southeast Florida	\$8,894,946,000	\$4,259,185,000	77,048	\$368,385,000
Florida	\$9,242,492,000	\$4,439,473,000	84,311	\$380,122,000

^a Includes direct, indirect and induced effects.

^b Output is defined as the value of the additional goods and services produced in the study area due to the shipping related activities.

^c Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the shipping related activities.

^d Employment includes the number of full-time and part-time jobs created due to the shipping related activities.

^e Tax revenue is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected due to the shipping related activities. It excludes taxes on profit and income.

**Table 5.3-2
Economy of Study Areas, 2003**

Study Area	Gross Sales	Personal Income	Employment
Miami-Dade County	\$85,245,887,000	\$62,037,209,000	1,293,315
Southeast Florida	\$222,040,661,966	\$171,714,743,000	2,923,679
Florida	\$642,280,422,229	\$496,706,399,000	9,185,622

Source: Gross Sales are from Florida Department of Revenue and represent 2003. Income and employment data are from U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System web site and represent 2002. These are the most recent years for which data are available. Employment is number full-time and part-time jobs. Personal income is the income received by persons from all sources and is the sum of wage and salary disbursements, supplements to wages and salaries, proprietor's income, rental income, personal dividend income, personal interest income, personal current transfer receipts, less contributions for government social insurance.

**Table 5.3-3
Economic Contribution of the Port of Miami
As a Percent of the Study Area Economies, 2004**

Study Area	Gross Sales	Personal Income	Employment
Miami-Dade County	9.7%	6.2%	5.7%
Southeast Florida	4.0%	2.5%	2.6%
Florida	1.4%	0.9%	0.9%

5.0 Miami-Dade County Shipping Industry

In Miami-Dade County, Port of Miami shipping activities generated \$8.2 billion in output, \$3.9 billion in income, 74,000 jobs, and \$331 million in tax revenues in 2004. This economic contribution represents 9.7 percent of the county's gross sales, 6.2 percent of the county's personal income and 5.7 percent of county employment.

In the southeast Florida counties of Palm Beach, Broward, Miami-Dade and Monroe, Port of Miami shipping activities generated \$8.9 billion in output, \$4.3 billion in income, 77,000 jobs, and \$368 million in tax revenues in 2004. This economic contribution represents 4.0 percent of the southeast Florida's gross sales, 2.5 percent of the area's personal income and 2.6 percent of the area's employment.

In Florida, Port of Miami shipping activities generated \$9.2 billion in output, \$4.4 billion in income, 84,300 jobs, and \$380 million in tax revenues in 2004. This economic contribution represents 1.4 percent of Florida's gross sales, 0.9 percent of the State's personal income and 0.9 percent of the State's employment.

The estimated economic contribution by type of impact (direct, indirect and induced) is provided in Table 5.3-4 for each of the three study areas. For each of the three study areas, an itemization of the direct, indirect and induced output, labor income, other property type income, employment and tax revenues by industry type is provided in Tables 5.3-5, 5.3-6 and 5.3-7. In these tables the direct output values by industry in 2004 dollars may be slightly different from the sales values in 2004 dollars presented in Tables 5.2-2 and 5.2-3 because the sales values in 1996 and 2000 dollars, not 2004 dollars, were input into the IMPLAN model. The model then used disaggregated deflators to convert values to 2004 dollars. For the sales values reported in Tables 5.5-2 and 5.2-3, one aggregated deflator representing all industries was used to convert 1996 and 2000 dollars into 2004 dollars for presentation purposes.

**Table 5.3-4
Estimated Economic Contribution of Port of Miami by Type of Impact and Study Area**

Economic Contribution	Direct	Indirect	Induced	Total
To Miami-Dade County:				
Output, 2004 dollars	\$3,835,902,000	\$1,622,935,000	\$2,772,416,000	\$8,231,254,000
Income, 2004 dollars	\$1,403,514,000	\$815,538,000	\$1,638,222,000	\$3,857,275,000
Tax Revenues, 2004 dollars	\$146,975,000	\$48,323,000	\$135,713,000	\$331,011,000
Employment, F-T & P-T jobs	26,615	15,534	31,809	73,958
To Southeast Florida:				
	Direct	Indirect	Induced	Total
Output, 2004 dollars	\$3,917,051,000	\$1,725,786,000	\$3,252,108,000	\$8,894,946,000
Income, 2004 dollars	\$1,445,706,000	\$899,328,000	\$1,914,151,000	\$4,259,185,000
Tax Revenues, 2004 dollars	\$151,127,000	\$52,538,000	\$164,720,000	\$368,385,000
Employment, F-T & P-T jobs	26,822	15,760	34,465	77,048
To Florida:				
	Direct	Indirect	Induced	Total
Output, 2004 dollars	\$3,917,051,000	\$1,807,493,000	\$3,517,948,000	\$9,242,492,000
Income, 2004 dollars	\$1,445,706,000	\$923,906,000	\$2,069,861,000	\$4,439,473,000
Tax Revenues, 2004 dollars	\$151,127,000	\$54,040,000	\$174,955,000	\$380,122,000
Employment, F-T & P-T jobs	26,822	17,428	40,061	84,311

5.0 Miami-Dade County Shipping Industry

**Table 5.3-5
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$307,000	\$1,248,263	\$11,419,317	\$12,974,580
Commercial Fishing	\$0	\$4,124	\$4,565	\$8,689
Mining	\$0	\$407,304	\$245,499	\$652,803
Construction	\$93,997,592	\$10,974,140	\$327,011,478	\$431,983,210
Manufacturing: Food Products	\$0	\$4,568,597	\$33,997,668	\$38,566,265
Textiles	\$0	\$282,565	\$1,536,715	\$1,819,280
Apparel and Fabric Products	\$1,273,418	\$7,285,075	\$15,044,866	\$23,603,359
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$3,748,472	\$25,009,935	\$28,758,408
Printing, Publishing and Allied Products	\$0	\$48,950,109	\$15,775,097	\$64,725,206
Chemicals, Petroleum, Rubber and Leather Products	\$1,714,308	\$3,303,275	\$26,193,079	\$31,210,662
Ship Building and Repairing	\$17,350,562	\$129,230	\$1,733	\$17,481,525
Boat Building and Repairing	\$0	\$1,535,066	\$70,674	\$1,605,739
All other products	\$12,914,400	\$22,613,310	\$52,699,895	\$88,227,605
Transportation: Water Transportation	\$2,412,835,328	\$366,697,216	\$5,864,081	\$2,785,396,625
All Other Transportation	\$817,911,324	\$175,513,929	\$59,964,922	\$1,053,390,175
Communications, Electric, Gas and Sanitary Services	\$0	\$81,143,017	\$69,252,290	\$150,395,306
Wholesale Trade	\$240,064,000	\$77,166,752	\$165,183,712	\$482,414,464
Retail Trade: Food Stores	\$0	\$383,599	\$44,371,232	\$44,754,831
Automotive Dealers and Service Stations	\$0	\$2,839,224	\$55,501,008	\$58,340,232
Eating and Drinking Establishments	\$77,956,160	\$7,510,490	\$95,124,208	\$180,590,858
All Other Retail Stores	\$28,104,558	\$2,702,322	\$146,284,072	\$177,090,952
Finance, Insurance and Real Estate	\$0	\$207,558,192	\$507,365,678	\$714,923,870
Services: Hotels and Lodging Places	\$130,446,128	\$14,158,611	\$28,077,888	\$172,682,627
Automobile Rental and Leasing	\$0	\$7,932,584	\$12,281,062	\$20,213,646
Amusement and Recreation Services, n.e.c.	\$0	\$28,407	\$12,196,423	\$12,224,830
All Other Service Industries	\$915,143	\$555,230,192	\$657,913,620	\$1,214,058,954
Government - State, Local, Federal	\$112,318	\$19,020,909	\$404,025,581	\$423,158,808
Total	\$3,835,902,238	\$1,622,934,971	\$2,772,416,298	\$8,231,253,507

5.0 Miami-Dade County Shipping Industry

Table 5.3-5, continued

Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$117,300	\$486,676	\$4,279,097	\$4,883,072
Commercial Fishing	\$0	\$2,457	\$2,720	\$5,177
Mining	\$0	\$21,384	\$13,182	\$34,565
Construction	\$31,714,744	\$6,579,395	\$91,079,789	\$129,373,928
Manufacturing: Food Products	\$0	\$877,442	\$4,891,753	\$5,769,196
Textiles	\$0	\$61,545	\$357,752	\$419,297
Apparel and Fabric Products	\$318,947	\$3,187,436	\$3,805,696	\$7,312,079
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$814,299	\$6,819,580	\$7,633,879
Printing, Publishing and Allied Products	\$0	\$17,420,201	\$5,414,364	\$22,834,566
Chemicals, Petroleum, Rubber and Leather Products	\$357,147	\$515,567	\$5,965,809	\$6,838,523
Ship Building and Repairing	\$9,181,659	\$68,387	\$917	\$9,250,963
Boat Building and Repairing	\$0	\$556,364	\$25,615	\$581,979
All other products	\$3,570,592	\$6,306,480	\$14,702,517	\$24,579,588
Transportation: Water Transportation	\$429,077,632	\$65,210,240	\$1,042,817	\$495,330,689
All Other Transportation	\$410,992,792	\$95,543,008	\$23,937,814	\$530,473,614
Communications, Electric, Gas and Sanitary Services	\$0	\$25,235,422	\$17,507,738	\$42,743,161
Wholesale Trade	\$100,593,960	\$32,335,166	\$69,216,888	\$202,146,014
Retail Trade: Food Stores	\$0	\$228,091	\$26,383,510	\$26,611,601
Automotive Dealers and Service Stations	\$0	\$1,266,988	\$24,767,020	\$26,034,008
Eating and Drinking Establishments	\$30,722,634	\$2,959,895	\$37,488,588	\$71,171,117
All Other Retail Stores	\$13,465,843	\$1,304,072	\$69,488,505	\$84,258,420
Finance, Insurance and Real Estate	\$0	\$59,544,439	\$87,379,834	\$146,924,273
Services: Hotels and Lodging Places	\$53,089,948	\$5,762,378	\$11,427,349	\$70,279,675
Automobile Rental and Leasing	\$0	\$2,418,696	\$3,744,574	\$6,163,270
Amusement and Recreation Services, n.e.c.	\$0	\$11,668	\$5,009,514	\$5,021,182
All Other Service Industries	\$553,719	\$299,705,769	\$358,564,896	\$658,824,383
Government - State, Local, Federal	\$26,934	\$8,876,697	\$316,335,456	\$325,239,087
Total	\$1,083,783,850	\$637,300,162	\$1,189,653,292	\$2,910,737,305

5.0 Miami-Dade County Shipping Industry

Table 5.3-5, continued
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$40,598	\$229,523	\$1,946,489	\$2,216,610
Commercial Fishing	\$0	\$1,280	\$1,417	\$2,698
Mining	\$0	\$17,766	\$11,123	\$28,889
Construction	\$2,563,656	\$575,674	\$11,213,504	\$14,352,833
Manufacturing: Food Products	\$0	\$704,313	\$3,465,071	\$4,169,384
Textiles	\$0	\$13,706	\$77,056	\$90,762
Apparel and Fabric Products	\$58,272	\$791,023	\$949,954	\$1,799,249
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$223,285	\$1,668,863	\$1,892,148
Printing, Publishing and Allied Products	\$0	\$5,878,310	\$1,845,853	\$7,724,163
Chemicals, Petroleum, Rubber and Leather Products	\$272,435	\$365,807	\$5,799,633	\$6,437,875
Ship Building and Repairing	\$809,115	\$6,026	\$81	\$815,222
Boat Building and Repairing	\$0	\$79,089	\$3,641	\$82,731
All other products	\$409,402	\$1,197,380	\$2,719,892	\$4,326,674
Transportation: Water Transportation	\$161,708,752	\$24,576,126	\$393,012	\$186,677,890
All Other Transportation	\$91,007,402	\$21,582,791	\$6,337,982	\$118,928,174
Communications, Electric, Gas and Sanitary Services	\$0	\$12,792,815	\$16,654,363	\$29,447,178
Wholesale Trade	\$31,127,568	\$10,005,721	\$21,418,320	\$62,551,609
Retail Trade: Food Stores	\$0	\$59,511	\$6,883,696	\$6,943,207
Automotive Dealers and Service Stations	\$0	\$426,349	\$8,334,244	\$8,760,593
Eating and Drinking Establishments	\$7,372,368	\$710,272	\$8,995,962	\$17,078,602
All Other Retail Stores	\$4,166,172	\$410,481	\$22,220,457	\$26,797,110
Finance, Insurance and Real Estate	\$0	\$62,476,155	\$221,014,627	\$283,490,781
Services: Hotels and Lodging Places	\$20,145,290	\$2,186,568	\$4,336,175	\$26,668,033
Automobile Rental and Leasing	\$0	\$2,212,537	\$3,425,404	\$5,637,941
Amusement and Recreation Services, n.e.c.	\$0	\$4,244	\$1,822,210	\$1,826,454
All Other Service Industries	\$32,355	\$29,985,837	\$36,283,827	\$66,302,018
Government - State, Local, Federal	\$16,991	\$725,657	\$60,746,290	\$61,488,938
Total	\$319,730,375	\$178,238,247	\$448,569,146	\$946,537,767

Table 5.3-5, continued
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$5,634	\$27,995	\$215,517	\$249,146
Commercial Fishing	\$0	\$133	\$147	\$279
Mining	\$0	\$3,933	\$2,379	\$6,312
Construction	\$709,842	\$49,879	\$2,036,961	\$2,796,681
Manufacturing: Food Products	\$0	\$39,110	\$1,908,157	\$1,947,267
Textiles	\$0	\$2,463	\$13,716	\$16,179
Apparel and Fabric Products	\$6,203	\$60,293	\$90,706	\$157,202
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$22,044	\$172,814	\$194,857
Printing, Publishing and Allied Products	\$0	\$575,304	\$182,992	\$758,296
Chemicals, Petroleum, Rubber and Leather Products	\$24,631	\$39,227	\$279,986	\$343,843
Ship Building and Repairing	\$190,852	\$1,421	\$19	\$192,293
Boat Building and Repairing	\$0	\$13,535	\$623	\$14,159
All other products	\$149,595	\$213,592	\$549,962	\$913,149
Transportation: Water Transportation	\$52,533,060	\$7,983,855	\$127,675	\$60,644,590
All Other Transportation	\$40,067,847	\$4,154,944	\$1,786,522	\$46,009,314
Communications, Electric, Gas and Sanitary Services	\$0	\$2,638,466	\$3,540,942	\$6,179,407
Wholesale Trade	\$34,255,212	\$11,011,078	\$23,570,394	\$68,836,684
Retail Trade: Food Stores	\$0	\$61,276	\$7,087,895	\$7,149,171
Automotive Dealers and Service Stations	\$0	\$438,996	\$8,581,472	\$9,020,468
Eating and Drinking Establishments	\$5,315,760	\$512,133	\$6,486,434	\$12,314,326
All Other Retail Stores	\$4,289,758	\$422,658	\$22,879,607	\$27,592,022
Finance, Insurance and Real Estate	\$0	\$11,565,016	\$43,823,838	\$55,388,854
Services: Hotels and Lodging Places	\$9,422,827	\$1,022,753	\$2,028,217	\$12,473,797
Automobile Rental and Leasing	\$0	\$626,651	\$970,168	\$1,596,820
Amusement and Recreation Services, n.e.c.	\$0	\$1,541	\$661,554	\$663,095
All Other Service Industries	\$3,287	\$6,835,093	\$8,714,028	\$15,552,409
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$146,974,509	\$48,323,389	\$135,712,723	\$331,010,622

Table 5.3-5, continued
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	3	28	216	247
Commercial Fishing	0	0	0	0
Mining	0	4	2	6
Construction	716	151	2,281	3,148
Manufacturing: Food Products	0	17	110	127
Textiles	0	2	13	15
Apparel and Fabric Products	11	64	118	192
Lumber, Wood Products, Furniture, Paper and Allied Products	0	27	199	226
Printing, Publishing and Allied Products	0	344	108	452
Chemicals, Petroleum, Rubber and Leather Products	5	12	126	143
Ship Building and Repairing	105	1	0	105
Boat Building and Repairing	0	11	1	12
All other products	59	115	233	406
Transportation: Water Transportation	9,812	1,491	24	11,327
All Other Transportation	9,807	2,485	564	12,856
Communications, Electric, Gas and Sanitary Services	0	352	282	634
Wholesale Trade	1,918	617	1,320	3,855
Retail Trade: Food Stores	0	10	1,203	1,213
Automotive Dealers and Service Stations	0	31	611	642
Eating and Drinking Establishments	1,785	172	2,178	4,134
All Other Retail Stores	654	60	3,348	4,063
Finance, Insurance and Real Estate	0	1,421	1,819	3,239
Services: Hotels and Lodging Places	1,729	188	372	2,289
Automobile Rental and Leasing	0	54	83	137
Amusement and Recreation Services, n.e.c.	0	1	422	423
All Other Service Industries	11	7,751	10,192	17,955
Government - State, Local, Federal	0	126	5,985	6,112
Total	26,615	15,534	31,809	73,958

Table 5.3-6
Economic Contribution of Port of Miami Shipping Activities to Southeast Florida by Benefiting Industry Type, 2004

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$1,142,825	\$1,684,965	\$14,068,951	\$16,896,741
Commercial Fishing	\$0	\$52,875	\$68,199	\$121,074
Mining	\$0	\$802,370	\$941,538	\$1,743,908
Construction	\$93,997,592	\$13,791,870	\$401,490,692	\$509,280,154
Manufacturing: Food Products	\$0	\$4,568,597	\$33,997,668	\$38,566,265
Textiles	\$0	\$307,886	\$1,536,715	\$1,844,601
Apparel and Fabric Products	\$2,274,001	\$7,285,075	\$15,044,866	\$24,603,942
Lumber, Wood Products, Furniture, Paper and Allied Products	\$1,094,000	\$3,940,777	\$25,009,935	\$30,044,712
Printing, Publishing and Allied Products	\$0	\$51,108,552	\$18,788,828	\$69,897,379
Chemicals, Petroleum, Rubber and Leather Products	\$4,466,000	\$3,498,733	\$26,193,079	\$34,157,812
Ship Building and Repairing	\$17,350,562	\$257,407	\$30,002	\$17,637,972
Boat Building and Repairing	\$888,000	\$2,531,997	\$135,816	\$3,555,814
All other products	\$64,875,992	\$36,051,037	\$102,627,628	\$203,554,657
Transportation: Water Transportation	\$2,412,835,840	\$366,697,216	\$8,150,473	\$2,787,683,529
All Other Transportation	\$817,911,324	\$175,513,929	\$67,336,719	\$1,060,761,972
Communications, Electric, Gas and Sanitary Services	\$0	\$85,408,907	\$119,704,020	\$205,112,927
Wholesale Trade	\$262,664,000	\$82,474,176	\$184,231,424	\$529,369,600
Retail Trade: Food Stores	\$0	\$386,467	\$50,978,856	\$51,365,323
Automotive Dealers and Service Stations	\$0	\$3,197,273	\$72,756,496	\$75,953,769
Eating and Drinking Establishments	\$77,956,160	\$7,613,812	\$111,917,136	\$197,487,108
All Other Retail Stores	\$28,121,154	\$2,805,078	\$173,579,086	\$204,505,318
Finance, Insurance and Real Estate	\$0	\$219,651,152	\$584,052,595	\$803,703,747
Services: Hotels and Lodging Places	\$130,446,128	\$14,343,553	\$33,529,692	\$178,319,373
Automobile Rental and Leasing	\$0	\$7,932,584	\$12,281,062	\$20,213,646
Amusement and Recreation Services, n.e.c.	\$0	\$28,407	\$18,947,072	\$18,975,479
All Other Service Industries	\$915,143	\$612,230,132	\$770,683,882	\$1,383,829,156
Government - State, Local, Federal	\$112,318	\$21,621,646	\$404,025,581	\$425,759,545
Total	\$3,917,051,039	\$1,725,786,471	\$3,252,108,011	\$8,894,945,521

Table 5.3-6, continued
Economic Contribution of Port of Miami Shipping Activities to Southeast Florida by Benefiting Industry Type, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$393,032	\$646,281	\$5,153,259	\$6,192,572
Commercial Fishing	\$0	\$31,531	\$40,669	\$72,200
Mining	\$0	\$78,150	\$97,990	\$176,140
Construction	\$32,537,462	\$8,408,555	\$117,200,940	\$158,146,957
Manufacturing: Food Products	\$0	\$877,442	\$4,891,753	\$5,769,196
Textiles	\$0	\$73,622	\$357,752	\$431,374
Apparel and Fabric Products	\$556,701	\$3,187,436	\$3,805,696	\$7,549,833
Lumber, Wood Products, Furniture, Paper and Allied Products	\$205,060	\$855,787	\$6,819,580	\$7,880,428
Printing, Publishing and Allied Products	\$0	\$18,993,182	\$6,696,786	\$25,689,968
Chemicals, Petroleum, Rubber and Leather Products	\$892,984	\$539,635	\$5,965,809	\$7,398,427
Ship Building and Repairing	\$9,436,920	\$140,003	\$16,318	\$9,593,241
Boat Building and Repairing	\$315,357	\$899,193	\$48,233	\$1,262,783
All other products	\$18,714,651	\$9,708,389	\$26,236,784	\$54,659,824
Transportation: Water Transportation	\$429,079,008	\$65,210,240	\$1,449,413	\$495,738,661
All Other Transportation	\$410,992,792	\$95,543,008	\$26,649,622	\$533,185,422
Communications, Electric, Gas and Sanitary Services	\$0	\$25,670,561	\$28,569,073	\$54,239,634
Wholesale Trade	\$110,365,520	\$34,653,800	\$77,409,912	\$222,429,232
Retail Trade: Food Stores	\$0	\$229,797	\$30,312,494	\$30,542,291
Automotive Dealers and Service Stations	\$0	\$1,426,782	\$32,467,570	\$33,894,352
Eating and Drinking Establishments	\$31,525,206	\$3,079,000	\$45,258,908	\$79,863,114
All Other Retail Stores	\$13,473,963	\$1,357,767	\$82,659,170	\$97,490,899
Finance, Insurance and Real Estate	\$0	\$68,093,059	\$101,455,487	\$169,548,546
Services: Hotels and Lodging Places	\$53,551,672	\$5,888,417	\$13,764,848	\$73,204,937
Automobile Rental and Leasing	\$0	\$2,418,696	\$3,744,574	\$6,163,270
Amusement and Recreation Services, n.e.c.	\$0	\$11,668	\$8,169,857	\$8,181,524
All Other Service Industries	\$553,719	\$350,470,010	\$430,661,666	\$781,685,395
Government - State, Local, Federal	\$26,934	\$9,392,615	\$316,335,456	\$325,755,005
Total	\$1,112,620,980	\$707,884,625	\$1,376,239,618	\$3,196,745,223

Table 5.3-6, continued
Economic Contribution of Port of Miami Shipping Activities to Southeast Florida by Benefiting Industry Type, 2004
Other Property Type Income, 2004 Dollars

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$135,714	\$307,894	\$2,436,500	\$2,880,109
Commercial Fishing	\$0	\$16,395	\$21,147	\$37,541
Mining	\$0	\$81,193	\$98,077	\$179,269
Construction	\$2,630,110	\$732,668	\$14,282,615	\$17,645,393
Manufacturing: Food Products	\$0	\$704,313	\$3,465,071	\$4,169,384
Textiles	\$0	\$15,458	\$77,056	\$92,514
Apparel and Fabric Products	\$101,710	\$791,023	\$949,954	\$1,842,687
Lumber, Wood Products, Furniture, Paper and Allied Products	\$118,949	\$243,690	\$1,668,863	\$2,031,502
Printing, Publishing and Allied Products	\$0	\$5,878,310	\$2,179,500	\$8,057,810
Chemicals, Petroleum, Rubber and Leather Products	\$649,474	\$479,293	\$5,799,633	\$6,928,400
Ship Building and Repairing	\$831,601	\$12,337	\$1,438	\$845,376
Boat Building and Repairing	\$44,829	\$127,824	\$6,856	\$179,510
All other products	\$9,547,975	\$2,482,324	\$9,751,080	\$21,781,379
Transportation: Water Transportation	\$161,709,248	\$24,576,126	\$546,248	\$186,831,622
All Other Transportation	\$91,061,480	\$21,582,791	\$7,051,572	\$119,695,843
Communications, Electric, Gas and Sanitary Services	\$0	\$16,600,163	\$38,157,299	\$54,757,462
Wholesale Trade	\$34,150,812	\$10,723,054	\$23,953,236	\$68,827,102
Retail Trade: Food Stores	\$0	\$59,956	\$7,908,778	\$7,968,733
Automotive Dealers and Service Stations	\$0	\$480,107	\$10,925,209	\$11,405,316
Eating and Drinking Establishments	\$7,564,706	\$738,829	\$10,860,209	\$19,163,744
All Other Retail Stores	\$4,168,549	\$426,442	\$26,380,261	\$30,975,252
Finance, Insurance and Real Estate	\$0	\$62,699,223	\$254,188,743	\$316,887,966
Services: Hotels and Lodging Places	\$20,320,240	\$2,234,367	\$5,223,087	\$27,777,693
Automobile Rental and Leasing	\$0	\$2,212,537	\$3,425,404	\$5,637,941
Amusement and Recreation Services, n.e.c.	\$0	\$4,244	\$2,971,534	\$2,975,778
All Other Service Industries	\$32,355	\$35,953,563	\$44,835,790	\$80,821,708
Government - State, Local, Federal	\$16,991	\$1,279,724	\$60,746,290	\$62,043,005
Total	\$333,084,743	\$191,443,846	\$537,911,449	\$1,062,440,038

Table 5.3-6, continued
Economic Contribution of Port of Miami Shipping Activities to Southeast Florida by Benefiting Industry Type, 2004
Indirect Business Taxes, 2004 Dollars

Industry	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$18,834	\$38,330	\$274,562	\$331,725
Commercial Fishing	\$0	\$1,698	\$2,191	\$3,889
Mining	\$0	\$17,195	\$20,770	\$37,965
Construction	\$728,243	\$63,350	\$2,558,614	\$3,350,207
Manufacturing: Food Products	\$0	\$39,110	\$1,908,157	\$1,947,267
Textiles	\$0	\$3,194	\$13,716	\$16,910
Apparel and Fabric Products	\$10,827	\$60,293	\$90,706	\$161,826
Lumber, Wood Products, Furniture, Paper and Allied Products	\$6,388	\$24,569	\$172,814	\$203,771
Printing, Publishing and Allied Products	\$0	\$616,737	\$226,363	\$843,101
Chemicals, Petroleum, Rubber and Leather Products	\$53,887	\$48,612	\$279,986	\$382,485
Ship Building and Repairing	\$196,156	\$2,910	\$339	\$199,405
Boat Building and Repairing	\$7,672	\$21,876	\$1,173	\$30,721
All other products	\$640,722	\$305,667	\$926,107	\$1,872,497
Transportation: Water Transportation	\$52,533,236	\$7,983,855	\$177,455	\$60,694,546
All Other Transportation	\$40,094,630	\$4,156,470	\$2,032,981	\$46,284,081
Communications, Electric, Gas and Sanitary Services	\$0	\$3,957,331	\$9,350,970	\$13,308,302
Wholesale Trade	\$37,582,224	\$11,800,487	\$26,360,016	\$75,742,727
Retail Trade: Food Stores	\$0	\$61,734	\$8,143,385	\$8,205,119
Automotive Dealers and Service Stations	\$0	\$494,349	\$11,249,295	\$11,743,644
Eating and Drinking Establishments	\$5,454,442	\$532,724	\$7,830,627	\$13,817,792
All Other Retail Stores	\$4,292,206	\$439,092	\$27,162,805	\$31,894,102
Finance, Insurance and Real Estate	\$0	\$12,165,103	\$50,576,631	\$62,741,734
Services: Hotels and Lodging Places	\$9,504,659	\$1,045,110	\$2,443,065	\$12,992,834
Automobile Rental and Leasing	\$0	\$626,651	\$970,168	\$1,596,820
Amusement and Recreation Services, n.e.c.	\$0	\$1,541	\$1,078,816	\$1,080,357
All Other Service Industries	\$3,287	\$8,029,524	\$10,868,032	\$18,900,844
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$151,127,413	\$52,537,515	\$164,719,744	\$368,384,672

Table 5.3-6, continued
Economic Contribution of Port of Miami Shipping Activities to Southeast Florida by Benefiting Industry Type, 2004
Employment, Number of Full- and Part-Time Jobs

Industry	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	8	42	279	329
Commercial Fishing	0	2	3	5
Mining	0	6	7	13
Construction	716	185	2,803	3,703
Manufacturing: Food Products	0	17	110	127
Textiles	0	2	13	15
Apparel and Fabric Products	19	68	118	205
Lumber, Wood Products, Furniture, Paper and Allied Products	5	27	199	231
Printing, Publishing and Allied Products	0	355	125	480
Chemicals, Petroleum, Rubber and Leather Products	13	12	126	151
Ship Building and Repairing	105	1	0	106
Boat Building and Repairing	6	19	1	26
All other products	219	177	374	771
Transportation: Water Transportation	9,812	1,491	33	11,337
All Other Transportation	9,807	2,485	654	12,946
Communications, Electric, Gas and Sanitary Services	0	352	365	716
Wholesale Trade	1,932	617	1,355	3,904
Retail Trade: Food Stores	0	10	1,351	1,361
Automotive Dealers and Service Stations	0	31	685	716
Eating and Drinking Establishments	1,785	172	2,413	4,370
All Other Retail Stores	654	60	3,593	4,308
Finance, Insurance and Real Estate	0	1,498	2,046	3,544
Services: Hotels and Lodging Places	1,729	188	425	2,342
Automobile Rental and Leasing	0	54	83	137
Amusement and Recreation Services, n.e.c.	0	1	468	469
All Other Service Industries	12	7,751	10,851	18,614
Government - State, Local, Federal	0	137	5,985	6,123
Total	26,822	15,760	34,465	77,048

**Table 5.3-7
Economic Contribution of Port of Miami Shipping Activities to Florida by Benefiting Industry Type, 2004**

Industry	Output, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$1,142,825	\$2,134,092	\$22,717,163	\$25,994,080
Commercial Fishing	\$0	\$71,051	\$99,023	\$170,074
Mining	\$0	\$2,055,793	\$3,884,305	\$5,940,098
Construction	\$93,997,592	\$16,519,568	\$409,150,602	\$519,667,762
Manufacturing: Food Products	\$0	\$4,568,597	\$34,440,873	\$39,009,470
Textiles	\$0	\$307,886	\$1,536,715	\$1,844,601
Apparel and Fabric Products	\$2,274,001	\$7,285,075	\$15,044,866	\$24,603,942
Lumber, Wood Products, Furniture, Paper and Allied Products	\$1,094,000	\$6,294,068	\$25,009,935	\$32,398,003
Printing, Publishing and Allied Products	\$0	\$58,826,001	\$23,095,989	\$81,921,990
Chemicals, Petroleum, Rubber and Leather Products	\$4,466,000	\$5,439,031	\$26,193,079	\$36,098,111
Ship Building and Repairing	\$17,350,562	\$945,958	\$121,592	\$18,418,112
Boat Building and Repairing	\$888,000	\$5,076,977	\$287,114	\$6,252,092
All other products	\$64,817,718	\$45,946,995	\$102,627,628	\$213,392,342
Transportation: Water Transportation	\$2,412,835,840	\$366,697,216	\$8,501,576	\$2,788,034,632
All Other Transportation	\$817,911,324	\$177,534,182	\$73,159,276	\$1,068,604,781
Communications, Electric, Gas and Sanitary Services	\$0	\$85,408,907	\$137,321,731	\$222,730,638
Wholesale Trade	\$262,664,000	\$86,229,264	\$184,231,424	\$533,124,688
Retail Trade: Food Stores	\$0	\$404,259	\$54,127,764	\$54,532,023
Automotive Dealers and Service Stations	\$0	\$3,342,390	\$76,556,928	\$79,899,318
Eating and Drinking Establishments	\$77,956,160	\$7,909,725	\$118,484,784	\$204,350,669
All Other Retail Stores	\$28,121,154	\$3,084,318	\$191,528,190	\$222,733,662
Finance, Insurance and Real Estate	\$0	\$226,565,984	\$629,215,983	\$855,781,967
Services: Hotels and Lodging Places	\$130,446,128	\$15,032,919	\$35,203,312	\$180,682,359
Automobile Rental and Leasing	\$0	\$7,932,584	\$12,281,062	\$20,213,646
Amusement and Recreation Services, n.e.c.	\$0	\$28,407	\$20,820,090	\$20,848,497
All Other Service Industries	\$915,143	\$643,469,958	\$841,484,022	\$1,485,869,123
Government - State, Local, Federal	\$170,553	\$28,381,526	\$470,823,330	\$499,375,409
Total	\$3,917,051,000	\$1,807,492,730	\$3,517,948,357	\$9,242,492,086

Table 5.3-7, continued
Economic Contribution of Port of Miami Shipping Activities to Florida by Benefiting Industry Type, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$535,092	\$870,189	\$9,197,554	\$10,602,835
Commercial Fishing	\$0	\$42,524	\$59,265	\$101,790
Mining	\$0	\$231,917	\$523,710	\$755,627
Construction	\$32,537,462	\$9,905,824	\$117,200,940	\$159,644,226
Manufacturing: Food Products	\$0	\$877,442	\$4,918,429	\$5,795,871
Textiles	\$0	\$73,622	\$357,752	\$431,374
Apparel and Fabric Products	\$556,701	\$3,187,436	\$3,805,696	\$7,549,833
Lumber, Wood Products, Furniture, Paper and Allied Products	\$205,060	\$1,591,022	\$6,819,580	\$8,615,662
Printing, Publishing and Allied Products	\$0	\$20,333,622	\$7,637,167	\$27,970,789
Chemicals, Petroleum, Rubber and Leather Products	\$892,984	\$752,252	\$5,965,809	\$7,611,044
Ship Building and Repairing	\$9,436,920	\$382,162	\$49,123	\$9,868,205
Boat Building and Repairing	\$315,357	\$1,651,285	\$93,384	\$2,060,026
All other products	\$18,714,651	\$12,319,292	\$26,236,784	\$57,270,727
Transportation: Water Transportation	\$429,079,008	\$65,210,240	\$1,511,831	\$495,801,079
All Other Transportation	\$410,992,792	\$95,543,008	\$27,378,103	\$533,913,903
Communications, Electric, Gas and Sanitary Services	\$0	\$25,670,561	\$31,598,636	\$57,269,197
Wholesale Trade	\$110,365,520	\$36,100,008	\$77,409,912	\$223,875,440
Retail Trade: Food Stores	\$0	\$240,375	\$32,184,816	\$32,425,191
Automotive Dealers and Service Stations	\$0	\$1,491,524	\$34,163,128	\$35,654,652
Eating and Drinking Establishments	\$31,525,206	\$3,134,799	\$46,958,136	\$81,618,141
All Other Retail Stores	\$13,473,963	\$1,503,453	\$91,645,585	\$106,623,001
Finance, Insurance and Real Estate	\$0	\$68,429,561	\$111,618,090	\$180,047,651
Services: Hotels and Lodging Places	\$53,551,672	\$6,045,595	\$14,157,261	\$73,754,528
Automobile Rental and Leasing	\$0	\$2,418,696	\$3,744,574	\$6,163,270
Amusement and Recreation Services, n.e.c.	\$0	\$11,784	\$9,165,338	\$9,177,122
All Other Service Industries	\$553,719	\$357,686,602	\$463,469,550	\$821,709,871
Government - State, Local, Federal	\$35,035	\$10,729,477	\$350,390,310	\$361,154,823
Total	\$1,112,771,141	\$726,434,272	\$1,478,260,464	\$3,317,465,877

Table 5.3-7, continued
Economic Contribution of Port of Miami Shipping Activities to Florida by Benefiting Industry Type, 2004

Industry	Other Property Type Income, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$184,856	\$377,946	\$3,602,677	\$4,165,478
Commercial Fishing	\$0	\$21,891	\$30,510	\$52,401
Mining	\$0	\$352,588	\$890,082	\$1,242,670
Construction	\$2,630,110	\$861,554	\$14,282,615	\$17,774,279
Manufacturing: Food Products	\$0	\$704,313	\$3,465,071	\$4,169,384
Textiles	\$0	\$15,458	\$77,056	\$92,514
Apparel and Fabric Products	\$101,710	\$791,023	\$949,954	\$1,842,687
Lumber, Wood Products, Furniture, Paper and Allied Products	\$118,949	\$411,702	\$1,668,863	\$2,199,514
Printing, Publishing and Allied Products	\$0	\$6,087,503	\$2,433,994	\$8,521,497
Chemicals, Petroleum, Rubber and Leather Products	\$649,474	\$858,175	\$5,799,633	\$7,307,282
Ship Building and Repairing	\$831,601	\$33,680	\$4,329	\$869,610
Boat Building and Repairing	\$44,829	\$234,741	\$13,275	\$292,846
All other products	\$9,547,975	\$3,347,984	\$9,751,080	\$22,647,039
Transportation: Water Transportation	\$161,709,248	\$24,576,126	\$569,772	\$186,855,146
All Other Transportation	\$91,061,480	\$21,586,258	\$7,410,295	\$120,058,033
Communications, Electric, Gas and Sanitary Services	\$0	\$17,344,124	\$44,243,146	\$61,587,270
Wholesale Trade	\$34,150,812	\$11,170,757	\$23,953,236	\$69,274,805
Retail Trade: Food Stores	\$0	\$62,716	\$8,397,316	\$8,460,032
Automotive Dealers and Service Stations	\$0	\$501,906	\$11,496,076	\$11,997,982
Eating and Drinking Establishments	\$7,564,706	\$752,238	\$11,268,245	\$19,585,189
All Other Retail Stores	\$4,168,549	\$470,587	\$29,193,875	\$33,833,012
Finance, Insurance and Real Estate	\$0	\$64,114,236	\$268,662,667	\$332,776,903
Services: Hotels and Lodging Places	\$20,320,240	\$2,294,077	\$5,372,151	\$27,986,468
Automobile Rental and Leasing	\$0	\$2,212,537	\$3,425,404	\$5,637,941
Amusement and Recreation Services, n.e.c.	\$0	\$4,286	\$3,333,568	\$3,337,854
All Other Service Industries	\$32,355	\$35,953,563	\$47,594,666	\$83,580,583
Government - State, Local, Federal	\$16,991	\$2,329,670	\$83,711,113	\$86,057,774
Total	\$333,133,885	\$197,471,641	\$591,600,668	\$1,122,206,194

Table 5.3-7, continued
Economic Contribution of Port of Miami Shipping Activities to Florida by Benefiting Industry Type, 2004

Industry	Indirect Business Taxes, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$25,654	\$48,061	\$470,842	\$544,556
Commercial Fishing	\$0	\$2,268	\$3,161	\$5,429
Mining	\$0	\$56,372	\$122,026	\$178,397
Construction	\$728,243	\$74,424	\$2,558,614	\$3,361,281
Manufacturing: Food Products	\$0	\$74,633	\$1,908,157	\$1,982,790
Textiles	\$0	\$3,194	\$13,716	\$16,910
Apparel and Fabric Products	\$10,827	\$60,293	\$90,706	\$161,826
Lumber, Wood Products, Furniture, Paper and Allied Products	\$6,388	\$54,824	\$178,595	\$239,806
Printing, Publishing and Allied Products	\$0	\$655,280	\$258,084	\$913,364
Chemicals, Petroleum, Rubber and Leather Products	\$53,887	\$49,786	\$279,986	\$383,658
Ship Building and Repairing	\$196,156	\$7,944	\$1,021	\$205,122
Boat Building and Repairing	\$7,672	\$40,174	\$2,272	\$50,118
All other products	\$640,722	\$377,819	\$926,107	\$1,944,649
Transportation: Water Transportation	\$52,533,236	\$7,983,855	\$185,097	\$60,702,188
All Other Transportation	\$40,094,630	\$4,174,719	\$2,091,568	\$46,360,917
Communications, Electric, Gas and Sanitary Services	\$0	\$4,262,247	\$11,056,276	\$15,318,522
Wholesale Trade	\$37,582,224	\$12,293,171	\$26,360,016	\$76,235,411
Retail Trade: Food Stores	\$0	\$64,577	\$8,646,413	\$8,710,990
Automotive Dealers and Service Stations	\$0	\$516,794	\$11,837,097	\$12,353,891
Eating and Drinking Establishments	\$5,454,442	\$542,392	\$8,124,837	\$14,121,671
All Other Retail Stores	\$4,292,206	\$484,547	\$30,059,884	\$34,836,636
Finance, Insurance and Real Estate	\$0	\$12,403,049	\$53,362,270	\$65,765,319
Services: Hotels and Lodging Places	\$9,504,659	\$1,073,039	\$2,512,788	\$13,090,486
Automobile Rental and Leasing	\$0	\$626,651	\$970,168	\$1,596,820
Amusement and Recreation Services, n.e.c.	\$0	\$1,556	\$1,210,253	\$1,211,809
All Other Service Industries	\$3,287	\$8,108,303	\$11,724,903	\$19,836,494
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$151,134,232	\$54,039,972	\$174,954,855	\$380,129,059

Table 5.3-7, continued
Economic Contribution of Port of Miami Shipping Activities to Florida by Benefiting Industry Type, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	11	54	448	513
Commercial Fishing	0	3	5	8
Mining	0	13	22	36
Construction	732	240	3,031	4,003
Manufacturing: Food Products	0	17	127	144
Textiles	0	2	13	15
Apparel and Fabric Products	20	86	118	224
Lumber, Wood Products, Furniture, Paper and Allied Products	5	39	199	244
Printing, Publishing and Allied Products	0	459	170	629
Chemicals, Petroleum, Rubber and Leather Products	13	12	126	152
Ship Building and Repairing	145	8	1	154
Boat Building and Repairing	7	40	2	49
All other products	272	256	430	958
Transportation: Water Transportation	9,812	1,491	35	11,338
All Other Transportation	9,449	2,642	749	12,811
Communications, Electric, Gas and Sanitary Services	0	352	440	792
Wholesale Trade	2,154	707	1,492	4,353
Retail Trade: Food Stores	0	11	1,475	1,487
Automotive Dealers and Service Stations	0	37	838	874
Eating and Drinking Establishments	1,785	179	2,678	4,642
All Other Retail Stores	654	66	4,252	4,973
Finance, Insurance and Real Estate	0	1,711	2,523	4,234
Services: Hotels and Lodging Places	1,751	211	495	2,457
Automobile Rental and Leasing	0	54	98	152
Amusement and Recreation Services, n.e.c.	0	1	468	469
All Other Service Industries	12	8,562	12,688	21,263
Government - State, Local, Federal	1	172	7,137	7,311
Total	26,822	17,428	40,061	84,311

5.0 Miami-Dade County Shipping Industry

Annual changes in historic data regarding the Port of Miami shipping industry from 1979 through 2003 were used to trend the 2004 economic contribution estimates back to 1980. The available historic data includes the Port of Miami operating revenue, the short tons of imports and exports going through the Port and the number of cruise ship passengers. These data are from the Port of Miami. A plot of this data is provided in Figure 5.3-1 and these data are also presented in Table 5.3-8. Port operating revenues and tons of cargo have increased significantly over the years. In 1980, the Port earned \$18.8 million in operating revenue in 2004 dollars serving 2.5 million tons of cargo and 1.5 million cruise passengers. By 2003, the Port earned \$84.5 million in revenue serving 9.0 million tons of cargo and 4.0 million cruise passengers.

The percent changes in port operating revenue, cargo tonnage and cruise ship passengers are also provided in Table 5.3-8. While the plot of these variables appears to show that the trend in Port operating revenue is following the trend in cargo, the percent changes from year to year differ between the two. For example, Port operating revenue increases by 50 percent in 1980 and 40 percent in 1988 while cargo increased by only 10.4 percent in 1980 and 7.3 percent in 1988 and the number of cruise ship passengers increased by 9.9 percent in 1980 and fell by five percent in 1988. One explanation could be that port charges increased in 1980 and 1988.

Because both the amount of cargo and the number of cruise passengers will influence the economic contribution of the Port, an index was created that is the weighted average of the percent change in cargo tonnage and the percent change in the number of passengers. The sales information provided in Table 5.2-2 (on page 5-5) was used to construct the weights. From the sales data in this table, the sales associated with cargo versus cruise ship passengers were calculated. The sales value associated with Transportation Services was attributed to cargo. For construction expenditures, Water Transportation, and Ship Building and Repairing, 61 percent of these values were attributed to cargo and 39 percent (100% - 61%) of these values were attributed to cruise passengers. The 61 percent is the average percent from 1979 to 2003 of both cargo tonnage and cruise ship passengers that is cargo tonnage. This method assumes that one ton of cargo is equivalent to one cruise ship passenger in terms of their influence on economic contribution.

The percent of sales attributed to cargo was then calculated and is 51 percent. Thus, the weighted average percent change in cargo and cruise passengers from 1980 to 2003 is 51 percent of the percent change in cargo plus 49 percent of the percent change in passengers (100 minus 51). The weighted average percent change is provided in the last column of Table 5.3-8. These percentages were used to construct the trend in the economic contribution of the Port of Miami from 1980 to 2004.

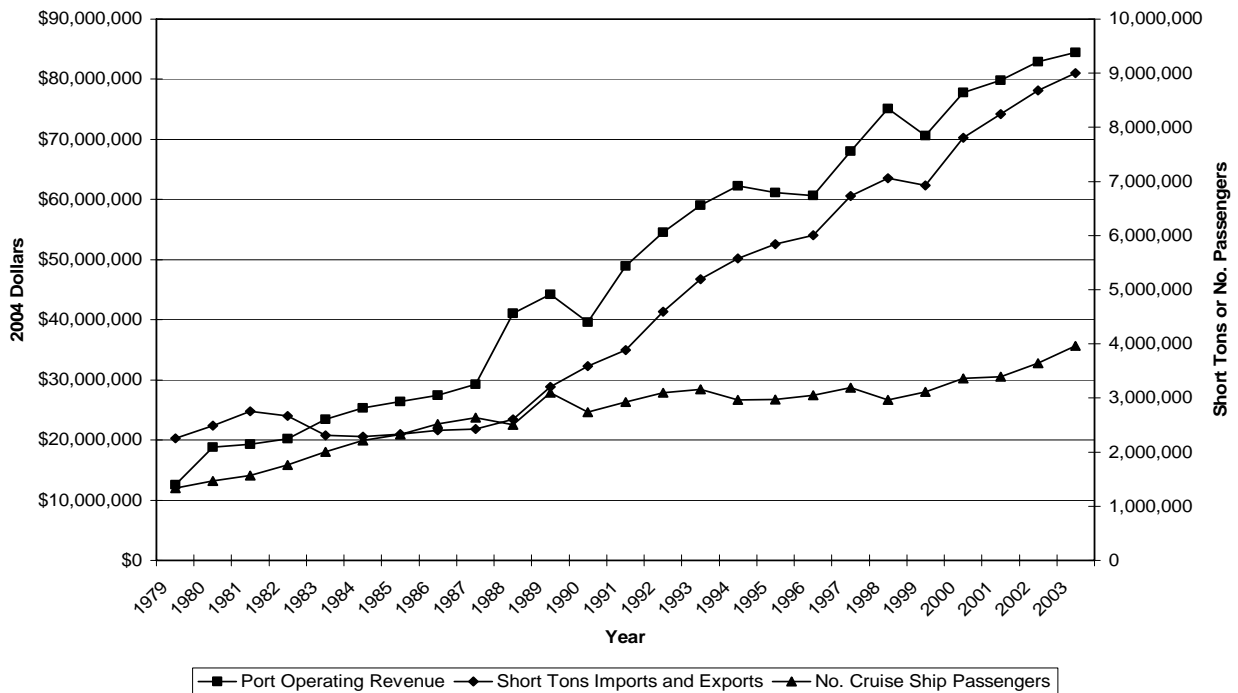
The historic trends in the economic contribution of the Port of Miami were estimated using the 2004 values presented above and changing them each year from 1980 to 2003 using the

5.0 Miami-Dade County Shipping Industry

weighted average percent change in cargo and passengers from year to year as provided in the last column of Table 5.3-8.

The direct, indirect and induced economic contribution of the Port of Miami shipping industry in terms of output, income (labor and other property type), indirect businesses taxes and employment in Miami-Dade County, southeast Florida and Florida are provided in Tables 5.3-9 through 5.3-20.

**Figure 5.3-1
Historic Ship and Cruise Activities at the Port of Miami, 1979 to 2003**



5.0 Miami-Dade County Shipping Industry

**Table 5.3-8
Annual Data on Port of Miami Operations, 1979 to 2003**

Year	Port Operating Revenue		Total Cargo, short tons	Number of Cruise Ship Passengers	% Change from Previous Year			Weighted Average: Cargo and Passengers
	nominal dollars	2004 dollars			Port Operating Revenue	Short Tons Cargo	Cruise Ship Passengers	
1979	\$5,724,708	\$12,575,127	2,251,900	1,334,266				
1980	\$9,319,486	\$18,821,501	2,485,800	1,466,581	49.7%	10.4%	9.9%	10.2%
1981	\$10,498,543	\$19,311,557	2,757,300	1,567,709	2.6%	10.9%	6.9%	9.0%
1982	\$11,756,248	\$20,239,846	2,665,900	1,760,225	4.8%	-3.3%	12.3%	4.3%
1983	\$14,220,894	\$23,447,858	2,305,600	2,002,654	15.8%	-13.5%	13.8%	-0.3%
1984	\$15,943,548	\$25,352,700	2,287,300	2,217,065	8.1%	-0.8%	10.7%	4.8%
1985	\$17,135,048	\$26,390,386	2,333,000	2,326,685	4.1%	2.0%	4.9%	3.4%
1986	\$18,223,415	\$27,428,478	2,406,100	2,520,571	3.9%	3.1%	8.3%	5.7%
1987	\$19,979,885	\$29,307,111	2,425,900	2,633,041	6.8%	0.8%	4.5%	2.6%
1988	\$28,891,000	\$41,085,676	2,602,600	2,502,411	40.2%	7.3%	-5.0%	1.3%
1989	\$32,329,000	\$44,255,322	3,206,400	3,100,055	7.7%	23.2%	23.9%	23.5%
1990	\$29,990,000	\$39,583,109	3,590,900	2,734,816	-10.6%	12.0%	-11.8%	0.5%
1991	\$38,469,000	\$48,937,314	3,882,300	2,928,532	23.6%	8.1%	7.1%	7.6%
1992	\$43,966,000	\$54,558,133	4,596,481	3,095,487	11.5%	18.4%	5.7%	12.2%
1993	\$48,648,000	\$59,029,322	5,198,292	3,157,130	8.2%	13.1%	2.0%	7.7%
1994	\$52,427,000	\$62,275,936	5,574,252	2,967,081	5.5%	7.2%	-6.0%	0.8%
1995	\$52,558,000	\$61,144,716	5,840,815	2,974,703	-1.8%	4.8%	0.3%	2.6%
1996	\$53,110,000	\$60,622,846	6,002,744	3,052,450	-0.9%	2.8%	2.6%	2.7%
1997	\$60,639,000	\$68,029,358	6,735,388	3,191,885	12.2%	12.2%	4.6%	8.5%
1998	\$67,751,000	\$75,096,819	7,056,664	2,960,264	10.4%	4.8%	-7.3%	-1.1%
1999	\$64,549,000	\$70,620,636	6,930,372	3,112,355	-6.0%	-1.8%	5.1%	1.6%
2000	\$72,539,000	\$77,790,824	7,804,946	3,364,643	10.2%	12.6%	8.1%	10.4%
2001	\$76,200,000	\$79,848,427	8,247,004	3,391,091	2.6%	5.7%	0.8%	3.3%
2002	\$80,540,000	\$82,929,521	8,681,735	3,642,990	3.9%	5.3%	7.4%	6.3%
2003	\$83,390,000	\$84,485,060	9,002,359	3,960,614	1.9%	3.7%	8.7%	6.1%

Source: Miami-Dade County, Port of Miami Comprehensive Financial Reports, historic years.

**Table 5.3-9
Historic Economic Contribution of Port of Miami Shipping
To Miami-Dade County, 1980 to 2004
Output in 2004 Dollars**

Year	Direct	Indirect	Induced	Total
1980	\$1,182,096,000	\$500,134,000	\$854,367,000	\$2,536,597,000
1981	\$1,288,116,000	\$544,990,000	\$930,993,000	\$2,764,099,000
1982	\$1,342,862,000	\$568,152,000	\$970,561,000	\$2,881,575,000
1983	\$1,339,127,000	\$566,572,000	\$967,861,000	\$2,873,560,000
1984	\$1,403,202,000	\$593,681,000	\$1,014,172,000	\$3,011,055,000
1985	\$1,451,293,000	\$614,028,000	\$1,048,930,000	\$3,114,251,000
1986	\$1,533,374,000	\$648,756,000	\$1,108,254,000	\$3,290,384,000
1987	\$1,573,061,000	\$665,547,000	\$1,136,938,000	\$3,375,546,000
1988	\$1,594,202,000	\$674,492,000	\$1,152,218,000	\$3,420,912,000
1989	\$1,969,335,000	\$833,208,000	\$1,423,348,000	\$4,225,891,000
1990	\$1,978,384,000	\$837,036,000	\$1,429,888,000	\$4,245,308,000
1991	\$2,129,029,000	\$900,772,000	\$1,538,767,000	\$4,568,568,000
1992	\$2,389,573,000	\$1,011,006,000	\$1,727,077,000	\$5,127,656,000
1993	\$2,573,753,000	\$1,088,931,000	\$1,860,194,000	\$5,522,878,000
1994	\$2,594,445,000	\$1,097,686,000	\$1,875,149,000	\$5,567,280,000
1995	\$2,661,562,000	\$1,126,082,000	\$1,923,658,000	\$5,711,302,000
1996	\$2,733,301,000	\$1,156,434,000	\$1,975,507,000	\$5,865,242,000
1997	\$2,965,644,000	\$1,254,736,000	\$2,143,434,000	\$6,363,814,000
1998	\$2,934,091,000	\$1,241,386,000	\$2,120,629,000	\$6,296,106,000
1999	\$2,980,178,000	\$1,260,885,000	\$2,153,938,000	\$6,395,001,000
2000	\$3,291,011,000	\$1,392,396,000	\$2,378,594,000	\$7,062,001,000
2001	\$3,399,538,000	\$1,438,313,000	\$2,457,032,000	\$7,294,883,000
2002	\$3,614,309,000	\$1,529,181,000	\$2,612,259,000	\$7,755,749,000
2003	\$3,835,902,000	\$1,622,935,000	\$2,772,416,000	\$8,231,253,000
2004	\$3,835,902,000	\$1,622,935,000	\$2,772,416,000	\$8,231,253,000

Table 5.3-10
Historic Economic Contribution of Port of Miami Shipping
To Miami-Dade County, 1980 to 2004
Income in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$432,517,000	\$251,321,000	\$504,844,000	\$1,188,682,000
1981	\$471,309,000	\$273,862,000	\$550,122,000	\$1,295,293,000
1982	\$491,340,000	\$285,501,000	\$573,503,000	\$1,350,344,000
1983	\$489,973,000	\$284,707,000	\$571,908,000	\$1,346,588,000
1984	\$513,417,000	\$298,330,000	\$599,273,000	\$1,411,020,000
1985	\$531,013,000	\$308,554,000	\$619,812,000	\$1,459,379,000
1986	\$561,045,000	\$326,005,000	\$654,867,000	\$1,541,917,000
1987	\$575,566,000	\$334,443,000	\$671,816,000	\$1,581,825,000
1988	\$583,301,000	\$338,938,000	\$680,845,000	\$1,603,084,000
1989	\$720,558,000	\$418,694,000	\$841,056,000	\$1,980,308,000
1990	\$723,869,000	\$420,618,000	\$844,920,000	\$1,989,407,000
1991	\$778,988,000	\$452,646,000	\$909,257,000	\$2,140,891,000
1992	\$874,318,000	\$508,039,000	\$1,020,529,000	\$2,402,886,000
1993	\$941,708,000	\$547,197,000	\$1,099,188,000	\$2,588,093,000
1994	\$949,279,000	\$551,596,000	\$1,108,025,000	\$2,608,900,000
1995	\$973,836,000	\$565,865,000	\$1,136,689,000	\$2,676,390,000
1996	\$1,000,084,000	\$581,117,000	\$1,167,327,000	\$2,748,528,000
1997	\$1,085,096,000	\$630,515,000	\$1,266,555,000	\$2,982,166,000
1998	\$1,073,551,000	\$623,807,000	\$1,253,079,000	\$2,950,437,000
1999	\$1,090,414,000	\$633,605,000	\$1,272,762,000	\$2,996,781,000
2000	\$1,204,145,000	\$699,690,000	\$1,405,512,000	\$3,309,347,000
2001	\$1,243,854,000	\$722,764,000	\$1,451,861,000	\$3,418,479,000
2002	\$1,322,436,000	\$768,426,000	\$1,543,585,000	\$3,634,447,000
2003	\$1,403,514,000	\$815,538,000	\$1,638,222,000	\$3,857,274,000
2004	\$1,403,514,000	\$815,538,000	\$1,638,222,000	\$3,857,274,000

**Table 5.3-11
Historic Economic Contribution of Port of Miami Shipping
To Miami-Dade County, 1980 to 2004
Indirect Business Taxes in 2004 Dollars**

Year	Direct	Indirect	Induced	Total
1980	\$45,292,000	\$14,890,000	\$41,821,000	\$102,003,000
1981	\$49,354,000	\$16,226,000	\$45,572,000	\$111,152,000
1982	\$51,452,000	\$16,916,000	\$47,509,000	\$115,877,000
1983	\$51,309,000	\$16,869,000	\$47,377,000	\$115,555,000
1984	\$53,764,000	\$17,676,000	\$49,644,000	\$121,084,000
1985	\$55,607,000	\$18,282,000	\$51,345,000	\$125,234,000
1986	\$58,752,000	\$19,316,000	\$54,249,000	\$132,317,000
1987	\$60,273,000	\$19,816,000	\$55,653,000	\$135,742,000
1988	\$61,083,000	\$20,082,000	\$56,401,000	\$137,566,000
1989	\$75,456,000	\$24,807,000	\$69,673,000	\$169,936,000
1990	\$75,803,000	\$24,921,000	\$69,993,000	\$170,717,000
1991	\$81,575,000	\$26,819,000	\$75,323,000	\$183,717,000
1992	\$91,558,000	\$30,101,000	\$84,541,000	\$206,200,000
1993	\$98,615,000	\$32,421,000	\$91,057,000	\$222,093,000
1994	\$99,408,000	\$32,682,000	\$91,789,000	\$223,879,000
1995	\$101,980,000	\$33,527,000	\$94,164,000	\$229,671,000
1996	\$104,729,000	\$34,431,000	\$96,702,000	\$235,862,000
1997	\$113,631,000	\$37,358,000	\$104,922,000	\$255,911,000
1998	\$112,422,000	\$36,961,000	\$103,806,000	\$253,189,000
1999	\$114,188,000	\$37,542,000	\$105,437,000	\$257,167,000
2000	\$126,098,000	\$41,458,000	\$116,434,000	\$283,990,000
2001	\$130,256,000	\$42,825,000	\$120,274,000	\$293,355,000
2002	\$138,485,000	\$45,531,000	\$127,873,000	\$311,889,000
2003	\$146,975,000	\$48,323,000	\$135,713,000	\$331,011,000
2004	\$146,975,000	\$48,323,000	\$135,713,000	\$331,011,000

Table 5.3-12
Historic Economic Contribution of Port of Miami Shipping
To Miami-Dade County, 1980 to 2004
Employment, Number of Full- and Part-Time Jobs

Year	Direct	Indirect	Induced	Total
1980	8,202	4,787	9,803	22,791
1981	8,937	5,216	10,682	24,836
1982	9,317	5,438	11,136	25,891
1983	9,291	5,423	11,105	25,819
1984	9,736	5,683	11,636	27,054
1985	10,069	5,877	12,035	27,982
1986	10,639	6,210	12,716	29,564
1987	10,914	6,370	13,045	30,329
1988	11,061	6,456	13,220	30,737
1989	13,664	7,975	16,331	37,970
1990	13,727	8,012	16,406	38,144
1991	14,772	8,622	17,655	41,049
1992	16,579	9,677	19,816	46,072
1993	17,857	10,423	21,343	49,623
1994	18,001	10,507	21,515	50,022
1995	18,467	10,779	22,071	51,316
1996	18,964	11,069	22,666	52,699
1997	20,576	12,010	24,593	57,179
1998	20,357	11,882	24,331	56,571
1999	20,677	12,069	24,713	57,459
2000	22,834	13,328	27,291	63,452
2001	23,587	13,767	28,191	65,545
2002	25,077	14,637	29,972	69,686
2003	26,615	15,534	31,809	73,958
2004	26,615	15,534	31,809	73,958

Table 5.3-13
Historic Economic Contribution of Port of Miami Shipping
To Southeast Florida, 1980 to 2004
Output in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$1,207,103,000	\$531,831,000	\$1,002,191,000	\$2,741,125,000
1981	\$1,315,366,000	\$579,530,000	\$1,092,076,000	\$2,986,972,000
1982	\$1,371,270,000	\$604,161,000	\$1,138,490,000	\$3,113,921,000
1983	\$1,367,456,000	\$602,480,000	\$1,135,323,000	\$3,105,259,000
1984	\$1,432,886,000	\$631,308,000	\$1,189,646,000	\$3,253,840,000
1985	\$1,481,995,000	\$652,944,000	\$1,230,418,000	\$3,365,357,000
1986	\$1,565,812,000	\$689,872,000	\$1,300,007,000	\$3,555,691,000
1987	\$1,606,339,000	\$707,727,000	\$1,333,654,000	\$3,647,720,000
1988	\$1,627,927,000	\$717,238,000	\$1,351,578,000	\$3,696,743,000
1989	\$2,010,997,000	\$886,012,000	\$1,669,619,000	\$4,566,628,000
1990	\$2,020,237,000	\$890,083,000	\$1,677,290,000	\$4,587,610,000
1991	\$2,174,068,000	\$957,859,000	\$1,805,008,000	\$4,936,935,000
1992	\$2,440,124,000	\$1,075,079,000	\$2,025,899,000	\$5,541,102,000
1993	\$2,628,201,000	\$1,157,942,000	\$2,182,048,000	\$5,968,191,000
1994	\$2,649,331,000	\$1,167,251,000	\$2,199,591,000	\$6,016,173,000
1995	\$2,717,868,000	\$1,197,447,000	\$2,256,493,000	\$6,171,808,000
1996	\$2,791,124,000	\$1,229,722,000	\$2,317,314,000	\$6,338,160,000
1997	\$3,028,382,000	\$1,334,254,000	\$2,514,296,000	\$6,876,932,000
1998	\$2,996,161,000	\$1,320,058,000	\$2,487,545,000	\$6,803,764,000
1999	\$3,043,223,000	\$1,340,793,000	\$2,526,618,000	\$6,910,634,000
2000	\$3,360,632,000	\$1,480,638,000	\$2,790,145,000	\$7,631,415,000
2001	\$3,471,455,000	\$1,529,465,000	\$2,882,155,000	\$7,883,075,000
2002	\$3,690,770,000	\$1,626,091,000	\$3,064,240,000	\$8,381,101,000
2003	\$3,917,051,000	\$1,725,786,000	\$3,252,108,000	\$8,894,945,000
2004	\$3,917,051,000	\$1,725,786,000	\$3,252,108,000	\$8,894,945,000

Table 5.3-14
Historic Economic Contribution of Port of Miami Shipping
To Southeast Florida, 1980 to 2004
Income in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$445,518,000	\$277,144,000	\$589,877,000	\$1,312,539,000
1981	\$485,476,000	\$302,000,000	\$642,782,000	\$1,430,258,000
1982	\$506,109,000	\$314,835,000	\$670,101,000	\$1,491,045,000
1983	\$504,701,000	\$313,959,000	\$668,237,000	\$1,486,897,000
1984	\$528,850,000	\$328,981,000	\$700,211,000	\$1,558,042,000
1985	\$546,975,000	\$340,256,000	\$724,209,000	\$1,611,440,000
1986	\$577,910,000	\$359,500,000	\$765,168,000	\$1,702,578,000
1987	\$592,868,000	\$368,805,000	\$784,972,000	\$1,746,645,000
1988	\$600,836,000	\$373,762,000	\$795,522,000	\$1,770,120,000
1989	\$742,220,000	\$461,712,000	\$982,717,000	\$2,186,649,000
1990	\$745,630,000	\$463,833,000	\$987,232,000	\$2,196,695,000
1991	\$802,406,000	\$499,152,000	\$1,062,405,000	\$2,363,963,000
1992	\$900,602,000	\$560,237,000	\$1,192,419,000	\$2,653,258,000
1993	\$970,017,000	\$603,418,000	\$1,284,327,000	\$2,857,762,000
1994	\$977,816,000	\$608,269,000	\$1,294,652,000	\$2,880,737,000
1995	\$1,003,112,000	\$624,005,000	\$1,328,144,000	\$2,955,261,000
1996	\$1,030,149,000	\$640,824,000	\$1,363,942,000	\$3,034,915,000
1997	\$1,117,716,000	\$695,297,000	\$1,479,883,000	\$3,292,896,000
1998	\$1,105,824,000	\$687,899,000	\$1,464,138,000	\$3,257,861,000
1999	\$1,123,194,000	\$698,704,000	\$1,487,136,000	\$3,309,034,000
2000	\$1,240,343,000	\$771,579,000	\$1,642,245,000	\$3,654,167,000
2001	\$1,281,245,000	\$797,023,000	\$1,696,401,000	\$3,774,669,000
2002	\$1,362,190,000	\$847,376,000	\$1,803,574,000	\$4,013,140,000
2003	\$1,445,706,000	\$899,328,000	\$1,914,151,000	\$4,259,185,000
2004	\$1,445,706,000	\$899,328,000	\$1,914,151,000	\$4,259,185,000

**Table 5.3-15
Historic Economic Contribution of Port of Miami Shipping
To Southeast Florida, 1980 to 2004
Indirect Business Taxes in 2004 Dollars**

Year	Direct	Indirect	Induced	Total
1980	\$46,572,000	\$16,189,000	\$50,759,000	\$113,520,000
1981	\$50,749,000	\$17,641,000	\$55,312,000	\$123,702,000
1982	\$52,906,000	\$18,391,000	\$57,663,000	\$128,960,000
1983	\$52,759,000	\$18,340,000	\$57,503,000	\$128,602,000
1984	\$55,283,000	\$19,218,000	\$60,254,000	\$134,755,000
1985	\$57,178,000	\$19,877,000	\$62,319,000	\$139,374,000
1986	\$60,412,000	\$21,001,000	\$65,844,000	\$147,257,000
1987	\$61,976,000	\$21,545,000	\$67,548,000	\$151,069,000
1988	\$62,809,000	\$21,835,000	\$68,456,000	\$153,100,000
1989	\$77,589,000	\$26,973,000	\$84,565,000	\$189,127,000
1990	\$77,945,000	\$27,097,000	\$84,954,000	\$189,996,000
1991	\$83,880,000	\$29,160,000	\$91,423,000	\$204,463,000
1992	\$94,145,000	\$32,729,000	\$102,611,000	\$229,485,000
1993	\$101,401,000	\$35,252,000	\$110,520,000	\$247,173,000
1994	\$102,216,000	\$35,535,000	\$111,409,000	\$249,160,000
1995	\$104,860,000	\$36,454,000	\$114,291,000	\$255,605,000
1996	\$107,686,000	\$37,437,000	\$117,372,000	\$262,495,000
1997	\$116,840,000	\$40,619,000	\$127,349,000	\$284,808,000
1998	\$115,597,000	\$40,187,000	\$125,994,000	\$281,778,000
1999	\$117,413,000	\$40,818,000	\$127,973,000	\$286,204,000
2000	\$129,659,000	\$45,075,000	\$141,321,000	\$316,055,000
2001	\$133,935,000	\$46,561,000	\$145,981,000	\$326,477,000
2002	\$142,397,000	\$49,503,000	\$155,204,000	\$347,104,000
2003	\$151,127,000	\$52,538,000	\$164,720,000	\$368,385,000
2004	\$151,127,000	\$52,538,000	\$164,720,000	\$368,385,000

Table 5.3-16
Historic Economic Contribution of Port of Miami Shipping
To Southeast Florida, 1980 to 2004
Employment, Number of Full- and Part-Time Jobs

Year	Direct	Indirect	Induced	Total
1980	8,266	4,857	10,621	23,744
1981	9,007	5,292	11,574	25,873
1982	9,390	5,517	12,065	26,973
1983	9,364	5,502	12,032	26,898
1984	9,812	5,765	12,608	28,185
1985	10,148	5,963	13,040	29,151
1986	10,722	6,300	13,777	30,799
1987	10,999	6,463	14,134	31,597
1988	11,147	6,550	14,324	32,021
1989	13,770	8,091	17,694	39,556
1990	13,834	8,129	17,776	39,738
1991	14,887	8,748	19,129	42,764
1992	16,709	9,818	21,470	47,997
1993	17,997	10,575	23,125	51,696
1994	18,141	10,660	23,311	52,112
1995	18,611	10,936	23,914	53,460
1996	19,112	11,230	24,558	54,901
1997	20,737	12,185	26,646	59,568
1998	20,516	12,055	26,363	58,934
1999	20,839	12,245	26,777	59,860
2000	23,012	13,522	29,569	66,103
2001	23,771	13,968	30,545	68,283
2002	25,273	14,850	32,474	72,597
2003	26,822	15,760	34,465	77,048
2004	26,822	15,760	34,465	77,048

Table 5.3-17
Historic Economic Contribution of Port of Miami Shipping
To Florida, 1980 to 2004
Output in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$1,207,123,000	\$557,008,000	\$1,084,113,000	\$2,848,244,000
1981	\$1,315,388,000	\$606,965,000	\$1,181,345,000	\$3,103,698,000
1982	\$1,371,293,000	\$632,762,000	\$1,231,553,000	\$3,235,608,000
1983	\$1,367,479,000	\$631,002,000	\$1,228,127,000	\$3,226,608,000
1984	\$1,432,910,000	\$661,194,000	\$1,286,891,000	\$3,380,995,000
1985	\$1,482,019,000	\$683,855,000	\$1,330,996,000	\$3,496,870,000
1986	\$1,565,837,000	\$722,532,000	\$1,406,273,000	\$3,694,642,000
1987	\$1,606,364,000	\$741,233,000	\$1,442,671,000	\$3,790,268,000
1988	\$1,627,953,000	\$751,195,000	\$1,462,060,000	\$3,841,208,000
1989	\$2,011,028,000	\$927,959,000	\$1,806,099,000	\$4,745,086,000
1990	\$2,020,268,000	\$932,223,000	\$1,814,398,000	\$4,766,889,000
1991	\$2,174,102,000	\$1,003,207,000	\$1,952,556,000	\$5,129,865,000
1992	\$2,440,162,000	\$1,125,977,000	\$2,191,504,000	\$5,757,643,000
1993	\$2,628,241,000	\$1,212,764,000	\$2,360,418,000	\$6,201,423,000
1994	\$2,649,371,000	\$1,222,514,000	\$2,379,395,000	\$6,251,280,000
1995	\$2,717,909,000	\$1,254,140,000	\$2,440,949,000	\$6,412,998,000
1996	\$2,791,166,000	\$1,287,944,000	\$2,506,741,000	\$6,585,851,000
1997	\$3,028,428,000	\$1,397,425,000	\$2,719,825,000	\$7,145,678,000
1998	\$2,996,207,000	\$1,382,557,000	\$2,690,887,000	\$7,069,651,000
1999	\$3,043,269,000	\$1,404,273,000	\$2,733,154,000	\$7,180,696,000
2000	\$3,360,683,000	\$1,550,739,000	\$3,018,223,000	\$7,929,645,000
2001	\$3,471,507,000	\$1,601,877,000	\$3,117,754,000	\$8,191,138,000
2002	\$3,690,825,000	\$1,703,078,000	\$3,314,723,000	\$8,708,626,000
2003	\$3,917,051,000	\$1,807,493,000	\$3,517,948,000	\$9,242,492,000
2004	\$3,917,051,000	\$1,807,493,000	\$3,517,948,000	\$9,242,492,000

Table 5.3-18
Historic Economic Contribution of Port of Miami Shipping
To Florida, 1980 to 2004
Income in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$445,518,000	\$284,716,000	\$637,863,000	\$1,368,097,000
1981	\$485,476,000	\$310,252,000	\$695,072,000	\$1,490,800,000
1982	\$506,109,000	\$323,438,000	\$724,613,000	\$1,554,160,000
1983	\$504,701,000	\$322,538,000	\$722,597,000	\$1,549,836,000
1984	\$528,850,000	\$337,971,000	\$757,172,000	\$1,623,993,000
1985	\$546,975,000	\$349,554,000	\$783,122,000	\$1,679,651,000
1986	\$577,910,000	\$369,324,000	\$827,413,000	\$1,774,647,000
1987	\$592,868,000	\$378,883,000	\$848,828,000	\$1,820,579,000
1988	\$600,836,000	\$383,975,000	\$860,236,000	\$1,845,047,000
1989	\$742,220,000	\$474,329,000	\$1,062,659,000	\$2,279,208,000
1990	\$745,630,000	\$476,508,000	\$1,067,542,000	\$2,289,680,000
1991	\$802,406,000	\$512,792,000	\$1,148,830,000	\$2,464,028,000
1992	\$900,602,000	\$575,546,000	\$1,289,420,000	\$2,765,568,000
1993	\$970,017,000	\$619,907,000	\$1,388,804,000	\$2,978,728,000
1994	\$977,816,000	\$624,891,000	\$1,399,969,000	\$3,002,676,000
1995	\$1,003,112,000	\$641,057,000	\$1,436,185,000	\$3,080,354,000
1996	\$1,030,149,000	\$658,336,000	\$1,474,895,000	\$3,163,380,000
1997	\$1,117,716,000	\$714,298,000	\$1,600,268,000	\$3,432,282,000
1998	\$1,105,824,000	\$706,698,000	\$1,583,242,000	\$3,395,764,000
1999	\$1,123,194,000	\$717,798,000	\$1,608,111,000	\$3,449,103,000
2000	\$1,240,343,000	\$792,665,000	\$1,775,837,000	\$3,808,845,000
2001	\$1,281,245,000	\$818,805,000	\$1,834,398,000	\$3,934,448,000
2002	\$1,362,190,000	\$870,534,000	\$1,950,289,000	\$4,183,013,000
2003	\$1,445,706,000	\$923,906,000	\$2,069,861,000	\$4,439,473,000
2004	\$1,445,706,000	\$923,906,000	\$2,069,861,000	\$4,439,473,000

**Table 5.3-19
Historic Economic Contribution of Port of Miami Shipping
To Florida, 1980 to 2004
Indirect Business Taxes in 2004 Dollars**

Year	Direct	Indirect	Induced	Total
1980	\$46,572,000	\$16,653,000	\$53,915,000	\$117,140,000
1981	\$50,749,000	\$18,147,000	\$58,751,000	\$127,647,000
1982	\$52,906,000	\$18,918,000	\$61,248,000	\$133,072,000
1983	\$52,759,000	\$18,865,000	\$61,078,000	\$132,702,000
1984	\$55,283,000	\$19,768,000	\$64,000,000	\$139,051,000
1985	\$57,178,000	\$20,446,000	\$66,193,000	\$143,817,000
1986	\$60,412,000	\$21,602,000	\$69,937,000	\$151,951,000
1987	\$61,976,000	\$22,161,000	\$71,747,000	\$155,884,000
1988	\$62,809,000	\$22,459,000	\$72,711,000	\$157,979,000
1989	\$77,589,000	\$27,744,000	\$89,821,000	\$195,154,000
1990	\$77,945,000	\$27,871,000	\$90,234,000	\$196,050,000
1991	\$83,880,000	\$29,993,000	\$97,105,000	\$210,978,000
1992	\$94,145,000	\$33,663,000	\$108,988,000	\$236,796,000
1993	\$101,401,000	\$36,258,000	\$117,388,000	\$255,047,000
1994	\$102,216,000	\$36,550,000	\$118,332,000	\$257,098,000
1995	\$104,860,000	\$37,496,000	\$121,393,000	\$263,749,000
1996	\$107,686,000	\$38,507,000	\$124,665,000	\$270,858,000
1997	\$116,840,000	\$41,780,000	\$135,262,000	\$293,882,000
1998	\$115,597,000	\$41,335,000	\$133,823,000	\$290,755,000
1999	\$117,413,000	\$41,984,000	\$135,925,000	\$295,322,000
2000	\$129,659,000	\$46,363,000	\$150,102,000	\$326,124,000
2001	\$133,935,000	\$47,892,000	\$155,052,000	\$336,879,000
2002	\$142,397,000	\$50,918,000	\$164,848,000	\$358,163,000
2003	\$151,127,000	\$54,040,000	\$174,955,000	\$380,122,000
2004	\$151,127,000	\$54,040,000	\$174,955,000	\$380,122,000

Table 5.3-20
Historic Economic Contribution of Port of Miami Shipping
To Florida, 1980 to 2004
Employment, Number of Full- and Part-Time Jobs

Year	Direct	Indirect	Induced	Total
1980	8,266	5,371	12,346	25,982
1981	9,007	5,852	13,453	28,312
1982	9,390	6,101	14,025	29,515
1983	9,364	6,084	13,986	29,433
1984	9,812	6,375	14,655	30,842
1985	10,148	6,594	15,157	31,899
1986	10,722	6,967	16,014	33,703
1987	10,999	7,147	16,429	34,575
1988	11,147	7,243	16,650	35,040
1989	13,770	8,947	20,567	43,285
1990	13,834	8,988	20,662	43,484
1991	14,887	9,673	22,235	46,795
1992	16,709	10,857	24,956	52,522
1993	17,997	11,693	26,880	56,570
1994	18,141	11,787	27,096	57,025
1995	18,611	12,092	27,797	58,500
1996	19,112	12,418	28,546	60,077
1997	20,737	13,474	30,973	65,183
1998	20,516	13,330	30,643	64,490
1999	20,839	13,540	31,124	65,503
2000	23,012	14,952	34,371	72,335
2001	23,771	15,445	35,504	74,720
2002	25,273	16,421	37,747	79,441
2003	26,822	17,428	40,061	84,311
2004	26,822	17,428	40,061	84,311

5.4 Miami River Shipping

The economic contribution of shipping activities through the Miami River is provided in Table 5.4-1. Total gross sales, personal income and employment of the three study areas are provided in Table 5.4-2. The economic contribution of the Port of Miami as a percent of the area economies is provided in Table 5.4-3.

Table 5.4-1
Economic Contribution of the Miami River as it is Used for Shipping, 2004 (a)

Study Area	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Miami-Dade County	\$682,539,000	\$338,889,000	6,106	\$37,347,000
Southeast Florida	\$804,807,000	\$406,395,000	6,741	\$43,911,000
Florida	\$841,836,000	\$427,334,000	7,502	\$45,081,000

^a Includes direct, indirect and induced effects.

^b Output is defined as the value of the additional goods and services produced in the study area due to the shipping related activities.

^c Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the shipping related activities.

^d Employment includes the number of full-time and part-time jobs created due to the shipping related activities.

^e Tax revenue is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected due to the shipping related activities. It excludes taxes on profit and income.

Table 5.4-2
Economy of Study Areas, 2003

Study Area	Gross Sales	Personal Income	Employment
Miami-Dade County	\$85,245,887,000	\$62,037,209,000	1,293,315
Southeast Florida	\$222,040,661,966	\$171,714,743,000	2,923,679
Florida	\$642,280,422,229	\$496,706,399,000	9,185,622

Source: Gross Sales are from Florida Department of Revenue and represent 2003. Income and employment data are from U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System web site and represent 2002. These are the most recent years for which data are available. Employment is number full-time and part-time jobs. Personal income is the income received by persons from all sources and is the sum of wage and salary disbursements, supplements to wages and salaries, proprietor's income, rental income, personal dividend income, personal interest income, personal current transfer receipts, less contributions for government social insurance.

Table 5.4-3
Economic Contribution of the Miami River
As a Percent of the Study Area Economies, 2004

Study Area	Gross Sales	Personal Income	Employment
Miami-Dade County	0.8%	0.5%	0.5%
Southeast Florida	0.4%	0.2%	0.2%
Florida	0.1%	0.1%	0.1%

5.0 Miami-Dade County Shipping Industry

In Miami-Dade County, Miami River shipping activities generated \$682 million in output, \$339 million in income, 6,100 jobs, and \$37 million in tax revenues in 2004. This economic contribution represents 0.8 percent of the county's gross sales, 0.5 percent of the county's personal income and 0.5 percent of county employment.

In the southeast Florida counties of Palm Beach, Broward, Miami-Dade and Monroe, Miami River shipping activities generated \$805 million in output, \$406 million in income, 6,700 jobs, and \$44 million in tax revenues in 2004. This economic contribution represents 0.4 percent of southeast Florida's gross sales, 0.2 percent of the area's personal income and 0.2 percent of area's employment.

In Florida, Miami River shipping activities generated \$842 million in output, \$427 million in income, 7,500 jobs, and \$45 million in tax revenues in 2004. This economic contribution represents 0.1 percent of Florida's gross sales, 0.1 percent of the State's personal income and 0.1 percent of State's employment.

The estimated economic contribution by type of impact (direct, indirect and induced) is provided in Table 5.4-4 for each of the three study areas. For each of the three study areas, an itemization of the direct, indirect and induced output, labor income, other property type income, employment and tax revenues by industry type is provided in Tables 5.4-5, 5.4-6 and 5.4-7. In these tables, the direct output values by industry in 2004 dollars may be slightly different from the sales values in 2004 dollars presented in Tables 5.2-2 and 5.2-3 because the sales values in 1996 and 2000 dollars, not 2004 dollars, were input into the IMPLAN model. The model then used disaggregated deflators to convert values to 2004 dollars. For the sales values reported in Tables 5.5-2 and 5.2-3, one aggregated deflator representing all industries was used to convert 1996 and 2000 dollars into 2004 dollars for presentation purposes.

**Table 5.4-4
Economic Contribution of Miami River Shipping by Type of Impact and Study Area**

Economic Contribution	Direct	Indirect	Induced	Total
To Miami-Dade County				
Output, 2004 dollars	\$314,544,000	\$116,356,000	\$251,640,000	\$682,539,000
Income, 2004 dollars	\$129,517,000	\$59,495,000	\$149,877,000	\$338,889,000
Tax Revenues, 2004 dollars	\$21,500,000	\$3,753,000	\$12,093,000	\$37,347,000
Employment, F-T & P-T jobs	2,075	1,133	2,898	6,106
To Southeast Florida	Direct	Indirect	Induced	Total
Output, 2004 dollars	\$353,418,000	\$133,102,000	\$318,287,000	\$804,807,000
Income, 2004 dollars	\$148,549,000	\$70,539,000	\$187,307,000	\$406,395,000
Tax Revenues, 2004 dollars	\$23,364,000	\$4,522,000	\$16,025,000	\$43,911,000
Employment, F-T & P-T jobs	2,177	1,185	3,379	6,741
To Florida	Direct	Indirect	Induced	Total
Output, 2004 dollars	\$353,418,000	\$141,344,000	\$347,074,000	\$841,836,000
Income, 2004 dollars	\$148,549,000	\$73,247,000	\$205,538,000	\$427,334,000
Tax Revenues, 2004 dollars	\$23,364,000	\$4,718,000	\$16,999,000	\$45,081,000
Employment, F-T & P-T jobs	2,177	1,358	3,967	7,502

**Table 5.4-5
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$147,000	\$126,389	\$1,025,716	\$1,299,105
Commercial Fishing	\$0	\$91	\$406	\$497
Mining	\$0	\$31,633	\$22,166	\$53,798
Construction	\$18,133,994	\$925,603	\$30,070,919	\$49,130,517
Manufacturing: Food Products	\$0	\$105,177	\$3,030,230	\$3,135,407
Textiles	\$0	\$57,911	\$136,834	\$194,745
Apparel and Fabric Products	\$610,000	\$475,592	\$1,339,798	\$2,425,390
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$240,626	\$2,238,562	\$2,479,188
Printing, Publishing and Allied Products	\$0	\$3,773,083	\$1,412,967	\$5,186,049
Chemicals, Petroleum, Rubber and Leather Products	\$821,000	\$889,969	\$2,354,543	\$4,065,512
Ship Building and Repairing	\$975,398	\$7,275	\$157	\$982,831
Boat Building and Repairing	\$0	\$85,720	\$6,294	\$92,014
All other products	\$6,187,000	\$1,744,775	\$4,735,895	\$12,667,670
Transportation: Water Transportation	\$135,655,600	\$20,783,014	\$525,787	\$156,964,401
All Other Transportation	\$34,184,274	\$11,225,579	\$5,380,559	\$50,790,411
Communications, Electric, Gas and Sanitary Services	\$0	\$7,004,167	\$6,201,886	\$13,206,053
Wholesale Trade	\$115,014,000	\$7,204,478	\$14,781,494	\$136,999,972
Retail Trade: Food Stores	\$0	\$32,596	\$3,937,894	\$3,970,491
Automotive Dealers and Service Stations	\$0	\$241,263	\$4,937,196	\$5,178,459
Eating and Drinking Establishments	\$0	\$584,814	\$8,453,724	\$9,038,538
All Other Retail Stores	\$0	\$229,631	\$12,987,398	\$13,217,029
Finance, Insurance and Real Estate	\$0	\$14,805,176	\$45,160,554	\$59,965,729
Services: Hotels and Lodging Places	\$0	\$1,300,300	\$2,514,409	\$3,814,709
Automobile Rental and Leasing	\$0	\$894,514	\$1,102,850	\$1,997,364
Amusement and Recreation Services, n.e.c.	\$0	\$6,996	\$1,081,615	\$1,088,611
All Other Service Industries	\$0	\$41,875,615	\$58,773,253	\$100,648,868
Government - State, Local, Federal	\$2,816,000	\$1,703,722	\$39,426,417	\$43,946,138
Total	\$314,544,266	\$116,355,708	\$251,639,522	\$682,539,497

5.0 Miami-Dade County Shipping Industry

Table 5.4-5, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$56,166	\$50,178	\$384,559	\$490,903
Commercial Fishing	\$0	\$54	\$242	\$296
Mining	\$0	\$1,748	\$1,191	\$2,939
Construction	\$6,357,394	\$558,660	\$8,466,312	\$15,382,366
Manufacturing: Food Products	\$0	\$19,682	\$435,973	\$455,655
Textiles	\$0	\$11,756	\$31,858	\$43,613
Apparel and Fabric Products	\$152,784	\$196,024	\$338,976	\$687,784
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$36,522	\$610,209	\$646,731
Printing, Publishing and Allied Products	\$0	\$1,334,510	\$484,770	\$1,819,280
Chemicals, Petroleum, Rubber and Leather Products	\$171,065	\$127,140	\$535,676	\$833,881
Ship Building and Repairing	\$516,166	\$3,850	\$83	\$520,099
Boat Building and Repairing	\$0	\$31,068	\$2,281	\$33,349
All other products	\$1,710,662	\$485,169	\$1,321,543	\$3,517,374
Transportation: Water Transportation	\$24,123,810	\$3,695,870	\$93,501	\$27,913,181
All Other Transportation	\$16,907,818	\$5,872,834	\$2,147,738	\$24,928,389
Communications, Electric, Gas and Sanitary Services	\$0	\$2,098,129	\$1,567,491	\$3,665,620
Wholesale Trade	\$48,194,288	\$3,018,891	\$6,193,886	\$57,407,065
Retail Trade: Food Stores	\$0	\$19,382	\$2,341,505	\$2,360,887
Automotive Dealers and Service Stations	\$0	\$107,662	\$2,203,197	\$2,310,859
Eating and Drinking Establishments	\$0	\$230,476	\$3,331,625	\$3,562,101
All Other Retail Stores	\$0	\$110,814	\$6,169,402	\$6,280,216
Finance, Insurance and Real Estate	\$0	\$4,053,883	\$7,792,264	\$11,846,147
Services: Hotels and Lodging Places	\$0	\$529,206	\$1,023,333	\$1,552,539
Automobile Rental and Leasing	\$0	\$272,743	\$336,266	\$609,009
Amusement and Recreation Services, n.e.c.	\$0	\$2,873	\$444,259	\$447,132
All Other Service Industries	\$0	\$22,221,273	\$32,020,726	\$54,241,999
Government - State, Local, Federal	\$2,182,966	\$917,350	\$31,087,057	\$34,187,372
Total	\$100,373,118	\$46,007,749	\$109,365,922	\$255,746,788

Table 5.4-5, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$19,439	\$24,352	\$175,253	\$219,044
Commercial Fishing	\$0	\$28	\$126	\$154
Mining	\$0	\$1,444	\$1,005	\$2,449
Construction	\$819,555	\$48,709	\$1,039,270	\$1,907,533
Manufacturing: Food Products	\$0	\$17,561	\$308,762	\$326,323
Textiles	\$0	\$2,413	\$6,862	\$9,275
Apparel and Fabric Products	\$27,914	\$47,802	\$84,668	\$160,384
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$10,141	\$149,260	\$159,401
Printing, Publishing and Allied Products	\$0	\$443,004	\$165,183	\$608,187
Chemicals, Petroleum, Rubber and Leather Products	\$130,513	\$217,571	\$521,137	\$869,221
Ship Building and Repairing	\$45,486	\$339	\$7	\$45,833
Boat Building and Repairing	\$0	\$4,416	\$324	\$4,741
All other products	\$196,122	\$93,522	\$244,773	\$534,418
Transportation: Water Transportation	\$9,091,667	\$1,392,882	\$35,238	\$10,519,787
All Other Transportation	\$3,267,007	\$1,346,590	\$568,628	\$5,182,225
Communications, Electric, Gas and Sanitary Services	\$0	\$1,204,183	\$1,492,655	\$2,696,838
Wholesale Trade	\$14,913,133	\$934,159	\$1,916,622	\$17,763,914
Retail Trade: Food Stores	\$0	\$5,057	\$610,920	\$615,977
Automotive Dealers and Service Stations	\$0	\$36,229	\$741,388	\$777,617
Eating and Drinking Establishments	\$0	\$55,306	\$799,475	\$854,781
All Other Retail Stores	\$0	\$34,881	\$1,972,776	\$2,007,657
Finance, Insurance and Real Estate	\$0	\$4,686,482	\$19,652,201	\$24,338,683
Services: Hotels and Lodging Places	\$0	\$200,810	\$388,310	\$589,120
Automobile Rental and Leasing	\$0	\$249,496	\$307,604	\$557,100
Amusement and Recreation Services, n.e.c.	\$0	\$1,045	\$161,599	\$162,644
All Other Service Industries	\$0	\$2,413,978	\$3,240,664	\$5,654,642
Government – State, Local, Federal	\$633,035	\$14,498	\$5,926,515	\$6,574,048
Total	\$29,143,871	\$13,486,898	\$40,511,228	\$83,141,997

Table 5.4-5, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$2,698	\$2,910	\$19,384	\$24,992
Commercial Fishing	\$0	\$3	\$13	\$16
Mining	\$0	\$309	\$215	\$524
Construction	\$117,490	\$4,213	\$187,160	\$308,863
Manufacturing: Food Products	\$0	\$972	\$169,399	\$170,371
Textiles	\$0	\$543	\$1,221	\$1,764
Apparel and Fabric Products	\$2,972	\$3,850	\$8,080	\$14,901
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$1,006	\$15,472	\$16,479
Printing, Publishing and Allied Products	\$0	\$44,186	\$16,388	\$60,575
Chemicals, Petroleum, Rubber and Leather Products	\$11,797	\$8,806	\$25,215	\$45,818
Ship Building and Repairing	\$10,729	\$80	\$2	\$10,811
Boat Building and Repairing	\$0	\$756	\$55	\$811
All other products	\$71,669	\$17,029	\$49,440	\$138,138
Transportation: Water Transportation	\$2,953,539	\$452,495	\$11,448	\$3,417,482
All Other Transportation	\$1,917,973	\$265,373	\$160,123	\$2,343,469
Communications, Electric, Gas and Sanitary Services	\$0	\$248,166	\$317,423	\$565,588
Wholesale Trade	\$16,411,577	\$1,028,021	\$2,109,201	\$19,548,799
Retail Trade: Food Stores	\$0	\$5,207	\$629,042	\$634,249
Automotive Dealers and Service Stations	\$0	\$37,304	\$763,381	\$800,685
Eating and Drinking Establishments	\$0	\$39,878	\$576,452	\$616,330
All Other Retail Stores	\$0	\$35,916	\$2,031,297	\$2,067,212
Finance, Insurance and Real Estate	\$0	\$845,923	\$3,897,296	\$4,743,219
Services: Hotels and Lodging Places	\$0	\$93,928	\$181,629	\$275,557
Automobile Rental and Leasing	\$0	\$70,664	\$87,122	\$157,786
Amusement and Recreation Services, n.e.c.	\$0	\$379	\$58,669	\$59,048
All Other Service Industries	\$0	\$544,797	\$778,329	\$1,323,126
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$21,500,445	\$3,752,713	\$12,093,455	\$37,346,613

Table 5.4-5, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	1	3	19	24
Commercial Fishing	0	0	0	0
Mining	0	0	0	1
Construction	147	13	210	370
Manufacturing: Food Products	0	0	10	10
Textiles	0	0	1	2
Apparel and Fabric Products	5	4	10	20
Lumber, Wood Products, Furniture, Paper and Allied Products	0	2	18	20
Printing, Publishing and Allied Products	0	27	10	36
Chemicals, Petroleum, Rubber and Leather Products	2	2	11	16
Ship Building and Repairing	6	0	0	6
Boat Building and Repairing	0	1	0	1
All other products	28	9	21	58
Transportation: Water Transportation	552	85	2	638
All Other Transportation	380	152	51	582
Communications, Electric, Gas and Sanitary Services	0	30	25	55
Wholesale Trade	919	58	118	1,095
Retail Trade: Food Stores	0	1	107	108
Automotive Dealers and Service Stations	0	3	54	57
Eating and Drinking Establishments	0	13	194	207
All Other Retail Stores	0	5	297	302
Finance, Insurance and Real Estate	0	95	162	257
Services: Hotels and Lodging Places	0	17	33	51
Automobile Rental and Leasing	0	6	7	14
Amusement and Recreation Services, n.e.c.	0	0	37	38
All Other Service Industries	0	594	910	1,505
Government - State, Local, Federal	34	13	589	636
Total	2,075	1,133	2,898	6,106

**Table 5.4-6
Economic Contribution of Miami River Shipping to Southeast Florida, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$547,527	\$224,257	\$1,382,459	\$2,154,242
Commercial Fishing	\$0	\$1,215	\$6,623	\$7,838
Mining	\$0	\$76,002	\$92,486	\$168,488
Construction	\$18,133,994	\$1,333,945	\$40,465,392	\$59,933,331
Manufacturing: Food Products	\$0	\$105,177	\$3,030,230	\$3,135,407
Textiles	\$0	\$81,579	\$136,834	\$218,412
Apparel and Fabric Products	\$1,089,387	\$502,679	\$1,348,393	\$2,940,460
Lumber, Wood Products, Furniture, Paper and Allied Products	\$524,000	\$468,411	\$2,238,562	\$3,230,973
Printing, Publishing and Allied Products	\$0	\$4,138,110	\$1,837,699	\$5,975,809
Chemicals, Petroleum, Rubber and Leather Products	\$2,141,000	\$1,564,634	\$2,354,543	\$6,060,177
Ship Building and Repairing	\$975,398	\$14,499	\$2,982	\$992,879
Boat Building and Repairing	\$426,000	\$142,391	\$13,248	\$581,640
All other products	\$31,081,996	\$4,517,440	\$10,136,791	\$45,736,227
Transportation: Water Transportation	\$135,655,600	\$20,783,014	\$801,106	\$157,239,720
All Other Transportation	\$34,184,274	\$11,438,172	\$6,608,035	\$52,230,480
Communications, Electric, Gas and Sanitary Services	\$0	\$7,959,151	\$11,733,296	\$19,692,447
Wholesale Trade	\$125,843,000	\$9,538,052	\$18,053,684	\$153,434,736
Retail Trade: Food Stores	\$0	\$34,316	\$4,942,873	\$4,977,189
Automotive Dealers and Service Stations	\$0	\$283,899	\$7,076,594	\$7,360,493
Eating and Drinking Establishments	\$0	\$655,398	\$10,859,909	\$11,515,307
All Other Retail Stores	\$0	\$249,075	\$16,839,447	\$17,088,523
Finance, Insurance and Real Estate	\$0	\$16,450,822	\$56,788,399	\$73,239,221
Services: Hotels and Lodging Places	\$0	\$1,467,896	\$3,278,750	\$4,746,646
Automobile Rental and Leasing	\$0	\$894,514	\$1,124,234	\$2,018,748
Amusement and Recreation Services, n.e.c.	\$0	\$6,996	\$1,834,903	\$1,841,899
All Other Service Industries	\$0	\$48,180,638	\$75,262,413	\$123,443,051
Government - State, Local, Federal	\$2,816,000	\$1,989,419	\$40,036,862	\$44,842,282
Total	\$353,418,177	\$133,101,702	\$318,286,746	\$804,806,625

Table 5.4-6, continued
Economic Contribution of Miami River Shipping to Southeast Florida, 2004

Industry	Labor Income, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$188,302	\$90,006	\$506,712	\$785,019
Commercial Fishing	\$0	\$724	\$3,950	\$4,674
Mining	\$0	\$8,773	\$9,644	\$18,417
Construction	\$6,510,386	\$820,622	\$11,910,261	\$19,241,269
Manufacturing: Food Products	\$0	\$19,682	\$435,973	\$455,655
Textiles	\$0	\$18,114	\$31,858	\$49,972
Apparel and Fabric Products	\$266,694	\$196,024	\$338,976	\$801,694
Lumber, Wood Products, Furniture, Paper and Allied Products	\$98,219	\$76,859	\$610,209	\$785,287
Printing, Publishing and Allied Products	\$0	\$1,528,806	\$654,820	\$2,183,626
Chemicals, Petroleum, Rubber and Leather Products	\$428,034	\$217,603	\$535,676	\$1,181,313
Ship Building and Repairing	\$530,516	\$7,886	\$1,622	\$540,024
Boat Building and Repairing	\$151,286	\$50,568	\$4,705	\$206,559
All other products	\$8,966,084	\$1,233,306	\$2,592,529	\$12,791,919
Transportation: Water Transportation	\$24,123,882	\$3,695,870	\$142,462	\$27,962,214
All Other Transportation	\$16,907,818	\$5,939,819	\$2,614,565	\$25,462,202
Communications, Electric, Gas and Sanitary Services	\$0	\$2,302,435	\$2,799,301	\$5,101,736
Wholesale Trade	\$52,876,404	\$4,007,676	\$7,585,754	\$64,469,833
Retail Trade: Food Stores	\$0	\$20,405	\$2,939,078	\$2,959,482
Automotive Dealers and Service Stations	\$0	\$126,690	\$3,157,928	\$3,284,618
Eating and Drinking Establishments	\$0	\$265,041	\$4,391,710	\$4,656,751
All Other Retail Stores	\$0	\$120,562	\$8,019,150	\$8,139,712
Finance, Insurance and Real Estate	\$0	\$4,806,140	\$9,884,082	\$14,690,222
Services: Hotels and Lodging Places	\$0	\$602,611	\$1,346,016	\$1,948,627
Automobile Rental and Leasing	\$0	\$272,743	\$342,793	\$615,536
Amusement and Recreation Services, n.e.c.	\$0	\$2,873	\$791,199	\$794,072
All Other Service Industries	\$0	\$27,142,221	\$42,050,968	\$69,193,189
Government - State, Local, Federal	\$2,182,966	\$1,018,121	\$31,251,264	\$34,452,350
Total	\$113,230,590	\$54,592,182	\$134,953,202	\$302,775,974

Table 5.4-6, continued
Economic Contribution of Miami River Shipping to Southeast Florida, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$65,021	\$40,074	\$239,975	\$345,070
Commercial Fishing	\$0	\$377	\$2,054	\$2,430
Mining	\$0	\$8,423	\$9,643	\$18,066
Construction	\$839,262	\$71,155	\$1,448,431	\$2,358,848
Manufacturing: Food Products	\$0	\$17,561	\$308,762	\$326,323
Textiles	\$0	\$3,563	\$6,862	\$10,426
Apparel and Fabric Products	\$48,725	\$47,802	\$84,668	\$181,196
Lumber, Wood Products, Furniture, Paper and Allied Products	\$56,974	\$23,199	\$149,260	\$229,433
Printing, Publishing and Allied Products	\$0	\$464,695	\$213,002	\$677,698
Chemicals, Petroleum, Rubber and Leather Products	\$311,284	\$504,682	\$541,017	\$1,356,984
Ship Building and Repairing	\$46,750	\$695	\$143	\$47,588
Boat Building and Repairing	\$21,506	\$7,188	\$669	\$29,363
All other products	\$4,574,295	\$385,565	\$963,074	\$5,922,934
Transportation: Water Transportation	\$9,091,693	\$1,392,882	\$53,690	\$10,538,265
All Other Transportation	\$3,268,161	\$1,368,686	\$691,871	\$5,328,717
Communications, Electric, Gas and Sanitary Services	\$0	\$1,658,067	\$3,745,204	\$5,403,271
Wholesale Trade	\$16,361,742	\$1,240,110	\$2,347,288	\$19,949,140
Retail Trade: Food Stores	\$0	\$5,324	\$766,829	\$772,153
Automotive Dealers and Service Stations	\$0	\$42,631	\$1,062,631	\$1,105,261
Eating and Drinking Establishments	\$0	\$63,598	\$1,053,823	\$1,117,422
All Other Retail Stores	\$0	\$37,866	\$2,559,231	\$2,597,097
Finance, Insurance and Real Estate	\$0	\$5,010,609	\$24,689,502	\$29,700,110
Services: Hotels and Lodging Places	\$0	\$228,662	\$510,747	\$739,409
Automobile Rental and Leasing	\$0	\$249,496	\$313,563	\$563,059
Amusement and Recreation Services, n.e.c.	\$0	\$1,045	\$287,774	\$288,819
All Other Service Industries	\$0	\$3,020,745	\$4,377,567	\$7,398,312
Government - State, Local, Federal	\$633,035	\$51,753	\$5,926,515	\$6,611,303
Total	\$35,318,447	\$15,946,453	\$52,353,796	\$103,618,696

Table 5.4-6, continued
Economic Contribution of Miami River Shipping to Southeast Florida, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$9,023	\$5,265	\$27,023	\$41,311
Commercial Fishing	\$0	\$39	\$213	\$252
Mining	\$0	\$1,669	\$2,041	\$3,710
Construction	\$120,315	\$6,137	\$257,726	\$384,179
Manufacturing: Food Products	\$0	\$972	\$169,399	\$170,371
Textiles	\$0	\$884	\$1,221	\$2,106
Apparel and Fabric Products	\$5,187	\$3,879	\$8,080	\$17,145
Lumber, Wood Products, Furniture, Paper and Allied Products	\$3,060	\$2,379	\$15,472	\$20,911
Printing, Publishing and Allied Products	\$0	\$49,805	\$22,138	\$71,943
Chemicals, Petroleum, Rubber and Leather Products	\$25,833	\$15,329	\$25,215	\$66,377
Ship Building and Repairing	\$11,027	\$164	\$34	\$11,225
Boat Building and Repairing	\$3,681	\$1,230	\$114	\$5,025
All other products	\$306,965	\$39,962	\$92,706	\$439,633
Transportation: Water Transportation	\$2,953,548	\$452,495	\$17,442	\$3,423,485
All Other Transportation	\$1,919,467	\$273,042	\$199,248	\$2,391,757
Communications, Electric, Gas and Sanitary Services	\$0	\$387,246	\$917,879	\$1,305,125
Wholesale Trade	\$18,005,742	\$1,364,714	\$2,583,139	\$21,953,595
Retail Trade: Food Stores	\$0	\$5,482	\$789,577	\$795,058
Automotive Dealers and Service Stations	\$0	\$43,895	\$1,094,152	\$1,138,048
Eating and Drinking Establishments	\$0	\$45,857	\$759,847	\$805,704
All Other Retail Stores	\$0	\$38,989	\$2,635,148	\$2,674,137
Finance, Insurance and Real Estate	\$0	\$935,270	\$4,913,640	\$5,848,909
Services: Hotels and Lodging Places	\$0	\$106,955	\$238,899	\$345,854
Automobile Rental and Leasing	\$0	\$70,664	\$88,810	\$159,474
Amusement and Recreation Services, n.e.c.	\$0	\$379	\$104,476	\$104,856
All Other Service Industries	\$0	\$669,436	\$1,060,919	\$1,730,355
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$23,363,848	\$4,522,139	\$16,024,558	\$43,910,545

Table 5.4-6, continued
Economic Contribution of Miami River Shipping to Southeast Florida, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	4	7	28	38
Commercial Fishing	0	0	0	0
Mining	0	1	1	1
Construction	147	18	283	448
Manufacturing: Food Products	0	0	10	10
Textiles	0	1	1	2
Apparel and Fabric Products	9	5	11	25
Lumber, Wood Products, Furniture, Paper and Allied Products	2	3	18	23
Printing, Publishing and Allied Products	0	29	12	41
Chemicals, Petroleum, Rubber and Leather Products	6	3	11	21
Ship Building and Repairing	6	0	0	6
Boat Building and Repairing	3	1	0	4
All other products	105	21	37	163
Transportation: Water Transportation	552	85	3	639
All Other Transportation	381	152	64	597
Communications, Electric, Gas and Sanitary Services	0	30	36	66
Wholesale Trade	926	70	133	1,129
Retail Trade: Food Stores	0	1	131	132
Automotive Dealers and Service Stations	0	3	67	69
Eating and Drinking Establishments	0	14	234	248
All Other Retail Stores	0	5	349	354
Finance, Insurance and Real Estate	0	104	199	303
Services: Hotels and Lodging Places	0	19	42	60
Automobile Rental and Leasing	0	6	8	14
Amusement and Recreation Services, n.e.c.	0	0	45	46
All Other Service Industries	0	594	1,059	1,653
Government - State, Local, Federal	35	14	599	649
Total	2,177	1,185	3,379	6,741

**Table 5.4-7
Economic Contribution of Miami River Shipping to Florida, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$547,527	\$251,401	\$2,221,851	\$3,020,778
Commercial Fishing	\$0	\$1,635	\$9,604	\$11,239
Mining	\$0	\$253,049	\$383,596	\$636,645
Construction	\$18,133,994	\$1,587,636	\$41,177,529	\$60,899,159
Manufacturing: Food Products	\$0	\$105,177	\$3,344,320	\$3,449,498
Textiles	\$0	\$81,579	\$136,834	\$218,412
Apparel and Fabric Products	\$1,089,387	\$502,679	\$1,348,393	\$2,940,460
Lumber, Wood Products, Furniture, Paper and Allied Products	\$524,000	\$855,278	\$2,238,562	\$3,617,840
Printing, Publishing and Allied Products	\$0	\$4,785,817	\$2,256,087	\$7,041,905
Chemicals, Petroleum, Rubber and Leather Products	\$2,141,000	\$1,687,733	\$2,354,543	\$6,183,276
Ship Building and Repairing	\$975,398	\$53,284	\$12,049	\$1,040,731
Boat Building and Repairing	\$426,000	\$285,832	\$27,939	\$739,771
All other products	\$31,081,996	\$6,628,140	\$10,136,791	\$47,846,927
Transportation: Water Transportation	\$135,655,600	\$20,783,014	\$834,091	\$157,272,705
All Other Transportation	\$34,184,274	\$11,741,509	\$7,168,240	\$53,094,023
Communications, Electric, Gas and Sanitary Services	\$0	\$7,968,897	\$13,443,673	\$21,412,570
Wholesale Trade	\$125,843,000	\$10,191,852	\$18,053,684	\$154,088,536
Retail Trade: Food Stores	\$0	\$35,740	\$5,238,790	\$5,274,530
Automotive Dealers and Service Stations	\$0	\$295,500	\$7,431,004	\$7,726,504
Eating and Drinking Establishments	\$0	\$685,865	\$11,481,019	\$12,166,884
All Other Retail Stores	\$0	\$272,684	\$18,546,885	\$18,819,569
Finance, Insurance and Real Estate	\$0	\$17,126,381	\$61,075,360	\$78,201,741
Services: Hotels and Lodging Places	\$0	\$1,543,613	\$3,438,288	\$4,981,901
Automobile Rental and Leasing	\$0	\$894,514	\$1,124,234	\$2,018,748
Amusement and Recreation Services, n.e.c.	\$0	\$6,996	\$2,013,442	\$2,020,438
All Other Service Industries	\$0	\$50,262,428	\$82,041,197	\$132,303,625
Government - State, Local, Federal	\$2,816,000	\$2,456,266	\$49,536,033	\$54,808,299
Total	\$353,418,177	\$141,344,499	\$347,074,038	\$841,836,714

Table 5.4-7, continued
Economic Contribution of Miami River Shipping to Florida, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$256,362	\$103,009	\$899,658	\$1,259,030
Commercial Fishing	\$0	\$978	\$5,748	\$6,726
Mining	\$0	\$40,480	\$51,927	\$92,408
Construction	\$6,510,386	\$960,873	\$11,910,261	\$19,381,520
Manufacturing: Food Products	\$0	\$19,682	\$477,446	\$497,129
Textiles	\$0	\$18,114	\$31,858	\$49,972
Apparel and Fabric Products	\$266,694	\$196,024	\$338,976	\$801,694
Lumber, Wood Products, Furniture, Paper and Allied Products	\$98,219	\$213,944	\$610,209	\$922,372
Printing, Publishing and Allied Products	\$0	\$1,647,315	\$745,837	\$2,393,152
Chemicals, Petroleum, Rubber and Leather Products	\$428,034	\$239,476	\$535,676	\$1,203,186
Ship Building and Repairing	\$530,516	\$21,526	\$4,868	\$556,910
Boat Building and Repairing	\$151,286	\$92,967	\$9,087	\$253,340
All other products	\$8,966,084	\$1,759,501	\$2,592,529	\$13,318,114
Transportation: Water Transportation	\$24,123,882	\$3,695,870	\$148,326	\$27,968,078
All Other Transportation	\$16,907,818	\$5,939,819	\$2,681,940	\$25,529,577
Communications, Electric, Gas and Sanitary Services	\$0	\$2,302,435	\$3,092,490	\$5,394,925
Wholesale Trade	\$52,876,404	\$4,266,834	\$7,585,754	\$64,728,992
Retail Trade: Food Stores	\$0	\$21,252	\$3,115,028	\$3,136,279
Automotive Dealers and Service Stations	\$0	\$131,865	\$3,316,047	\$3,447,912
Eating and Drinking Establishments	\$0	\$271,824	\$4,550,181	\$4,822,005
All Other Retail Stores	\$0	\$132,920	\$8,874,822	\$9,007,742
Finance, Insurance and Real Estate	\$0	\$4,899,246	\$10,854,744	\$15,753,990
Services: Hotels and Lodging Places	\$0	\$620,775	\$1,382,732	\$2,003,507
Automobile Rental and Leasing	\$0	\$272,743	\$342,793	\$615,536
Amusement and Recreation Services, n.e.c.	\$0	\$2,873	\$886,350	\$889,223
All Other Service Industries	\$0	\$27,586,816	\$45,176,316	\$72,763,132
Government - State, Local, Federal	\$2,182,966	\$1,108,189	\$37,265,906	\$40,557,060
Total	\$113,298,651	\$56,567,350	\$147,487,508	\$317,353,509

Table 5.4-7, continued
Economic Contribution of Miami River Shipping to Florida, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$88,564	\$45,332	\$353,328	\$487,225
Commercial Fishing	\$0	\$504	\$2,959	\$3,463
Mining	\$0	\$57,114	\$88,452	\$145,567
Construction	\$839,262	\$83,184	\$1,448,431	\$2,370,877
Manufacturing: Food Products	\$0	\$17,561	\$325,277	\$342,838
Textiles	\$0	\$3,563	\$6,862	\$10,426
Apparel and Fabric Products	\$48,725	\$47,802	\$84,668	\$181,196
Lumber, Wood Products, Furniture, Paper and Allied Products	\$56,974	\$51,422	\$149,260	\$257,656
Printing, Publishing and Allied Products	\$0	\$486,737	\$237,625	\$724,362
Chemicals, Petroleum, Rubber and Leather Products	\$311,284	\$522,763	\$541,017	\$1,375,064
Ship Building and Repairing	\$46,750	\$1,897	\$429	\$49,076
Boat Building and Repairing	\$21,506	\$13,216	\$1,292	\$36,014
All other products	\$4,574,295	\$557,559	\$963,074	\$6,094,928
Transportation: Water Transportation	\$9,091,693	\$1,392,882	\$55,900	\$10,540,475
All Other Transportation	\$3,268,161	\$1,379,615	\$725,927	\$5,373,703
Communications, Electric, Gas and Sanitary Services	\$0	\$1,742,744	\$4,337,694	\$6,080,438
Wholesale Trade	\$16,361,742	\$1,320,326	\$2,347,288	\$20,029,355
Retail Trade: Food Stores	\$0	\$5,545	\$812,739	\$818,284
Automotive Dealers and Service Stations	\$0	\$44,373	\$1,115,868	\$1,160,241
Eating and Drinking Establishments	\$0	\$65,228	\$1,091,878	\$1,157,106
All Other Retail Stores	\$0	\$41,605	\$2,827,033	\$2,868,638
Finance, Insurance and Real Estate	\$0	\$5,161,066	\$26,049,902	\$31,210,968
Services: Hotels and Lodging Places	\$0	\$235,561	\$524,695	\$760,256
Automobile Rental and Leasing	\$0	\$249,496	\$313,563	\$563,059
Amusement and Recreation Services, n.e.c.	\$0	\$1,045	\$322,378	\$323,424
All Other Service Industries	\$0	\$3,020,745	\$4,639,279	\$7,660,024
Government - State, Local, Federal	\$633,035	\$130,433	\$8,683,591	\$9,447,059
Total	\$35,341,992	\$16,679,317	\$58,050,410	\$110,071,719

Table 5.4-7, continued
Economic Contribution of Miami River Shipping to Florida, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$12,291	\$5,850	\$46,068	\$64,208
Commercial Fishing	\$0	\$52	\$307	\$359
Mining	\$0	\$7,716	\$12,084	\$19,800
Construction	\$120,315	\$7,169	\$257,726	\$385,210
Manufacturing: Food Products	\$0	\$1,959	\$169,399	\$171,358
Textiles	\$0	\$884	\$1,221	\$2,106
Apparel and Fabric Products	\$5,187	\$3,879	\$8,080	\$17,145
Lumber, Wood Products, Furniture, Paper and Allied Products	\$3,060	\$7,729	\$17,534	\$28,322
Printing, Publishing and Allied Products	\$0	\$53,280	\$25,213	\$78,493
Chemicals, Petroleum, Rubber and Leather Products	\$25,833	\$15,616	\$25,215	\$66,664
Ship Building and Repairing	\$11,027	\$447	\$101	\$11,576
Boat Building and Repairing	\$3,681	\$2,262	\$221	\$6,163
All other products	\$306,965	\$53,652	\$92,706	\$453,323
Transportation: Water Transportation	\$2,953,548	\$452,495	\$18,160	\$3,424,203
All Other Transportation	\$1,919,467	\$276,017	\$204,679	\$2,400,163
Communications, Electric, Gas and Sanitary Services	\$0	\$418,367	\$1,083,996	\$1,502,363
Wholesale Trade	\$18,005,742	\$1,452,989	\$2,583,139	\$22,041,870
Retail Trade: Food Stores	\$0	\$5,709	\$836,849	\$842,558
Automotive Dealers and Service Stations	\$0	\$45,690	\$1,148,969	\$1,194,658
Eating and Drinking Establishments	\$0	\$47,032	\$787,286	\$834,318
All Other Retail Stores	\$0	\$42,839	\$2,910,894	\$2,953,733
Finance, Insurance and Real Estate	\$0	\$961,244	\$5,174,924	\$6,136,168
Services: Hotels and Lodging Places	\$0	\$110,182	\$245,423	\$355,605
Automobile Rental and Leasing	\$0	\$70,664	\$88,810	\$159,474
Amusement and Recreation Services, n.e.c.	\$0	\$379	\$117,040	\$117,419
All Other Service Industries	\$0	\$673,993	\$1,142,655	\$1,816,648
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$23,367,116	\$4,718,095	\$16,998,697	\$45,083,907

Table 5.4-7, continued
Economic Contribution of Miami River Shipping to Florida, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	5	8	44	57
Commercial Fishing	0	0	0	1
Mining	0	1	2	4
Construction	151	23	306	480
Manufacturing: Food Products	0	0	12	13
Textiles	0	1	1	2
Apparel and Fabric Products	10	6	11	26
Lumber, Wood Products, Furniture, Paper and Allied Products	2	5	15	23
Printing, Publishing and Allied Products	0	37	17	54
Chemicals, Petroleum, Rubber and Leather Products	6	4	8	18
Ship Building and Repairing	8	0	0	9
Boat Building and Repairing	3	2	0	6
All other products	130	36	42	209
Transportation: Water Transportation	552	84	3	639
All Other Transportation	399	165	73	637
Communications, Electric, Gas and Sanitary Services	0	31	43	74
Wholesale Trade	869	84	146	1,098
Retail Trade: Food Stores	0	1	143	144
Automotive Dealers and Service Stations	0	3	81	85
Eating and Drinking Establishments	0	16	260	275
All Other Retail Stores	0	6	412	418
Finance, Insurance and Real Estate	0	120	245	366
Services: Hotels and Lodging Places	0	22	48	70
Automobile Rental and Leasing	0	7	10	16
Amusement and Recreation Services, n.e.c.	0	0	45	45
All Other Service Industries	0	679	1,236	1,915
Government - State, Local, Federal	42	17	763	822
Total	2,117	1,358	3,967	7,502

5.0 Miami-Dade County Shipping Industry

The only available historic data regarding the Miami River shipping industry is the short tons of imports and exports through the Miami River from 1979 to 2002 obtained from the U.S. Army Corps of Engineers Jacksonville District. A plot of this data is provided in Figure 5.4-1 and these data are also presented in Table 5.4-8. The plot of imports and exports shows a steady upward trend until 1998 and 1999 when imports fall by 30 percent and 32 percent, respectively. Shipping recovers in 2000 and falls again in 2001 and 2002.

The historic trends in the economic contribution of the Miami River were estimated using the 2004 values presented above and changing them each year from 1980 to 2003 using the trend in import and export tonnage through the River. Because tonnage data are not available for the years 2003 and 2004, the economic contribution in 2002 and 2003 is held constant at the 2004 levels.

The direct, indirect and induced economic contribution of the Miami River shipping industry in terms of output, income (labor and other property type), indirect businesses taxes and employment in Miami-Dade County, southeast Florida and Florida are provided in Tables 5.4-9 through 5.4-20.

Figure 5.4-1
Historic Short Tons of Imports and Exports Through the Miami River, 1979 to 2002

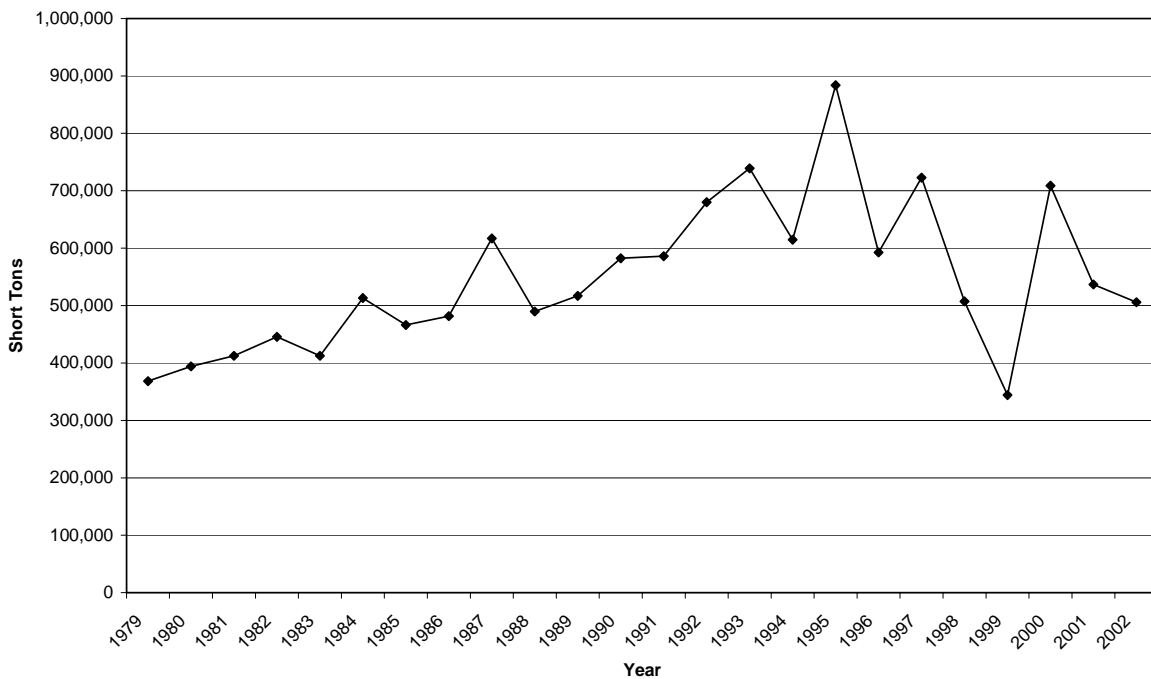


Table 5.4-8
Short Tons of Imports and Exports Through the Miami River, 1979 to 2002

Year	Short Tons	% Change from Previous Year	Year	Short Tons	% Change from Previous Year
1979	368,458		1991	586,000	0.7%
1980	394,391	7.0%	1992	680,000	16.0%
1981	412,707	4.6%	1993	739,000	8.7%
1982	445,803	8.0%	1994	615,000	-16.8%
1983	412,424	-7.5%	1995	884,000	43.7%
1984	513,538	24.5%	1996	593,000	-32.9%
1985	466,132	-9.2%	1997	723,000	21.9%
1986	481,473	3.3%	1998	507,000	-29.9%
1987	617,270	28.2%	1999	344,000	-32.1%
1988	489,461	-20.7%	2000	709,000	106.1%
1989	517,000	5.6%	2001	537,000	-24.3%
1990	582,000	12.6%	2002	506,000	-5.8%

Source: Department of the Army, Corps of Engineers, Institute for Water Resources, "Waterborne Commerce of the United States, Part 1 - Waterways and Harbors, Atlantic Coast", Calendar Years 1988, 1998 and 2002, IWR-WCUS-02-1, pages 188 (2002) and 233 (1998) and 136 (1988), Waterborne Commerce Statistics Center, New Orleans, LA.

Table 5.4-9
Historic Economic Contribution of Miami River Shipping to
Miami-Dade County, 1980 to 2004
Output in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$245,164,000	\$90,691,000	\$196,137,000	\$531,992,000
1981	\$256,550,000	\$94,903,000	\$205,246,000	\$556,699,000
1982	\$277,123,000	\$102,513,000	\$221,705,000	\$601,341,000
1983	\$256,374,000	\$94,837,000	\$205,105,000	\$556,316,000
1984	\$319,229,000	\$118,088,000	\$255,390,000	\$692,707,000
1985	\$289,760,000	\$107,187,000	\$231,814,000	\$628,761,000
1986	\$299,296,000	\$110,715,000	\$239,443,000	\$649,454,000
1987	\$383,711,000	\$141,942,000	\$306,977,000	\$832,630,000
1988	\$304,262,000	\$112,552,000	\$243,416,000	\$660,230,000
1989	\$321,381,000	\$118,885,000	\$257,112,000	\$697,378,000
1990	\$361,787,000	\$133,832,000	\$289,437,000	\$785,056,000
1991	\$364,274,000	\$134,752,000	\$291,426,000	\$790,452,000
1992	\$422,707,000	\$156,368,000	\$338,173,000	\$917,248,000
1993	\$459,383,000	\$169,935,000	\$367,515,000	\$996,833,000
1994	\$382,301,000	\$141,421,000	\$305,848,000	\$829,570,000
1995	\$549,519,000	\$203,278,000	\$439,625,000	\$1,192,422,000
1996	\$368,625,000	\$136,362,000	\$294,907,000	\$799,894,000
1997	\$449,436,000	\$166,256,000	\$359,558,000	\$975,250,000
1998	\$315,165,000	\$116,586,000	\$252,138,000	\$683,889,000
1999	\$213,840,000	\$79,104,000	\$171,076,000	\$464,020,000
2000	\$440,734,000	\$163,037,000	\$352,595,000	\$956,366,000
2001	\$333,814,000	\$123,485,000	\$267,057,000	\$724,356,000
2002	\$314,544,000	\$116,356,000	\$251,640,000	\$682,540,000
2003	\$314,544,000	\$116,356,000	\$251,640,000	\$682,540,000
2004	\$314,544,000	\$116,356,000	\$251,640,000	\$682,540,000

Table 5.4-10
Historic Economic Contribution of Miami River Shipping to
Miami-Dade County, 1980 to 2004
Income in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$100,949,000	\$46,373,000	\$116,817,000	\$264,139,000
1981	\$105,637,000	\$48,527,000	\$122,242,000	\$276,406,000
1982	\$114,108,000	\$52,418,000	\$132,045,000	\$298,571,000
1983	\$105,564,000	\$48,493,000	\$122,158,000	\$276,215,000
1984	\$131,445,000	\$60,382,000	\$152,107,000	\$343,934,000
1985	\$119,311,000	\$54,808,000	\$138,066,000	\$312,185,000
1986	\$123,238,000	\$56,612,000	\$142,610,000	\$322,460,000
1987	\$157,997,000	\$72,579,000	\$182,832,000	\$413,408,000
1988	\$125,283,000	\$57,551,000	\$144,976,000	\$327,810,000
1989	\$132,332,000	\$60,789,000	\$153,133,000	\$346,254,000
1990	\$148,970,000	\$68,432,000	\$172,386,000	\$389,788,000
1991	\$149,994,000	\$68,902,000	\$173,571,000	\$392,467,000
1992	\$174,054,000	\$79,954,000	\$201,413,000	\$455,421,000
1993	\$189,156,000	\$86,891,000	\$218,889,000	\$494,936,000
1994	\$157,417,000	\$72,311,000	\$182,161,000	\$411,889,000
1995	\$226,271,000	\$103,939,000	\$261,838,000	\$592,048,000
1996	\$151,786,000	\$69,724,000	\$175,645,000	\$397,155,000
1997	\$185,061,000	\$85,009,000	\$214,151,000	\$484,221,000
1998	\$129,773,000	\$59,612,000	\$150,172,000	\$339,557,000
1999	\$88,051,000	\$40,447,000	\$101,892,000	\$230,390,000
2000	\$181,478,000	\$83,364,000	\$210,005,000	\$474,847,000
2001	\$137,452,000	\$63,140,000	\$159,059,000	\$359,651,000
2002	\$129,517,000	\$59,495,000	\$149,877,000	\$338,889,000
2003	\$129,517,000	\$59,495,000	\$149,877,000	\$338,889,000
2004	\$129,517,000	\$59,495,000	\$149,877,000	\$338,889,000

**Table 5.4-11
Historic Economic Contribution of Miami River Shipping to
Miami-Dade County, 1980 to 2004
Indirect Business Taxes in 2004 Dollars**

Year	Direct	Indirect	Induced	Total
1980	\$16,758,000	\$2,926,000	\$9,426,000	\$29,110,000
1981	\$17,536,000	\$3,062,000	\$9,864,000	\$30,462,000
1982	\$18,942,000	\$3,308,000	\$10,655,000	\$32,905,000
1983	\$17,524,000	\$3,060,000	\$9,857,000	\$30,441,000
1984	\$21,820,000	\$3,810,000	\$12,274,000	\$37,904,000
1985	\$19,806,000	\$3,458,000	\$11,141,000	\$34,405,000
1986	\$20,458,000	\$3,572,000	\$11,508,000	\$35,538,000
1987	\$26,228,000	\$4,579,000	\$14,754,000	\$45,561,000
1988	\$20,797,000	\$3,631,000	\$11,699,000	\$36,127,000
1989	\$21,967,000	\$3,835,000	\$12,357,000	\$38,159,000
1990	\$24,729,000	\$4,317,000	\$13,911,000	\$42,957,000
1991	\$24,899,000	\$4,347,000	\$14,007,000	\$43,253,000
1992	\$28,893,000	\$5,044,000	\$16,254,000	\$50,191,000
1993	\$31,400,000	\$5,482,000	\$17,664,000	\$54,546,000
1994	\$26,131,000	\$4,562,000	\$14,700,000	\$45,393,000
1995	\$37,560,000	\$6,558,000	\$21,130,000	\$65,248,000
1996	\$25,196,000	\$4,399,000	\$14,174,000	\$43,769,000
1997	\$30,720,000	\$5,363,000	\$17,281,000	\$53,364,000
1998	\$21,542,000	\$3,761,000	\$12,118,000	\$37,421,000
1999	\$14,616,000	\$2,552,000	\$8,222,000	\$25,390,000
2000	\$30,125,000	\$5,259,000	\$16,945,000	\$52,329,000
2001	\$22,817,000	\$3,983,000	\$12,834,000	\$39,634,000
2002	\$21,500,000	\$3,753,000	\$12,093,000	\$37,346,000
2003	\$21,500,000	\$3,753,000	\$12,093,000	\$37,346,000
2004	\$21,500,000	\$3,753,000	\$12,093,000	\$37,346,000

Table 5.4-12
Historic Economic Contribution of Miami River Shipping to
Miami-Dade County, 1980 to 2004
Employment, Number of Full- and Part-Time Jobs

Year	Direct	Indirect	Induced	Total
1980	1,617	883	2,259	4,760
1981	1,693	924	2,364	4,981
1982	1,828	998	2,553	5,380
1983	1,691	924	2,362	4,977
1984	2,106	1,150	2,941	6,197
1985	1,912	1,044	2,670	5,625
1986	1,975	1,078	2,758	5,810
1987	2,532	1,382	3,535	7,449
1988	2,007	1,096	2,803	5,907
1989	2,120	1,158	2,961	6,239
1990	2,387	1,303	3,333	7,024
1991	2,403	1,312	3,356	7,072
1992	2,789	1,523	3,895	8,206
1993	3,031	1,655	4,233	8,918
1994	2,522	1,377	3,522	7,422
1995	3,625	1,980	5,063	10,668
1996	2,432	1,328	3,396	7,156
1997	2,965	1,619	4,141	8,725
1998	2,079	1,135	2,904	6,119
1999	1,411	770	1,970	4,151
2000	2,908	1,588	4,061	8,556
2001	2,202	1,203	3,076	6,481
2002	2,075	1,133	2,898	6,106
2003	2,075	1,133	2,898	6,106
2004	2,075	1,133	2,898	6,106

Table 5.4-13
Historic Economic Contribution of Miami River Shipping to
Southeast Florida, 1980 to 2004
Output in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$275,463,000	\$103,744,000	\$248,083,000	\$627,290,000
1981	\$288,256,000	\$108,562,000	\$259,604,000	\$656,422,000
1982	\$311,372,000	\$117,268,000	\$280,422,000	\$709,062,000
1983	\$288,058,000	\$108,488,000	\$259,426,000	\$655,972,000
1984	\$358,681,000	\$135,086,000	\$323,029,000	\$816,796,000
1985	\$325,570,000	\$122,616,000	\$293,209,000	\$741,395,000
1986	\$336,285,000	\$126,651,000	\$302,859,000	\$765,795,000
1987	\$431,133,000	\$162,372,000	\$388,279,000	\$981,784,000
1988	\$341,865,000	\$128,752,000	\$307,884,000	\$778,501,000
1989	\$361,100,000	\$135,996,000	\$325,207,000	\$822,303,000
1990	\$406,499,000	\$153,094,000	\$366,094,000	\$925,687,000
1991	\$409,293,000	\$154,146,000	\$368,610,000	\$932,049,000
1992	\$474,948,000	\$178,872,000	\$427,738,000	\$1,081,558,000
1993	\$516,157,000	\$194,392,000	\$464,851,000	\$1,175,400,000
1994	\$429,549,000	\$161,774,000	\$386,852,000	\$978,175,000
1995	\$617,433,000	\$232,534,000	\$556,060,000	\$1,406,027,000
1996	\$414,183,000	\$155,987,000	\$373,013,000	\$943,183,000
1997	\$504,982,000	\$190,183,000	\$454,786,000	\$1,149,951,000
1998	\$354,116,000	\$133,365,000	\$318,916,000	\$806,397,000
1999	\$240,268,000	\$90,488,000	\$216,385,000	\$547,141,000
2000	\$495,204,000	\$186,500,000	\$445,979,000	\$1,127,683,000
2001	\$375,070,000	\$141,256,000	\$337,787,000	\$854,113,000
2002	\$353,418,000	\$133,102,000	\$318,287,000	\$804,807,000
2003	\$353,418,000	\$133,102,000	\$318,287,000	\$804,807,000
2004	\$353,418,000	\$133,102,000	\$318,287,000	\$804,807,000

Table 5.4-14
Historic Economic Contribution of Miami River Shipping to
Southeast Florida, 1980 to 2004
Income in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$115,783,000	\$54,980,000	\$145,993,000	\$316,756,000
1981	\$121,160,000	\$57,533,000	\$152,773,000	\$331,466,000
1982	\$130,876,000	\$62,147,000	\$165,024,000	\$358,047,000
1983	\$121,077,000	\$57,494,000	\$152,668,000	\$331,239,000
1984	\$150,761,000	\$71,590,000	\$190,097,000	\$412,448,000
1985	\$136,844,000	\$64,981,000	\$172,549,000	\$374,374,000
1986	\$141,348,000	\$67,120,000	\$178,228,000	\$386,696,000
1987	\$181,214,000	\$86,051,000	\$228,496,000	\$495,761,000
1988	\$143,693,000	\$68,234,000	\$181,185,000	\$393,112,000
1989	\$151,778,000	\$72,073,000	\$191,379,000	\$415,230,000
1990	\$170,860,000	\$81,134,000	\$215,440,000	\$467,434,000
1991	\$172,034,000	\$81,692,000	\$216,921,000	\$470,647,000
1992	\$199,630,000	\$94,796,000	\$251,717,000	\$546,143,000
1993	\$216,951,000	\$103,021,000	\$273,557,000	\$593,529,000
1994	\$180,548,000	\$85,735,000	\$227,656,000	\$493,939,000
1995	\$259,520,000	\$123,235,000	\$327,232,000	\$709,987,000
1996	\$174,090,000	\$82,668,000	\$219,512,000	\$476,270,000
1997	\$212,255,000	\$100,791,000	\$267,634,000	\$580,680,000
1998	\$148,843,000	\$70,679,000	\$187,677,000	\$407,199,000
1999	\$100,990,000	\$47,956,000	\$127,339,000	\$276,285,000
2000	\$208,145,000	\$98,839,000	\$262,451,000	\$569,435,000
2001	\$157,650,000	\$74,861,000	\$198,782,000	\$431,293,000
2002	\$148,549,000	\$70,539,000	\$187,307,000	\$406,395,000
2003	\$148,549,000	\$70,539,000	\$187,307,000	\$406,395,000
2004	\$148,549,000	\$70,539,000	\$187,307,000	\$406,395,000

**Table 5.4-15
Historic Economic Contribution of Miami River Shipping to
Southeast Florida, 1980 to 2004
Indirect Business Taxes in 2004 Dollars**

Year	Direct	Indirect	Induced	Total
1980	\$18,211,000	\$3,523,000	\$12,489,000	\$34,223,000
1981	\$19,057,000	\$3,687,000	\$13,069,000	\$35,813,000
1982	\$20,585,000	\$3,983,000	\$14,117,000	\$38,685,000
1983	\$19,044,000	\$3,685,000	\$13,060,000	\$35,789,000
1984	\$23,713,000	\$4,589,000	\$16,262,000	\$44,564,000
1985	\$21,524,000	\$4,165,000	\$14,761,000	\$40,450,000
1986	\$22,232,000	\$4,302,000	\$15,247,000	\$41,781,000
1987	\$28,503,000	\$5,515,000	\$19,547,000	\$53,565,000
1988	\$22,601,000	\$4,373,000	\$15,500,000	\$42,474,000
1989	\$23,873,000	\$4,619,000	\$16,372,000	\$44,864,000
1990	\$26,874,000	\$5,200,000	\$18,430,000	\$50,504,000
1991	\$27,059,000	\$5,236,000	\$18,557,000	\$50,852,000
1992	\$31,399,000	\$6,076,000	\$21,534,000	\$59,009,000
1993	\$34,123,000	\$6,603,000	\$23,402,000	\$64,128,000
1994	\$28,397,000	\$5,495,000	\$19,475,000	\$53,367,000
1995	\$40,818,000	\$7,899,000	\$27,994,000	\$76,711,000
1996	\$27,381,000	\$5,299,000	\$18,779,000	\$51,459,000
1997	\$33,383,000	\$6,461,000	\$22,896,000	\$62,740,000
1998	\$23,410,000	\$4,531,000	\$16,056,000	\$43,997,000
1999	\$15,884,000	\$3,074,000	\$10,894,000	\$29,852,000
2000	\$32,737,000	\$6,336,000	\$22,454,000	\$61,527,000
2001	\$24,795,000	\$4,799,000	\$17,007,000	\$46,601,000
2002	\$23,364,000	\$4,522,000	\$16,025,000	\$43,911,000
2003	\$23,364,000	\$4,522,000	\$16,025,000	\$43,911,000
2004	\$23,364,000	\$4,522,000	\$16,025,000	\$43,911,000

Table 5.4-16
Historic Economic Contribution of Miami River Shipping to
Southeast Florida, 1980 to 2004
Employment, Number of Full- and Part-Time Jobs

Year	Direct	Indirect	Induced	Total
1980	1,697	924	2,634	5,254
1981	1,775	966	2,756	5,498
1982	1,918	1,044	2,977	5,939
1983	1,774	966	2,754	5,494
1984	2,209	1,203	3,430	6,841
1985	2,005	1,092	3,113	6,210
1986	2,071	1,127	3,215	6,414
1987	2,655	1,446	4,122	8,223
1988	2,105	1,146	3,269	6,520
1989	2,224	1,211	3,453	6,887
1990	2,504	1,363	3,887	7,753
1991	2,521	1,372	3,913	7,807
1992	2,925	1,592	4,541	9,059
1993	3,179	1,731	4,935	9,845
1994	2,646	1,440	4,107	8,193
1995	3,803	2,070	5,904	11,776
1996	2,551	1,389	3,960	7,900
1997	3,110	1,693	4,828	9,632
1998	2,181	1,187	3,386	6,754
1999	1,480	806	2,297	4,583
2000	3,050	1,660	4,735	9,445
2001	2,310	1,258	3,586	7,154
2002	2,177	1,185	3,379	6,741
2003	2,177	1,185	3,379	6,741
2004	2,177	1,185	3,379	6,741

Table 5.4-17
Historic Economic Contribution of Miami River Shipping to Florida
1980 to 2004
Output in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$275,463,000	\$110,167,000	\$270,518,000	\$656,148,000
1981	\$288,256,000	\$115,283,000	\$283,081,000	\$686,620,000
1982	\$311,372,000	\$124,528,000	\$305,782,000	\$741,682,000
1983	\$288,058,000	\$115,204,000	\$282,887,000	\$686,149,000
1984	\$358,681,000	\$143,448,000	\$352,243,000	\$854,372,000
1985	\$325,570,000	\$130,206,000	\$319,727,000	\$775,503,000
1986	\$336,285,000	\$134,491,000	\$330,250,000	\$801,026,000
1987	\$431,133,000	\$172,423,000	\$423,395,000	\$1,026,951,000
1988	\$341,865,000	\$136,722,000	\$335,729,000	\$814,316,000
1989	\$361,100,000	\$144,415,000	\$354,618,000	\$860,133,000
1990	\$406,499,000	\$162,572,000	\$399,203,000	\$968,274,000
1991	\$409,293,000	\$163,689,000	\$401,947,000	\$974,929,000
1992	\$474,948,000	\$189,946,000	\$466,423,000	\$1,131,317,000
1993	\$516,157,000	\$206,427,000	\$506,892,000	\$1,229,476,000
1994	\$429,549,000	\$171,790,000	\$421,838,000	\$1,023,177,000
1995	\$617,433,000	\$246,931,000	\$606,349,000	\$1,470,713,000
1996	\$414,183,000	\$165,645,000	\$406,748,000	\$986,576,000
1997	\$504,982,000	\$201,958,000	\$495,917,000	\$1,202,857,000
1998	\$354,116,000	\$141,622,000	\$347,759,000	\$843,497,000
1999	\$240,268,000	\$96,091,000	\$235,955,000	\$572,314,000
2000	\$495,204,000	\$198,049,000	\$486,315,000	\$1,179,568,000
2001	\$375,070,000	\$150,003,000	\$368,337,000	\$893,410,000
2002	\$353,418,000	\$141,344,000	\$347,074,000	\$841,836,000
2003	\$353,418,000	\$141,344,000	\$347,074,000	\$841,836,000
2004	\$353,418,000	\$141,344,000	\$347,074,000	\$841,836,000

Table 5.4-18
Historic Economic Contribution of Miami River Shipping to Florida
1980 to 2004
Income in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$115,783,000	\$57,090,000	\$160,200,000	\$333,073,000
1981	\$121,160,000	\$59,741,000	\$167,640,000	\$348,541,000
1982	\$130,876,000	\$64,532,000	\$181,084,000	\$376,492,000
1983	\$121,077,000	\$59,700,000	\$167,526,000	\$348,303,000
1984	\$150,761,000	\$74,337,000	\$208,598,000	\$433,696,000
1985	\$136,844,000	\$67,475,000	\$189,342,000	\$393,661,000
1986	\$141,348,000	\$69,696,000	\$195,574,000	\$406,618,000
1987	\$181,214,000	\$89,354,000	\$250,735,000	\$521,303,000
1988	\$143,693,000	\$70,853,000	\$198,819,000	\$413,365,000
1989	\$151,778,000	\$74,839,000	\$210,005,000	\$436,622,000
1990	\$170,860,000	\$84,248,000	\$236,408,000	\$491,516,000
1991	\$172,034,000	\$84,827,000	\$238,033,000	\$494,894,000
1992	\$199,630,000	\$98,434,000	\$276,216,000	\$574,280,000
1993	\$216,951,000	\$106,975,000	\$300,182,000	\$624,108,000
1994	\$180,548,000	\$89,025,000	\$249,813,000	\$519,386,000
1995	\$259,520,000	\$127,964,000	\$359,081,000	\$746,565,000
1996	\$174,090,000	\$85,840,000	\$240,877,000	\$500,807,000
1997	\$212,255,000	\$104,658,000	\$293,683,000	\$610,596,000
1998	\$148,843,000	\$73,391,000	\$205,944,000	\$428,178,000
1999	\$100,990,000	\$49,796,000	\$139,733,000	\$290,519,000
2000	\$208,145,000	\$102,632,000	\$287,997,000	\$598,774,000
2001	\$157,650,000	\$77,734,000	\$218,130,000	\$453,514,000
2002	\$148,549,000	\$73,247,000	\$205,538,000	\$427,334,000
2003	\$148,549,000	\$73,247,000	\$205,538,000	\$427,334,000
2004	\$148,549,000	\$73,247,000	\$205,538,000	\$427,334,000

Table 5.4-19
Historic Economic Contribution of Miami River Shipping to Florida
1980 to 2004
Indirect Business Taxes in 2004 Dollars

Year	Direct	Indirect	Induced	Total
1980	\$18,211,000	\$3,677,000	\$13,250,000	\$35,138,000
1981	\$19,057,000	\$3,848,000	\$13,865,000	\$36,770,000
1982	\$20,585,000	\$4,157,000	\$14,977,000	\$39,719,000
1983	\$19,044,000	\$3,846,000	\$13,856,000	\$36,746,000
1984	\$23,713,000	\$4,789,000	\$17,253,000	\$45,755,000
1985	\$21,524,000	\$4,347,000	\$15,660,000	\$41,531,000
1986	\$22,232,000	\$4,490,000	\$16,175,000	\$42,897,000
1987	\$28,503,000	\$5,756,000	\$20,737,000	\$54,996,000
1988	\$22,601,000	\$4,564,000	\$16,443,000	\$43,608,000
1989	\$23,873,000	\$4,821,000	\$17,368,000	\$46,062,000
1990	\$26,874,000	\$5,427,000	\$19,552,000	\$51,853,000
1991	\$27,059,000	\$5,464,000	\$19,686,000	\$52,209,000
1992	\$31,399,000	\$6,341,000	\$22,844,000	\$60,584,000
1993	\$34,123,000	\$6,891,000	\$24,826,000	\$65,840,000
1994	\$28,397,000	\$5,735,000	\$20,660,000	\$54,792,000
1995	\$40,818,000	\$8,244,000	\$29,697,000	\$78,759,000
1996	\$27,381,000	\$5,530,000	\$19,921,000	\$52,832,000
1997	\$33,383,000	\$6,742,000	\$24,288,000	\$64,413,000
1998	\$23,410,000	\$4,728,000	\$17,032,000	\$45,170,000
1999	\$15,884,000	\$3,208,000	\$11,556,000	\$30,648,000
2000	\$32,737,000	\$6,611,000	\$23,818,000	\$63,166,000
2001	\$24,795,000	\$5,007,000	\$18,040,000	\$47,842,000
2002	\$23,364,000	\$4,718,000	\$16,999,000	\$45,081,000
2003	\$23,364,000	\$4,718,000	\$16,999,000	\$45,081,000
2004	\$23,364,000	\$4,718,000	\$16,999,000	\$45,081,000

Table 5.4-20
Historic Economic Contribution of Miami River Shipping to Florida
1980 to 2004
Employment, Number of Full- and Part-Time Jobs

Year	Direct	Indirect	Induced	Total
1980	1,697	1,058	3,092	5,847
1981	1,775	1,107	3,236	6,119
1982	1,918	1,196	3,495	6,609
1983	1,774	1,107	3,234	6,114
1984	2,209	1,378	4,027	7,614
1985	2,005	1,251	3,655	6,911
1986	2,071	1,292	3,775	7,138
1987	2,655	1,656	4,840	9,151
1988	2,105	1,313	3,838	7,257
1989	2,224	1,387	4,054	7,665
1990	2,504	1,562	4,563	8,629
1991	2,521	1,572	4,595	8,688
1992	2,925	1,825	5,332	10,081
1993	3,179	1,983	5,794	10,956
1994	2,646	1,650	4,822	9,118
1995	3,803	2,372	6,931	13,106
1996	2,551	1,591	4,650	8,792
1997	3,110	1,940	5,669	10,719
1998	2,181	1,360	3,975	7,517
1999	1,480	923	2,697	5,100
2000	3,050	1,902	5,559	10,511
2001	2,310	1,441	4,210	7,961
2002	2,177	1,358	3,967	7,502
2003	2,177	1,358	3,967	7,502
2004	2,177	1,358	3,967	7,502

6.0 Marine-Related Businesses in Miami-Dade County

This section provides estimates of the number, sales and employment of all marine-related businesses in Miami-Dade County and the local study area. The types of businesses included in this section are boat dealers, boat manufacturers, boat parts manufacturers, shipping companies, and the like regardless of whether none, some or all of their sales are dependent on Biscayne Bay. This section does not include non-marine businesses that benefit from Biscayne Bay such as hotels and restaurants.

The type of information provided in this section differs from the types of information provided in other sections of this report. In Sections 2 through 5 and Section 7 of this report, the direct, indirect and induced output, income, employment and tax revenues of all types of businesses that benefit from the uses of Biscayne Bay are provided. This Section 6 includes some of the direct industries and none of the indirect and induced industries that benefit from Biscayne Bay. Also, a portion of the sales associated with the businesses included in Section 6 exist due to factors not related to Biscayne Bay such the existence of the Atlantic Ocean, the local income generated from local export industries, and sales generated due to the competitive advantage of the goods and services (better value for the money). In summary, the values provided in Section 6 are not comparable those reported in Sections 2 through 5 and Section 7.

Miami-Dade County supports a wide variety of marine-related businesses. These businesses include shipping companies and agencies, ship terminals, freight-forwarders, boat manufacturers and dealers, boating equipment manufacturers and retail stores, marinas, boat repair businesses, and boat charter businesses, among others.

The number of businesses, current sales and employment data of businesses in Miami-Dade County were obtained from InfoUSA, Inc. This company provided a database of all businesses in Miami-Dade County that includes location and mailing addresses, contact name, phone number, type of business, sales and employment at the location, and credit rating. These businesses were geocoded and mapped to their locations within the county. From this database, businesses were identified that could be impacted by the existence and management of the Bay.

The data provided by InfoUSA was obtained from telephone interviews and economic models. The InfoUSA database was compared to the county's GIS database to identify data discrepancies. The business type of a sample of the businesses from the InfoUSA database was compared to the land use designation (CLUC or County Land Use Code) in the county's database. The business types of the businesses from InfoUSA were found to be consistent with the land use in the county's database.

For many of the businesses in the InfoUSA database, a standard sales per employee value is used to calculate either the sales or the number of employees of a business. The value of the sales per employee depends on the Standard Industrial Classification (SIC) code assigned to that business. These values appear to be consistent with the U.S. Economic Census data for Florida compiled and reported by the U.S. Census.

6.0 Marine-Related Businesses in Miami-Dade County

From the knowledge of project team members and experts who were asked to review the InfoUSA database, it was found that some businesses were missing. These businesses were added to the database and estimates of sales and employment were made using the information on similar businesses in the county.

Marine related businesses located in Miami-Dade County and the local study area were identified using the updated InfoUSA database and the county's GIS database. The local study area was further subdivided into the Miami River subarea and the Biscayne Bay subarea. For each geographic area, the number of businesses, employees, and annual sales by Standard Industrial Classification (SIC) Code were calculated.

The data used to identify marine-related businesses in Miami-Dade County originated from two sources:

- Geographical information system (GIS) data obtained from Miami-Dade County, November 2003; the GIS data included standard Public Access data such as roadways, municipal boundaries, and waterways, land use, property data such as folio number, historical property sales information, and zoning information.
- InfoUSA Business Database, obtained from InfoUSA, Inc., Omaha, Nebraska. The data represent conditions as they existed on March 2004.

The lists of marine-related businesses and associated data were developed through the following steps:

1. A GIS file of the local study area was created and subdivided into Biscayne Bay and the Miami River. The Biscayne Bay subarea includes the entire local study area except for a corridor along the Miami River extending one-fourth mile on either side of the River from its mouth to NW 36th Street, the navigable terminus of the River. This excluded area is the Miami River subarea.
2. Using the InfoUSA business database, marine-related businesses were identified by searching their SIC descriptions for key words that represent a marine-related business. Table 6-1 lists the key words used to select the SICs. The SICs represented by the identified marine-related businesses are provided in Table 6-2.

For the Miami River subarea, the following key words were added to the marine-related business search: container, liner, charter and towing. This was done because any shipping business along the Miami River is very likely at that location because the river is the primary shipping route for these businesses.

6.0 Marine-Related Businesses in Miami-Dade County

Table 6-1
Words Used to Select Marine Related Standard Industrial Classification Codes (SICs)

Boat	Nautical	Steamship
Dive	Outboard	Stevedoring
Dock	Propeller	Terminal
Fish	Sail	Vessel
Life preserver	Seafood	Watercraft
Marina	Shipping	Yacht
Marine	Shrimp	Freight Forwarding

Table 6-2
Marine Related Business Sectors by Standard Industrial Classification (SIC) and Groups

SIC #	Business Sector Description	SIC #	Business Sector Description
209298	Prepared Fish & Seafood Products (Mfr)	509107	Fishing Tackle-Wholesale
9801	Fish Nets-Manufacturers	509134	Fishermens Supplies-Wholesale
239404	Boat Covers Tops & Upholstery-Mfrs	509146	Divers Equipment & Supplies-Wholesale
306922	Life Preservers-Manufacturers	514601	Seafood-Wholesale
336607	Propellers-Mfrs	519905	Fishing Bait-Wholesale
342908	Hardware-Marine-Manufacturers	519939	Tropical Fish-Wholesale
353602	Boat Lifts	519983	Shells-Marine-Wholesale
358512	Marine Refrigeration & Air Cond-Mfrs	555115	Life Preservers
373201	Boats-Manufacturers	449102	Docks (Facility)
373202	Boat Equipment & Supplies-Manufacturers	449302	Boat Storage
373204	Marine Equipment & Supplies-Mfrs	449306	Marinas
373298	Boat Part-Used & Rebuilt	594137	Divers Equipment & Supplies
394903	Fishermens Supplies-Manufacturers	738941	Divers
394914	Fishing Tackle-Manufacturers	209198	Canned & Cured Fish & Seafoods (Mfrs)
399905	Shells-Marine (Manufacturers)	209201	Seafood Packers
999948	Dock Covers	209204	Shrimp-Packers
162902	Docks (Builders)	448902	Boats-Excursions
162903	Marine Contractors & Designers	514604	Fish & Seafood-Brokers
344806	Docks-Manufacturers	594131	Fishing Tackle-Dealers
871126	Engineers-Marine	594132	Fishing Tackle-Repairing & Parts
449303	Boat Yards	594133	Fishing Bait
449304	Boat Repairing	999903	Fishing Information
449904	Boat Cleaning	444902	Shipping Agents
555102	Boat Covers Tops & Upholstery	448903	Steamship Companies

6.0 Marine-Related Businesses in Miami-Dade County

**Table 6-2
Marine Related Business Sectors by Standard Industrial Classification (SIC) and Groups**

SIC #	Business Sector Description	SIC #	Business Sector Description
555108	Propellers	449103	Terminals-River & Marine
555116	Transmissions-Marine	472904	Steamship Agencies
762917	Marine Electric Service	736107	Stevedoring Contractors
769403	Outboard Motors-Repairing	239401	Sailmakers
542101	Seafood-Retail	449202	Towing-Marine
542109	Shrimp-Retail	449203	Marine Vessel Management
555103	Boat Equipment & Supplies	449901	Surveyors-Marine
555104	Boat Dealers Sales & Service	449902	Salvage-Marine
555107	Yachts	449905	Boat Transporting
555109	Outboard Motors	729991	Yacht Documentation
555113	Marine Equipment & Supplies	799716	Hunting & Fishing Clubs
555124	Watercraft-Personal	799913	Boats-Rental & Charter
555125	Yacht Brokers	799914	Boating Instruction
555127	Marine Electronics	799928	Fishing Parties
556102	Trailers-Boat	799961	Sailing Instruction
599910	Tropical Fish-Retail	799977	Parasailing
507818	Marine Refrigeration/Ac-Sales/Svc (Wholesale)	874225	Marine Resource Consultants
508811	Marine Equipment & Supplies-Wholesale	874843	Marine Consultants
508812	Marine Electronic Equip & Supls (Whol)	473104	Freight-Forwarding (a)
508813	Nautical Instruments (Wholesale)	503305	Fiber Glass Materials (Wholesale) (a)
509105	Boat Equipment & Supplies-Wholesale	508545	Cargo & Freight Containers (Wholesale)(a)
		473107	Containerized Freight & Cargo Service (a)

(a) Only businesses of this type along the Miami River are included as a marine-dependent business in the summary tables of this chapter. Sales, income and employment associated with other businesses of this type due to the Bay and River will be estimated during the economic analysis.

Bear in mind that the primary SIC code was used to categorize businesses even though most businesses provide a variety of services. If the number of firms for some SIC code categories do not appear to be correct, it is likely that the firm was counted in another SIC code category.

3. The latitude and longitude of each business in the InfoUSA business database was corrected – the database listed longitudes as positive instead of negative values.
4. Marine-related businesses in the InfoUSA Business Database were extracted, and a theme of marine-related businesses was created in a GIS file.

6.0 Marine-Related Businesses in Miami-Dade County

5. Additional marine related businesses on the Miami River were identified from the Miami River Corridor Urban Infill Plan. These were businesses classified in SICs that were not necessarily marine-related, even though the firms were conducting mainly marine-related activities.
6. Using the GIS, marine-related businesses were located according to the local study area, including subareas Biscayne Bay and Miami River.
7. The number of businesses, number of employees, and sales reported in the InfoUSA Business Database were compiled for the entire county, the local study area and its two subareas, Biscayne Bay and the Miami River.

The InfoUSA database was obtained in early 2004. Since then, some businesses in this database have gone out of business, others have changed the business name, and other businesses have opened. As the months go by, this database becomes more and more out of date. However, this is the first document to demonstrate the economic importance of the marine-related industry in Miami-Dade County. Also bear in mind that the information in this section represents the entire marine-related industry in the county and not just those industries that benefit from Biscayne Bay.

A summary of the number of businesses, number of employees and sales of these businesses by geographic area in 2004 are provided in Table 6-3. This table and the subsequent tables can be updated as new data and information become available. Currently, Miami-Dade County is home to 1,077 marine-related businesses that employ 20,100 people and sell goods and services valued at \$4.7 billion annually¹. Of these 1,077 businesses, 435 are located in the Local Study Area and employ 13,183 people selling \$3.1 billion worth of goods and services annually. Of these 435 businesses, 294 are located in the Biscayne Bay subarea and employ 11,578 people selling \$2.8 billion worth of goods and services annually. The remaining 142 businesses are located within ¼ mile of the Miami River and employ 1,600 people selling \$367 million worth of goods and services annually.

Table 6-3
Summary of Marine-Related Businesses in Miami-Dade County and Local Study Area, 2004

Geographic Location	Number of Businesses	Number of Employees	Sales
Miami-Dade County	1,077	20,100	\$4,665,702,000
<u>Local Study Area – Total</u>	435	13,183	\$3,121,127,000
Biscayne Bay Subarea	294	11,578	\$2,754,527,000
Miami River Subarea (a)	142	1,606	\$366,743,000

(a) Within 1/4 mile on both sides of river.

Source: InfoUSA, Inc. business database updated with additional information, 2004.

¹ Sales includes only the value of the output generated within Miami-Dade County. So for example, this sales number does not include the value of the cargo shipped through the Port of Miami and the Miami River.

6.0 Marine-Related Businesses in Miami-Dade County

The businesses were divided into three categories: (1) Primary Business, (2) Secondary Business – Purchaser and (3) Secondary Business – Seller. Primary Business is defined as the first business in line to obtain revenue from uses of the Bay or the River. The primary businesses of this study are shipping companies, shipping terminals, freight forwarders, other specific shipping-related businesses, commercial fishermen, and companies that sell goods and services to those using the Bay for recreation. In this section, information regarding the primary businesses related to Bay recreation includes only boat and equipment sales and service and does not include stores, restaurants and hotels.

Secondary businesses are those that either purchase Bay-related products from the primary businesses or sell goods and services to the primary businesses. “Secondary Businesses – Purchasers” purchase Bay and River-related goods and services from the Primary Businesses. Fishing bait wholesalers, shrimp packers and seafood wholesalers are examples of this type of business. They purchase harvested products from commercial fishermen.

“Secondary Businesses – Sellers” sell goods and services to the Primary Businesses that are needed to use the Bay and River. Secondary Businesses – Sellers exist for all of the primary industries. The economic contribution of the Bay, as described in Sections 2 through 5 and Section 7 of this report, includes the sales, income, employment and tax revenues generated as primary businesses use the Bay and buy from and sell to Purchasers and Sellers.

A diagram of these relationships is provided in Figure 6-1.

The number of businesses, number of employees, and sales of the marine businesses in Miami-Dade County and in the local study area by SIC code and category are presented in Table 6-4. The businesses fall into six groups as follows.

- Group 1: Primary Businesses for Shipping and Cruising
- Group 2: Primary Businesses for Marine Recreation and Secondary Businesses that are sellers to Commercial Fishing
- Group 3: Primary Businesses for Marine Recreation
- Group 4: Secondary Businesses that are purchasers from Commercial Fishing and Secondary Businesses that are sellers to Recreational Fishing
- Group 5: Secondary Businesses that are purchasers from Commercial Fishing
- Group 6: Secondary Businesses that are sellers to one or more Primary Businesses

Groups 2 and 4 have two categories because a certain business type (or SIC) can be both categories.

6.0 Marine-Related Businesses in Miami-Dade County

Under Group 1 listed in Table 6-4, the most prominent business type is firms that provide water transportation of cargo and passengers. These are private shipping firms that provide water transportation of passengers and cargo using watercraft, such as ships, barges and boats. They represent those firms that use the Port of Miami and the Miami River to dock their ships for loading and unloading. In both the county and the local study area, 47 firms employing 10,230 people created \$2.5 billion in sales in 2004. The sales value of \$2.5 billion represents the value of the shipping services created by the firms located in Miami-Dade County. This number does not include the value of the cargo.

The next largest category under Group 1 is freight forwarding with annual sales related to waterborne transportation of \$171 million and employing 2,915 people. The Port of Miami with annual sales of \$83.3 million and employing 330 people is the third largest category. The fourth largest category is Steamship Agencies and represents firms that arrange for cargo or passenger service on ships that are not owned by the firm. These 16 firms in the county employ 153 people and have annual sales of \$40 million. Eight of these agencies are in the local study area. Terminals along the Miami River had sales of \$27 million in 2004. The 20 terminals employed 160 people.

Under Group 2, the most predominant business type is Boat Dealers Sales and Service - Retail. The sales of all boat dealers and yacht dealers/brokers, as well as that of any retail business, include the value of boats and merchandise sold.² There are 41 such businesses in Miami-Dade County employing 298 people selling \$125 million worth of goods and services annually. Of these businesses, 17 are in the local study area employing 131 people selling \$69 million annually.

Firms that sell marine equipment and supplies - retail comprise the second largest business type under Group 2 with 45 firms employing 221 people selling \$73 million worth of goods and services in 2004. Of these businesses, 17 firms are in the local study area employing 90 people selling \$30 million in 2004.

Marinas are also an important part of Group 2. There are 37 marinas in the county employing 279 people selling \$41 million annually. All of these marinas are located in the local study area.

Under Group 3, Retail Yacht Brokers are the most predominant business with 22 firms employing 165 people selling \$55 million in 2004. Of these firms, 14 are in the Local Study Area employing 141 people selling \$47 million annually. Boats-Rental & Charter are the second most predominant business type with 52 businesses in the county and 45 businesses in the local study area. These 52 businesses employ 177 people selling \$15 million annually in Miami-Dade County. In the local study area, 45 businesses employ 159 people selling \$13 million annually. Other businesses types included under Group 3 are Fishing Bait – Retail, Boats – Excursions, Divers Equipment and Supplies - Retail, Yacht Documentation, and Sailing Instruction.

² From 1997 US Census definitions.

6.0 Marine-Related Businesses in Miami-Dade County

Fishing Bait – Wholesale is the only business type under Group 4, Secondary Businesses that are purchasers from Commercial Fishing and sellers to Recreational Fishing. There are 5 such businesses in the county employing 15 people selling \$10.8 million annually. Of these businesses, one is in the local study area employing five persons selling \$3.6 million annually.

Group 5 includes the secondary businesses that purchase fish products from commercial fishers. These businesses include seafood packers, manufacturers, wholesalers, brokers and retail seafood stores. The most predominant business type in this group is Seafood-Wholesale with 109 businesses in the county employing 843 people selling \$582 million annually. Of these businesses, 11 are in the Local Study Area employing 38 people selling \$51 million annually.

Group 6 includes the marine-dependent businesses that sell goods and services to the primary businesses. Other non-marine-dependent businesses also sell goods and services to the primary businesses but are not included in this table.

The most predominant business type under Group 6 is manufacturers of boat parts – used and rebuilt. In the county, four firms employing 520 people sold \$86 million in boat parts and services in 2004. Of these firms, one is located in the local study area employing one person selling \$165,000 in 2004.

The second most predominant business type under Group 6 is Boat-Manufacturers. There are 41 of these businesses in the county employing 549 people selling \$77 million annually. Of these businesses, 9 are located in the Local Study Area and employ 256 people selling \$42 million annually.

**Table 6-4
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for Miami-Dade County and Local Study Area, 2004**

Standard Industrial Classification		Miami-Dade County			Local Study Area		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
Group 1 - Primary Businesses for Shipping and Cruising							
	Port of Miami	1	330	\$83,390,000	1	330	\$83,390,000
441 to 448	Water Transportation of Cargo and Passengers	47	10,230	\$2,515,422,000	47	10,230	\$2,515,422,000
449102	Docks (Facility)	1	8	\$1,008,000	1	8	\$1,008,000
449103	Terminals-River & Marine (Miami River)	20	160	\$26,878,000	20	160	\$26,878,000
449203	Marine Vessel Management	2	9	\$1,494,000	1	5	\$830,000
449901	Surveyors-Marine	22	90	\$18,540,000	11	40	\$8,240,000
449902	Salvage-Marine	3	14	\$2,884,000	3	14	\$2,884,000
472904	Steamship Agencies	16	153	\$39,933,000	8	84	\$21,924,000
473104	Freight-Forwarding (Water Transpo Related)	46	2915	\$170,754,000	12	431	\$25,256,000
736107	Stevedoring Contractors	9	118	\$9,440,000	8	68	\$5,440,000
444902	Shipping Agents	45	163	\$56,437,000	10	24	\$8,343,000
Sub-Total		212	14,190	\$2,925,172,000	121	11,064	\$2,616,225,000

6.0 Marine-Related Businesses in Miami-Dade County

Table 6-4
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for Miami-Dade County and Local Study Area, 2004

Standard Industrial Classification		Miami-Dade County			Local Study Area		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
Group 2: Primary Businesses for Marine Recreation and Secondary Businesses – Sellers to Commercial Fishing							
449302	Boat Storage	5	40	\$5,840,000	5	40	\$5,840,000
449303	Boat Yards	4	76	\$11,096,000	4	76	\$11,096,000
449304	Boat Repairing	84	303	\$44,238,000	33	181	\$26,426,000
449306	Marinas	37	279	\$40,746,514	37	279	\$40,746,514
555102	Boat Covers Tops & Upholstery – Retail	19	59	\$19,588,000	2	2	\$664,000
555103	Boat Equipment & Supplies – Retail	25	127	\$42,164,000	7	52	\$17,264,000
555104	Boat Dealers Sales & Service – Retail	41	298	\$124,576,000	17	131	\$69,132,000
555108	Propellers – Retail	4	23	\$7,636,000	3	21	\$6,972,000
555109	Outboard Motors - Retail	6	16	\$5,312,000	2	9	\$2,988,000
555113	Marine Equipment & Supplies – Retail	45	221	\$73,372,000	17	90	\$29,880,000
555115	Life Preservers - Retail	1	12	\$3,984,000	0	0	\$0
555116	Transmissions-Marine – Retail	2	5	\$1,660,000	1	1	\$332,000
555127	Marine Electronics – Retail	12	63	\$20,916,000	4	36	\$11,952,000
556102	Trailers-Boat – Retail	4	86	\$33,892,000	1	5	\$2,230,000
594131	Fishing Tackle-Dealers – Retail	13	105	\$25,712,000	3	32	\$4,736,000
594132	Fishing Tackle-Repairing & Parts – Retail	3	7	\$1,036,000	0	0	\$0
999903	Fishing Information	1	5	\$0	0	0	\$0
999948	Dock Covers	1	2	\$0	0	0	\$0
449202	Towing-Marine	15	104	\$17,264,000	10	60	\$9,960,000
449904	Boat Cleaning	7	17	\$3,502,000	3	8	\$1,648,000
449905	Boat Transporting	6	18	\$3,708,000	2	3	\$618,000
Sub-Total		335	1,866	\$486,242,514	151	1,026	\$242,484,514
Group 3 - Primary Businesses for Marine Recreation							
448902	Boats-Excursions	2	34	\$3,604,000	2	34	\$3,604,000
555107	Yachts – Retail	3	9	\$2,988,000	3	9	\$2,988,000
555124	Watercraft-Personal – Retail	3	13	\$4,316,000	0	0	\$0
555125	Yacht Brokers - Retail	22	165	\$54,780,000	14	141	\$46,812,000
594133	Fishing Bait – Retail	21	92	\$13,616,000	9	46	\$6,808,000
594137	Divers Equipment & Supplies – Retail	14	67	\$9,916,000	5	22	\$3,256,000

6.0 Marine-Related Businesses in Miami-Dade County

Table 6-4
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for Miami-Dade County and Local Study Area, 2004

Standard Industrial Classification		Miami-Dade County			Local Study Area		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
729991	Yacht Documentation	2	6	\$330,000	0	0	\$0
769403	Outboard Motors-Repairing	16	32	\$4,576,000	5	12	\$1,716,000
799716	Hunting & Fishing Clubs	1	10	\$580,000	0	0	\$0
799913	Boats-Rental & Charter	52	177	\$14,868,000	45	159	\$13,356,000
799914	Boating Instruction	2	9	\$756,000	1	8	\$672,000
799928	Fishing Parties	1	3	\$252,000	1	3	\$252,000
799961	Sailing Instruction	3	21	\$1,764,000	3	21	\$1,764,000
799977	Parasailing	2	4	\$336,000	1	1	\$84,000
Sub-Total		144	642	\$112,682,000	89	456	\$81,312,000
Group 4: Secondary Businesses – Purchasers from Commercial Fishing and Secondary Businesses - Sellers to Recreational Fishing							
519905	Fishing Bait-Wholesale	5	15	\$10,770,000	1	5	\$3,590,000
Sub-Total		5	15	\$10,770,000	1	5	\$3,590,000
Group 5 - Secondary Businesses – Purchaser from Commercial Fishing							
209198	Canned & Cured Fish & Seafood (Mfrs)	1	0	\$0	0	0	\$0
209201	Seafood Packers	1	9	\$2,097,000	0	0	\$0
209204	Shrimp-Packers	1	20	\$4,660,000	1	20	\$4,660,000
209298	Prepared Fish & Seafood Products (Mfr)	5	42	\$9,786,000	1	4	\$932,000
514601	Seafood-Wholesale	109	843	\$581,648,000	11	38	\$50,691,000
514604	Fish & Seafood-Brokers	7	30	\$18,810,000	1	1	\$627,000
519939	Tropical Fish-Wholesale	11	53	\$38,054,000	0	0	\$0
519983	Shells-Marine-Wholesale	1	1	\$718,000	0	0	\$0
542101	Seafood-Retail	69	332	\$53,452,000	15	85	\$13,685,000
542109	Shrimp-Retail	1	1	\$161,000	0	0	\$0
599910	Tropical Fish-Retail	4	17	\$2,278,000	0	0	\$0
Sub-Total		210	1,348	\$711,664,000	29	148	\$70,595,000
Group 6 - Secondary Businesses – Sellers to One Or More Primary Businesses							
162902	Docks (Builders)	1	35	\$5,845,000	1	35	\$5,845,000
162903	Marine Contractors & Designers	38	219	\$36,573,000	8	72	\$12,024,000
229801	Fish Nets-Manufacturers	1	7	\$1,106,000	0	0	\$0
239401	Sailmakers	8	29	\$3,103,000	3	11	\$1,177,000
239404	Boat Covers Tops & Upholstery-Mfrs	2	19	\$2,033,000	0	0	\$0
306922	Life Preservers-Manufacturers	2	13	\$2,808,000	0	0	\$0
336607	Propellers-Mfrs	1	2	\$250,000	0	0	\$0

6.0 Marine-Related Businesses in Miami-Dade County

Table 6-4
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for Miami-Dade County and Local Study Area, 2004

Standard Industrial Classification		Miami-Dade County			Local Study Area		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
342908	Hardware-Marine-Manufacturers	1	50	\$8,000,000	0	0	\$0
344806	Docks-Manufacturers	1	65	\$13,715,000	0	0	\$0
353602	Boat Lifts	3	12	\$2,712,000	1	2	\$452,000
358512	Marine Refrigeration & Air Cond-Mfrs	2	19	\$4,997,000	1	9	\$2,367,000
373201	Boats-Manufacturers	41	549	\$77,368,000	9	256	\$42,240,000
373202	Boat Equipment & Supplies-Manufacturers	5	89	\$14,685,000	0	0	\$0
373204	Marine Equipment & Supplies-Mfrs	5	31	\$4,840,000	1	7	\$880,000
373298	Boat Part-Used & Rebuilt - Mfrs	4	520	\$85,800,000	1	1	\$165,000
394903	Fishermens Supplies-Manufacturers	2	34	\$6,732,000	0	0	\$0
394914	Fishing Tackle-Manufacturers	4	29	\$5,742,000	0	0	\$0
399905	Shells-Marine (Manufacturers)	1	8	\$1,048,000	0	0	\$0
473107	Containerized Freight & Cargo Service (Miami River Only)	2	10	\$1,490,000	2	10	\$1,490,000
503305	Fiber Glass Materials (Wholesale)	1	1	\$632,000	1	1	\$632,000
507818	Marine Refrigeration/Ac-Sales/Svc (Whol)	5	20	\$10,200,000	0	0	\$0
508545	Cargo & Freight Containers (Wholesale)	3	22	\$12,540,000	3	22	\$12,540,000
508811	Marine Equipment & Supplies-Wholesale	7	81	\$61,155,000	1	10	\$7,550,000
508812	Marine Electronic Equip & Supls (Whol)	2	16	\$12,080,000	1	15	\$11,325,000
508813	Nautical Instruments (Wholesale)	1	5	\$3,775,000	0	0	\$0
509105	Boat Equipment & Supplies-Wholesale	2	18	\$11,070,000	0	0	\$0
509107	Fishing Tackle-Wholesale	3	9	\$5,535,000	1	4	\$2,460,000
509134	Fishermens Supplies-Wholesale	4	15	\$9,225,000	1	4	\$2,460,000
509146	Divers Equipment & Supplies-Wholesale	1	1	\$615,000	1	1	\$615,000

6.0 Marine-Related Businesses in Miami-Dade County

Table 6-4
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for Miami-Dade County and Local Study Area, 2004

Standard Industrial Classification		Miami-Dade County			Local Study Area		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
738941	Divers, Commercial	11	57	\$5,358,000	4	10	\$940,000
762917	Marine Electric Service	4	19	\$2,242,000	2	13	\$1,534,000
871126	Engineers-Marine	1	9	\$1,422,000	0	0	\$0
874225	Marine Resource Consultants	1	25	\$4,250,000	0	0	\$0
874843	Marine Consultants	1	1	\$225,000	1	1	\$225,000
	Sub-Total	171	2,039	\$419,171,000	43	484	\$106,921,000
	Total	1,077	20,100	\$4,665,702,000	434	13,183	\$3,121,127,000

(a) Sales represents 2003 and is from Port of Miami Annual Report, 2004. Employment is from the Port's Assistant Director via email in August 2004.

A summary of Table 6-4 that sums the number of businesses, employment and sales over the business types within each Group is provided in Table 6-5. This table presents the economic information for Miami-Dade County, the Local Study Area, the Miami River Subarea, and the Biscayne Bay Subarea. The numbers of businesses, employment and sales by SIC category and group in the Biscayne Bay Subarea and the Miami River Subarea are presented in Table 6-6.

6.0 Marine-Related Businesses in Miami-Dade County

Table 6-5
Summary of Marine-Related Businesses Dependent on Biscayne Bay and Miami River
Number of Businesses, Sales and Employment, 2004

Geographic Location	Primary Businesses			Secondary Businesses			Total
	Group 1: Shipping and Cruising	Marine Recreation		Group 4: Purchasers from Com. Fishing and - Sellers to Rec. Fishing	Group 5: Purchasers from Com. Fishing	Group 6: Sellers to One Or More Primary Businesses	
		Group 2: Plus Secondary Businesses - Sellers to Commercial Fishing	Group 3: Marine Recreation Only				
Miami-Dade County							
Number of Businesses	212	335	144	5	210	171	1,077
Number of Employees	14,190	1,866	642	15	1,348	2,039	20,100
Annual Sales	\$2,925,172,000	\$486,242,514	\$112,682,000	\$10,770,000	\$711,664,000	\$419,171,000	\$4,665,702,000
Local Study Area							
Number of Businesses	121	151	89	1	29	43	434
Number of Employees	11,064	1,026	456	5	148	484	13,183
Annual Sales	\$2,616,225,000	\$242,484,514	\$81,312,000	\$3,590,000	\$70,595,000	\$106,921,000	\$3,121,127,000
Biscayne Bay Subarea							
Number of Businesses	61	104	85	0	25	18	293
Number of Employees	10,099	698	351	0	136	294	11,578
Annual Sales	\$2,420,186,000	\$174,022,514	\$47,385,000	\$0	\$63,071,000	\$49,863,000	\$2,754,527,000
Miami River Subarea - Within 1/4 mile on both sides of river							
Number of Businesses	60	47	5	1	4	25	142
Number of Employees	965	328	106	5	12	190	1,606
Annual Sales	\$196,039,000	\$68,462,000	\$34,070,000	\$3,590,000	\$7,524,000	\$57,058,000	\$366,743,000

6.0 Marine-Related Businesses in Miami-Dade County

**Table 6-6
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for
the Miami River and Biscayne Bay Subareas, 2004**

Standard Industrial Classification		Biscayne Bay Subarea			Miami River Subarea		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
Group 1 - Primary Businesses for Shipping and Cruising							
	Port of Miami	1	330	\$83,390,000	0	0	\$0
441 to 448	Water Transportation of Cargo and Passengers	33	9,680	\$2,380,306,000	14	550	\$135,116,000
449102	Docks (Facility)	1	8	\$1,008,000	0	0	\$0
449103	Terminals-River & Marine (Miami River)	0	0	\$0	20	160	\$26,878,000
449203	Marine Vessel Management	1	5	\$830,000	0	0	\$0
449901	Surveyors-Marine	8	27	\$5,562,000	3	13	\$2,678,000
449902	Salvage-Marine	2	8	\$1,648,000	1	6	\$1,236,000
472904	Steamship Agencies	4	30	\$7,830,000	4	54	\$14,094,000
473104	Freight-Forwarding (Water Transpo Related)	4	276	\$16,166,500	8	155	\$9,089,000
736107	Stevedoring Contractors	6	59	\$4,720,000	2	9	\$720,000
444902	Shipping Agents	2	6	\$2,115,000	8	18	\$6,228,000
Sub-Total		62	10,429	\$2,503,575,500	60	965	\$196,039,000
Group 2: Primary Businesses for Marine Recreation and Secondary Businesses – Sellers to Commercial Fishing							
449302	Boat Storage	5	40	\$5,840,000	0	0	\$0
449303	Boat Yards	-	-	-	4	76	\$11,096,000
449304	Boat Repairing	18	61	\$8,906,000	15	120	\$17,520,000
449306	Marinas	32	269	\$39,286,514	5	10	\$1,460,000
555102	Boat Covers Tops & Upholstery - Retail	1	1	\$332,000	1	1	\$332,000
555103	Boat Equipment & Supplies - Retail	3	31	\$10,292,000	4	21	\$6,972,000
555104	Boat Dealers Sales & Service - Retail	17	131	\$69,132,000	0	0	\$0
555108	Propellers - Retail	0	0	\$0	3	21	\$6,972,000
555109	Outboard Motors - Retail	1	5	\$1,660,000	1	4	\$1,328,000
555113	Marine Equipment & Supplies - Retail	10	53	\$17,596,000	7	37	\$12,284,000
555115	Life Preservers - Retail	0	0	\$0	0	0	\$0
555116	Transmissions-Marine – Retail	0	0	\$0	1	1	\$332,000
555127	Marine Electronics – Retail	1	12	\$3,984,000	3	24	\$7,968,000
556102	Trailers-Boat - Retail	1	5	\$2,230,000	0	0	\$0
594131	Fishing Tackle-Dealers – Retail	3	32	\$4,736,000	0	0	\$0

6.0 Marine-Related Businesses in Miami-Dade County

**Table 6-6
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for
the Miami River and Biscayne Bay Subareas, 2004**

Standard Industrial Classification		Biscayne Bay Subarea			Miami River Subarea		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
594132	Fishing Tackle-Repairing & Parts - Retail	0	0	\$0	0	0	\$0
999903	Fishing Information	0	0	\$0	0	0	\$0
999948	Dock Covers	0	0	\$0	0	0	\$0
449202	Towing-Marine	8	48	\$7,968,000	2	12	\$1,992,000
449904	Boat Cleaning	3	8	\$1,648,000	0	0	\$0
449905	Boat Transporting	1	2	\$412,000	1	1	\$206,000
Sub-Total		104	698	\$174,022,514	47	328	\$68,462,000
Group 3 - Primary Businesses for Marine Recreation							
448902	Boats-Excursions	2	34	\$3,604,000	0	0	\$0
555107	Yachts - Retail	2	8	\$2,656,000	1	1	\$332,000
555124	Watercraft-Personal - Retail	0	0	\$0	0	0	\$0
555125	Yacht Brokers - Retail	13	41	\$13,612,000	1	100	\$33,200,000
594133	Fishing Bait - Retail	9	46	\$6,808,000	0	0	\$0
594137	Divers Equipment & Supplies - Retail	5	22	\$3,256,000	0	0	\$0
729991	Yacht Documentation	0	0	\$0	0	0	\$0
769403	Outboard Motors-Repairing	4	11	\$1,573,000	2	2	\$286,000
799716	Hunting & Fishing Clubs	0	0	\$0	0	0	\$0
799913	Boats-Rental & Charter	44	156	\$13,104,000	1	3	\$252,000
799914	Boating Instruction	1	8	\$672,000	0	0	\$0
799928	Fishing Parties	1	3	\$252,000	0	0	\$0
799961	Sailing Instruction	3	21	\$1,764,000	0	0	\$0
799977	Parasailing	1	1	\$84,000	0	0	\$0
Sub-Total		85	351	\$47,385,000	5	106	\$34,070,000
Group 4: Secondary Businesses – Purchasers from Commercial Fishing and Secondary Businesses - Sellers to Recreational Fishing							
519905	Fishing Bait-Wholesale	0	0	\$0	1	5	\$3,590,000
Sub-Total		0	0	\$0	1	5	\$3,590,000
Group 5 - Secondary Businesses – Purchasers from Commercial Fishing							
209198	Canned & Cured Fish & Seafoods (Mfrs)	0	0	\$0	0	0	\$0
209201	Seafood Packers	0	0	\$0	0	0	\$0
209204	Shrimp-Packers	1	20	\$4,660,000	0	0	\$0
209298	Prepared Fish & Seafood Products (Mfr)	1	4	\$932,000	0	0	\$0
514601	Seafood-Wholesale	7	26	\$43,167,000	4	12	\$7,524,000

6.0 Marine-Related Businesses in Miami-Dade County

**Table 6-6
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for
the Miami River and Biscayne Bay Subareas, 2004**

Standard Industrial Classification		Biscayne Bay Subarea			Miami River Subarea		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
514604	Fish & Seafood-Brokers	1	1	\$627,000	0	0	\$0
519939	Tropical Fish-Wholesale	0	0	\$0	0	0	\$0
519983	Shells-Marine-Wholesale	0	0	\$0	0	0	\$0
542101	Seafood-Retail	15	85	\$13,685,000	0	0	\$0
542109	Shrimp-Retail	0	0	\$0	0	0	\$0
599910	Tropical Fish-Retail	0	0	\$0	0	0	\$0
Sub-Total		25	136	\$63,071,000	4	12	\$7,524,000
Group 6 - Secondary Businesses - Sellers to One Or More Primary Businesses							
162902	Docks (Builders)	0	0	\$0	1	35	\$5,845,000
162903	Marine Contractors & Designers	4	20	\$3,340,000	4	52	\$8,684,000
229801	Fish Nets-Manufacturers	0	0	\$0	0	0	\$0
239401	Sailmakers	1	4	\$428,000	2	7	\$749,000
239404	Boat Covers Tops & Upholstery-Mfrs	0	0	\$0	0	0	\$0
306922	Life Preservers-Manufacturers	0	0	\$0	0	0	\$0
336607	Propellers-Mfrs	0	0	\$0	0	0	\$0
342908	Hardware-Marine-Manufacturers	0	0	\$0	0	0	\$0
344806	Docks-Manufacturers	0	0	\$0	0	0	\$0
353602	Boat Lifts	1	2	\$452,000	0	0	\$0
358512	Marine Refrigeration & Air Cond-Mfrs	0	0	\$0	1	9	\$2,367,000
373201	Boats-Manufacturers	6	250	\$41,250,000	3	6	\$990,000
373202	Boat Equipment & Supplies-Manufacturers	0	0	\$0	0	0	\$0
373204	Marine Equipment & Supplies-Mfrs	0	0	\$0	1	7	\$880,000
373298	Boat Part-Used & Rebuilt - Mfrs	0	0	\$0	1	1	\$165,000
394903	Fishermens Supplies-Manufacturers	0	0	\$0	0	0	\$0
394914	Fishing Tackle-Manufacturers	0	0	\$0	0	0	\$0
399905	Shells-Marine (Manufacturers)	0	0	\$0	0	0	\$0
473107	Containerized Freight & Cargo Service (Miami River Only)	0	0	\$0	2	10	\$1,490,000

6.0 Marine-Related Businesses in Miami-Dade County

**Table 6-6
Marine Related Businesses, Employees, and Sales by Standard Industrial Classification (SIC) for
the Miami River and Biscayne Bay Subareas, 2004**

Standard Industrial Classification		Biscayne Bay Subarea			Miami River Subarea		
SIC #	SIC Description	No. Bus	No. Emp	Annual Sales	No. Bus	No. Emp	Annual Sales
503305	Fiber Glass Materials (Wholesale)	0	0	\$0	1	1	\$632,000
507818	Marine Refrigeration/Ac-Sales/Svc (Whol)	0	0	\$0	0	0	\$0
508545	Cargo & Freight Containers (Wholesale)	0	0	\$0	3	22	\$12,540,000
508811	Marine Equipment & Supplies-Wholesale	0	0	\$0	1	10	\$7,550,000
508812	Marine Electronic Equip & Supls (Whol)	0	0	\$0	1	15	\$11,325,000
508813	Nautical Instruments (Wholesale)	0	0	\$0	0	0	\$0
509105	Boat Equipment & Supplies-Wholesale	0	0	\$0	0	0	\$0
509107	Fishing Tackle-Wholesale	1	4	\$2,460,000	0	0	\$0
509134	Fishermens Supplies-Wholesale	0	0	\$0	1	4	\$2,460,000
509146	Divers Equipment & Supplies-Wholesale	1	1	\$615,000	0	0	\$0
738941	Divers, Commercial	3	9	\$846,000	1	1	\$94,000
762917	Marine Electric Service	1	4	\$472,000	1	9	\$1,062,000
871126	Engineers-Marine	0	0	\$0	0	0	\$0
874225	Marine Resource Consultants	0	0	\$0	0	0	\$0
874843	Marine Consultants	0	0	\$0	1	1	\$225,000
	Sub-Total	18	294	\$49,863,000	25	190	\$57,058,000
	Total	293	11,578	\$2,754,527,000	142	1606	\$366,743,000

7.0 Uses and Economic Contribution of Biscayne Bay

This section summarizes the results of this study. It describes the current and historic uses and economic contribution of Biscayne Bay.

7.1 Uses of Biscayne Bay

Biscayne Bay supports a wide variety of recreational and economic uses. They include:

- Recreation
- Commercial Fishing
- Shipping operations at the Port of Miami and the Miami River
- Cruise Ship Operations at the Port of Miami

The current and historic intensities of these Bay uses are discussed in turn below.

Recreation. Survey research and recreational modeling found that residents and visitors spent 65.5 million person-days participating in Biscayne Bay-related recreation activities in 2004. These activities included fishing, swimming, sailing, snorkeling, picnicking and viewing the Bay from shore. A person-day is one person participating in a recreation activity for all or part of one day.

About 35 million of these person-days were spent by visitors to Miami-Dade County and 30 million person-days were spent by county residents. The number of person-days by primary activity is provided in Table 7.1-1. A person-day is attributed to an activity only if it was the “primary” activity that day even though people may participate in several activities during a day. The distribution of person-days by activity is provided in Figure 7.1-1.

The four most popular recreation activities on Biscayne Bay were (1) viewing the Bay from shore while dining, shopping, jogging or strolling; (2) swimming from shore; (3) fishing from a boat; and (4) sailing. County residents and visitors spent 15.9 million person-days viewing the Bay from shore which is 25 percent of all Bay-related recreational person-days. About 10.9 million person-days were spent swimming from shore which comprised 17 percent of all person-days. Fishing from a power boat comprised 8.7 million person-days or 13 percent of all Bay-related person-days. Sailing on the Bay comprised nine percent of all Bay-related recreation days with 6.0 million person-days in 2004.

Other popular recreation activities included picnicking on the Bay with 8 percent of all person-days, pleasure boating on the Bay with 7 percent of all person-days, and fishing from shore and swimming from a power boat, each with six percent of all person-days.

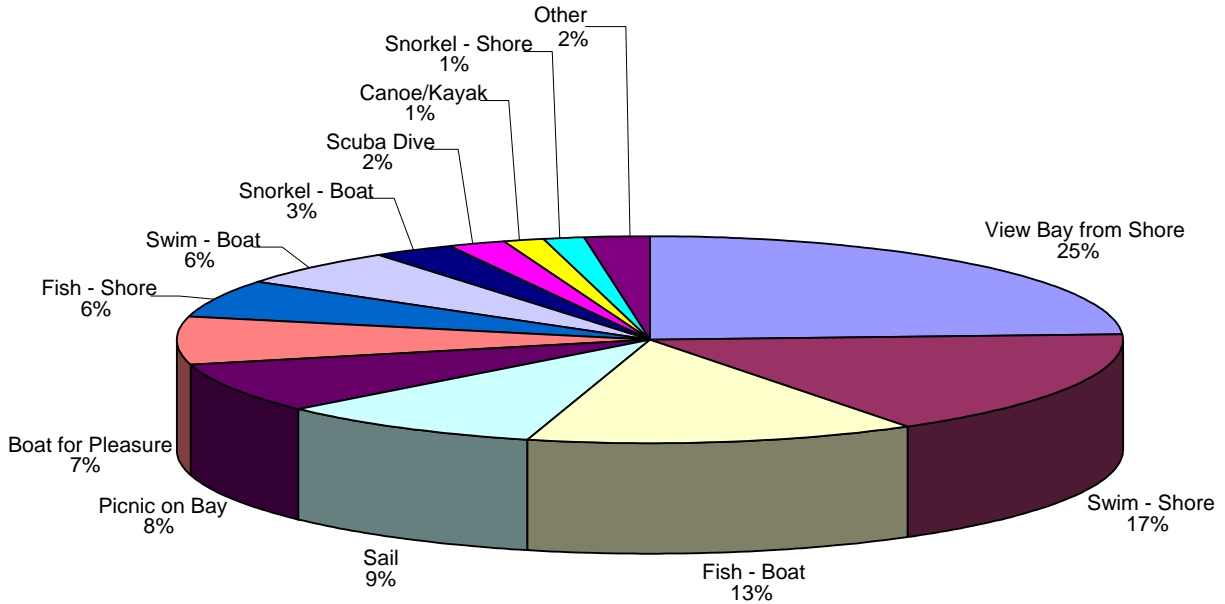
7.0 Uses and Economic Contribution of Biscayne Bay

**Table 7.1-1
Number of Person-Days Spent Participating in Biscayne Bay-Related Activities, 2004**

Primary Activity (a)	Visitors to Miami- Dade County	Residents of Miami- Dade County	Total
Fishing – From Shore	505,000	3,349,000	3,854,000
Fishing – From Boat	5,139,000	3,541,000	8,680,000
Snorkeling - From Shore	293,000	606,000	899,000
Snorkeling - From Boat	835,000	992,000	1,827,000
Scuba Diving	500,000	736,000	1,236,000
Swimming - From Shore	6,198,000	4,742,000	10,940,000
Swimming - From Boat	1,646,000	2,121,000	3,767,000
Boating for Pleasure/Partying	2,668,000	2,151,000	4,819,000
Water-skiing	28,000	187,000	215,000
Parasailing	19,000	7,000	26,000
Windsurfing	8,000	137,000	145,000
Kite Sailing	17,000	233,000	250,000
Personal Watercraft (jet skis, etc.)	114,000	249,000	363,000
Sailing	3,986,000	2,054,000	6,040,000
Canoeing / Kayaking	239,000	725,000	964,000
Viewing Bay from Shore while dining, shopping, jogging and strolling	10,591,000	5,265,000	15,856,000
Sunset Cruise	333,000	143,000	476,000
Glass Bottom Boat Tour	3,000	3,000	6,000
Picnicking on Biscayne Bay	2,547,000	2,558,000	5,105,000
Total	35,668,000	29,799,000	65,467,000

(a) A person-day is one person participating in a recreational activity for all or a portion of a day. A person-day is attributed to an activity only if it was the “primary” activity that day even though people usually participate in several activities during a day. Sailing is any activity conducted on a sail boat.

**Figure 7.1-1
Percent Distribution of Biscayne Bay Recreation Activities 2004**



The demographic characteristics of Biscayne Bay users are summarized in Table 7.1-2. Resident and visitor Bay users are similar in many respects. The median age of residents and visitors was similar at 42 years and 45 years, respectively. The percentage of male and female respondents was the same for residents and visitors at 60 percent and 40 percent, respectively. Whether a resident or a visitor, about 92 percent of the respondents were white and six percent were black. About 62 percent of resident Bay users and 20 percent of visitor Bay users were of Hispanic, Latino or Spanish origin. Residents and visitors had similar probabilities of owning a boat, with 29 percent of residents and 22 percent of visitors saying they owned their own boat. Very few residents and visitors belong to fishing or diving clubs. Only 4 percent of residents and 3 percent of visitors said they belong to such a club.

7.0 Uses and Economic Contribution of Biscayne Bay

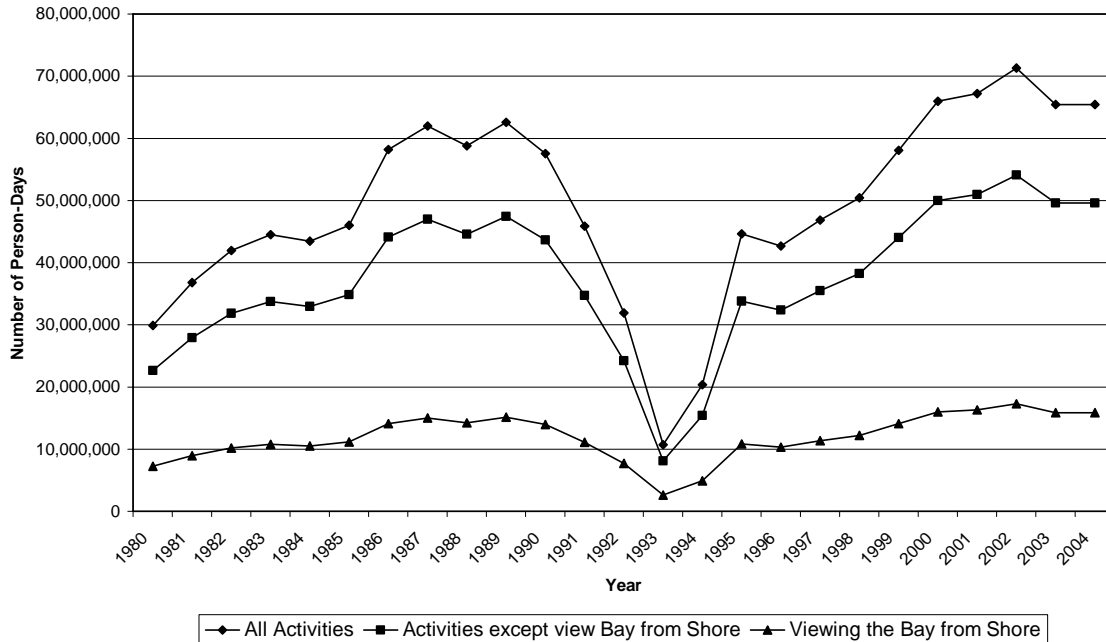
**Table 7.1-2
Demographic Characteristics of Those Who Recreate on Biscayne Bay
Resident and Visitor Respondents, 2004**

Characteristic	Residents			Visitors		
Median Age of Respondent	42			45		
Sex Of Respondent	Percent			Percent		
Male	58%			62%		
Female	42%			38%		
Race Of Respondent	% of Resident Bay-Users			% of Visitor Bay-Users		
	White	Black	Other	White	Black	Other
	93%	6%	1%	91%	6%	3%
Percent Hispanic, Latino or of Spanish Origin	% of Resident Bay-Users			% of Visitor Bay-Users		
	52%			20%		
Median Household Income	Resident Bay-Users			Visitor Bay-Users		
	\$43,000			\$55,000		
Average Years Living in / Visiting Miami-Dade County	Residents			Visitors		
	20			10		
% Who Own Their Own Boat	Residents			Visitors		
	29%			22%		
% Who Belong to Fishing and/or Diving Clubs	Residents			Visitors		
	4%			3%		

Source: From the Biscayne Bay User Survey responses of 604 residents and 310 visitors who used Biscayne Bay for recreation in the past 12 months .

The historic recreational uses of Biscayne Bay are summarized in the graph provided in Figure 7.1-2. The historic number of person-days in all activities, in all activities except viewing the Bay from shore, and viewing the Bay from shore are provided from 1980 to 2004. The numbers of person-days in all activities show a strong upward trend from 1980 through 1989. The steep reduction in person-days observed from 1992 through 1993 is due to the effects of Hurricane Andrew which struck Miami-Dade County on August 24, 1992. It affected Bay-related recreation through the end of 1992 and for all of calendar year 1993. In 1994, recreation activity-days began a recovery. By 2000, the number of recreation person-days exceeded the level of 1989, the previous peak year. Recreation use continued to grow in 2001 and 2002 and fell a bit in 2003.

**Figure 7.1-2
Biscayne Bay Recreation, Number of Person-Days, 1980 to 2004**



Commercial Fishing. The contribution of Biscayne Bay to commercial fishing is two-fold. First, commercial fishing takes place in the Bay for the harvest of fish and shellfish, particularly pink shrimp. Second, Biscayne Bay and Florida Bay are very important grounds for the lifecycle of many fish species that are commercially harvested in Miami-Dade County.¹ These species are ballyhoo, barracuda, goggle-eye, several grouper species (black, gag and red), grunts, hog snapper, several species of jack (almaco, crevalle, yellow), mullet, parrotfish, snapper (all species), white snapper, spiny lobster, live marine life, bait shrimp, pink shrimp and white shrimp. Both Biscayne Bay and Florida Bay are essential habitats for these species, so their values are attributable to both bays.

These bays support commercial fisheries throughout southeast Florida. However, because the distribution of adult species that originate from Biscayne Bay has not been completely documented, only the harvest of Bay-dependent species in Miami-Dade County is included in the economic contribution reported in this study.

The exvessel values² of Biscayne Bay-dependent and Bay-caught commercial fish species from 1986 through 2002 are provided in Table 7.1-3. These values are also

¹ Telephone conversation with Jerald Ault, Ph.D., Associate Professor, Division of Marine Biology and Fisheries, University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, Florida.

² Exvessel value means the value of the fish at dockside (just off the boat).

7.0 Uses and Economic Contribution of Biscayne Bay

plotted in Figure 7.1-3 and are in 2004 dollars. Values prior to 1985 and after 2002 were not available for Bay-dependent species and values prior to 1986 and after 2002 were not available for Bay-caught species.

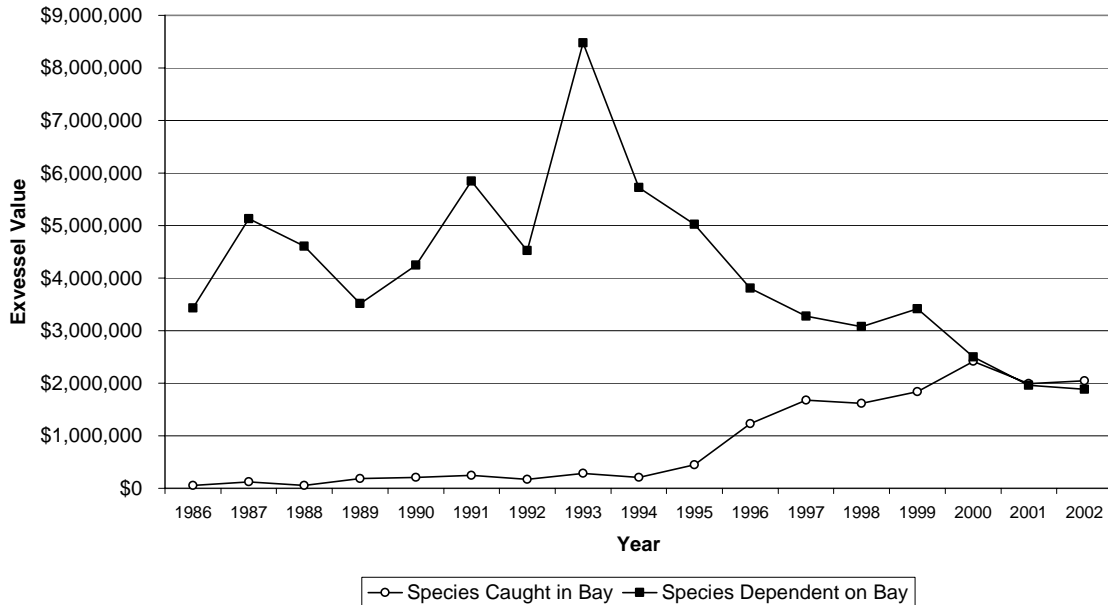
In 1986, commercial species harvested in Biscayne Bay were valued at \$51,000 and Bay-dependent commercial species were valued at \$3.4 million. Since 1986, the exvessel value of commercially harvested Bay-dependent fish species peaked in 1993 at \$8.5 million and then declined to its current low of \$1.9 million. This reflects the volume of fish harvested, not their per unit values. Meanwhile, the value of fish caught in Biscayne Bay increased steadily over time to \$2.1 million in 2002. Most of this increase in value was due to increases in blue crab and pink shrimp landings.

**Table 7.1-3
Exvessel Value of Commercial Fish, Shellfish and Marine Life Landings in
Miami-Dade County for Species Dependent on or Caught in Biscayne Bay
Itemized By Location of Catch**

Year	Species Dependent on Biscayne Bay and Caught Outside of Bay		Species Caught In Bay	
	nominal dollars	2004 dollars	nominal dollars	2004 dollars
(1)	(2)	(3)	(4)	(5)
1986	\$2,277,738	\$3,428,275	\$34,062	\$51,267
1987	\$3,496,236	\$5,128,387	\$82,232	\$120,620
1988	\$3,238,548	\$4,605,514	\$36,756	\$52,270
1989	\$2,570,291	\$3,518,483	\$135,312	\$185,230
1990	\$3,216,989	\$4,246,030	\$155,311	\$204,991
1991	\$4,596,400	\$5,847,188	\$191,990	\$244,235
1992	\$3,646,653	\$4,525,192	\$136,780	\$169,733
1993	\$6,988,651	\$8,480,006	\$232,866	\$282,558
1994	\$4,815,273	\$5,719,870	\$173,230	\$205,773
1995	\$4,317,706	\$5,023,116	\$385,346	\$448,302
1996	\$3,337,043	\$3,809,095	\$1,080,769	\$1,233,653
1997	\$2,920,940	\$3,276,928	\$1,492,876	\$1,674,820
1998	\$2,775,334	\$3,076,246	\$1,459,459	\$1,617,699
1999	\$3,123,863	\$3,417,701	\$1,681,380	\$1,839,535
2000	\$2,334,502	\$2,503,519	\$2,254,674	\$2,417,912
2001	\$1,870,188	\$1,959,732	\$1,899,325	\$1,990,264
2002	\$1,830,924	\$1,885,245	\$1,983,499	\$2,042,347

7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.1-3
Exvessel Value of Bay Dependent and Bay Caught Species by Year,
2004 Dollars



Biscayne Bay-related commercial fishing generates additional benefits beyond the exvessel values of marine landings. The capital expenditures associated with vessel purchases and refurbishments generate additional economic contributions. The value added from the marketing and retailing of marine landings also generates economic contributions.

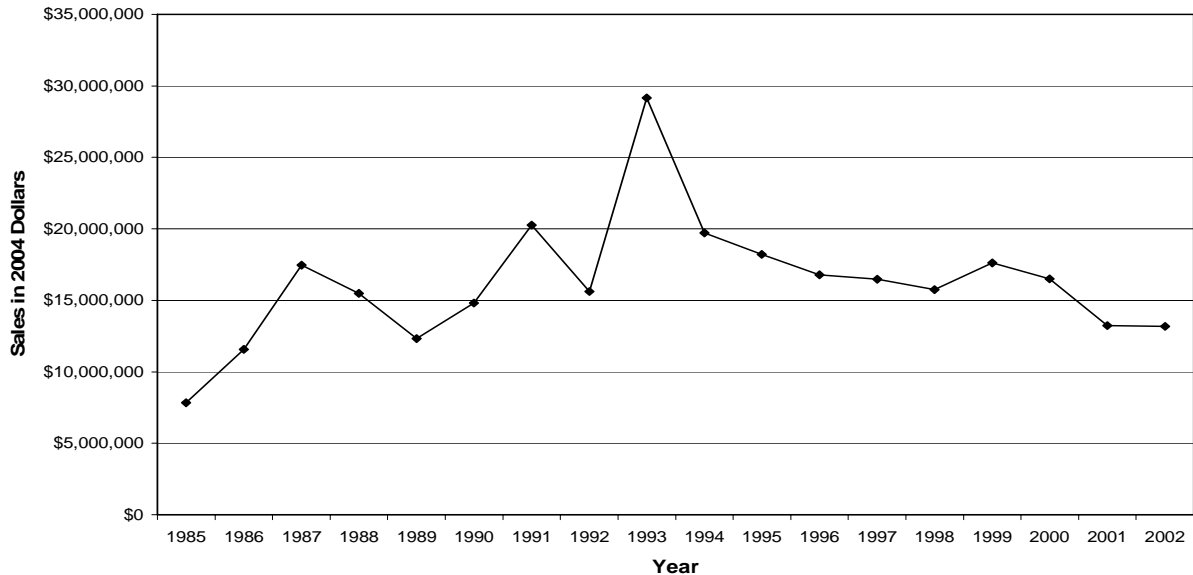
A summary of the total sales in Miami-Dade County associated with all aspects of the Biscayne Bay-related commercial fishery is provided in Table 7.1-4 and plotted in Figure 7.1-4. The values in this table were the inputs to the IMPLAN regional input-output model. The total annual Biscayne Bay-related commercial fishery sales ranged from \$7.8 million in 1985 to a peak of \$29 million in 1993. By 2002, total sales were \$13.1 million. These values are also plotted in Figure 7.1-4. Total sales appear to be cyclical but increasing from 1985 to 1994. After 1994, the cycle is gone and sales slowly declined thereafter.

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.1-4
Sales of Commercial Fish, Shellfish and Marine Life Landings
Of Species Dependent or Caught on Biscayne Bay , 2004 Dollars

Year	Species Caught in Bay	Bay Dependent Caught Outside Bay	Exvessel to Retail Margin	Commercial Vessel Sales, Refurbishments	Total Value, 2004 Dollars
1985	NA	\$2,355,000	\$4,976,000	\$505,000	\$7,836,000
1986	\$51,000	\$3,428,000	\$7,351,000	\$748,000	\$11,579,000
1987	\$121,000	\$5,128,000	\$11,090,000	\$1,128,000	\$17,467,000
1988	\$52,000	\$4,606,000	\$9,841,000	\$1,001,000	\$15,500,000
1989	\$185,000	\$3,518,000	\$7,825,000	\$796,000	\$12,325,000
1990	\$205,000	\$4,246,000	\$9,404,000	\$957,000	\$14,812,000
1991	\$244,000	\$5,847,000	\$12,870,000	\$1,309,000	\$20,270,000
1992	\$170,000	\$4,525,000	\$9,919,000	\$1,009,000	\$15,623,000
1993	\$283,000	\$8,480,000	\$18,513,000	\$1,883,000	\$29,159,000
1994	\$206,000	\$5,720,000	\$12,519,000	\$1,274,000	\$19,719,000
1995	\$448,000	\$5,023,000	\$11,560,000	\$1,176,000	\$18,207,000
1996	\$1,234,000	\$3,809,000	\$10,654,000	\$1,084,000	\$16,781,000
1997	\$1,675,000	\$3,277,000	\$10,462,000	\$1,064,000	\$16,478,000
1998	\$1,618,000	\$3,076,000	\$9,917,000	\$1,127,000	\$15,738,000
1999	\$1,840,000	\$3,418,000	\$11,107,000	\$1,262,000	\$17,626,000
2000	\$2,418,000	\$2,504,000	\$10,398,000	\$1,181,000	\$16,500,000
2001	\$1,990,000	\$1,960,000	\$8,345,000	\$948,000	\$13,243,000
2002	\$2,042,000	\$1,885,000	\$8,298,000	\$943,000	\$13,168,000

Figure 7.1-4
Sales Associated with the Biscayne Bay-Related Commercial Fishery



7.0 Uses and Economic Contribution of Biscayne Bay

Miami-Dade County Shipping Industry. The Port of Miami and the Miami River comprise the Miami-Dade County shipping industry. Both ports provide inbound and outbound cargo shipping services. The Port of Miami also provides cruise ship services. While the Port of Miami supports large deep draft ships, the Miami River provides services to the smaller ships coming from and going to Caribbean ports that tend to accommodate only shallow draft ships.

The intensity of uses at the Port of Miami and the Miami River are provided in Table 7.1-5. The value of cargo shipped into and out of the Miami River is about \$4 billion while the value through the Port of Miami is about \$17 billion. This \$21 billion worth of goods represents about 42 percent of the value of all cargo passing through Florida's seaports. Of this 42 percent, 34 percent represents the Port of Miami and 8 percent represents the Miami River. About 4 million people boarded cruise ships at the Port of Miami in 2003 which is 29 percent of all cruise ship passengers using Florida's seaports.

**Table 7.1-5
Estimated Uses and Direct Sales Associated
With Port of Miami and Miami River Shipping Businesses, 2004**

Economic Generator	Total	Port of Miami	Miami River
Port Uses:			
Value of Cargo through Port, 2003	\$21,000,000,000	\$17,000,000,000	\$4,000,000,000
Value of Cargo as % of Florida Seaports	42%	34%	8%
Number of Cruise Ship Passengers	4,000,000	4,000,000	0
Cruise Ship Passengers as % of Florida Seaports	29%	29%	0%
Estimated Sales, 2004 Dollars:			
Shipping and Cruise Operations (a)	\$3,447,569,026	\$3,255,805,147	\$191,763,878
Passenger and Crew Expenditures in County (b)	\$323,824,232	\$323,824,232	\$0
Export Contribution from Shipping (c)			
Exports by Miami-Dade County businesses	\$379,052,743	\$256,272,621	\$122,780,122
Exports by Southeast Florida businesses	\$499,075,743	\$337,421,621	\$161,654,122
Exports by Florida businesses	\$499,075,743	\$337,421,621	\$161,654,122
Total Sales in Miami-Dade County	\$4,150,446,000	\$3,835,902,000	\$314,544,000
Total Sales in Southeast Florida and Florida	\$4,270,469,000	\$3,917,051,000	\$353,418,000

- (a) Businesses involved in Water Transportation, related Air Transportation, Arrangement of Passenger Transportation, Ship Building and Repairing, and port construction activities.
- (b) Businesses in Miami-Dade County that sell goods and services to cruise passengers prior to embarkation and during ports of call and crew members who temporarily leave the ship.
- (c) Increased value of exports produced in the area due to the Port's existence.

7.0 Uses and Economic Contribution of Biscayne Bay

The Miami-Dade County shipping industry provides many economic benefits. A summary of the benefits, their expected relative size, and whether their economic contribution was estimated in this study is provided in Table 7.1-6. As indicated in the table, the bulk of the economic contribution of Miami's ports was estimated.

**Table 7.1-6
Economic Benefits of Biscayne Bay and
The Miami River As They Are Used for Shipping**

Economic Benefit	Relative Size of Benefit	In This Study
Shipping companies can provide cargo and cruise services to importers, exporters, and tourists, including vessel loading and unloading	Large	Yes
Local freight forwarders and brokers provide cargo-related services to importers and exporters	Moderate	Yes
Port construction provides jobs and income	Small	Yes
Local businesses provide ship building and repair services to cargo and cruise ship companies	Small	Yes
Local airlines and travel agencies assist cruise ship passengers in accessing cruise ships from the Port of Miami	Large	Yes
Cruise passengers and crew spend money in the county prior to embarkation and during Ports of Call	Moderate	Yes
Local businesses have a nearby port from which to ship their goods	Moderate	Yes
Florida's inland transportation industry (trucking and rail) transports goods coming into or going out of the country through Miami's ports	Small	No
Provides imports to consumers at lower transportation cost	Small	No

The estimated 2004 sales values associated with the businesses that benefit from the Port of Miami and the Miami River shipping industry are also provided in Table 7.1-5. The estimated sales of shipping and cruise operations which includes Water Transportation, related air transportation, arrangement of passenger transportation, ship building and repairing, and port construction activities, was estimated to be \$3.5 billion. Of this value, \$3.3 billion was attributed to the Port of Miami and \$192 million was attributed to the Miami River shipping operations.

The estimated expenditure values of cruise passengers and crew members as they spend money in Miami-Dade County prior to embarkation and during ports of call is \$324 million all of which is attributed to the Port of Miami.

7.0 Uses and Economic Contribution of Biscayne Bay

The export contributions from shipping are the values of exports that are produced in Miami-Dade County, in southeast Florida, and Florida because the Port of Miami and the Miami River exist. They are order-of-magnitude estimates based on specific assumptions described in Section 5.0 of this report. They reflect the additional sales to local export businesses generated because they have a nearby port from which to ship their goods. In 2004, this additional export sales (or value) to Miami-Dade County businesses was estimated to be \$379 million of which \$256 million is attributed to the Port of Miami and \$123 million is attributed to the Miami River.

The additional export sales (or value) to southeast Florida businesses was estimated to be \$499 million of which \$337 million is attributed to the Port of Miami and \$161 million is attributed to the Miami River. The export sales to Florida businesses is equal to that for southeast Florida businesses because it was assumed that all of the affected exports would be produced relatively close to Miami-Dade County.

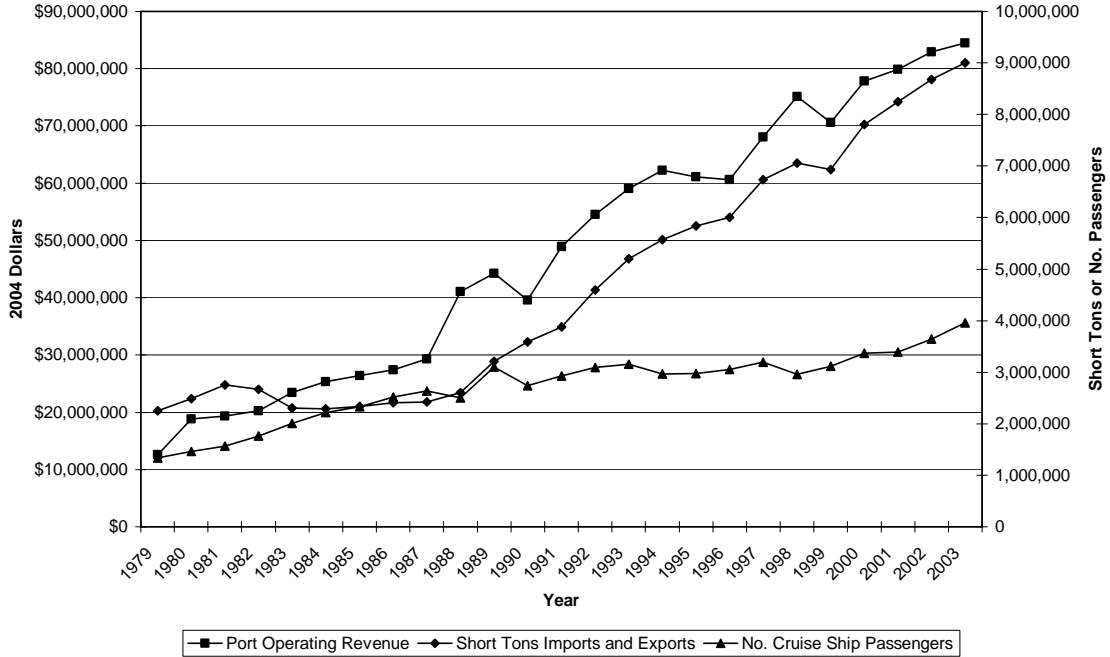
Overall, the direct sales in Miami-Dade County associated with the Port of Miami and the Miami River was estimated to be \$4.2 billion of which \$3.8 billion was attributed to the Port of Miami and \$315 million was attributed to the Miami River. The total direct sales in southeast Florida and Florida associated with the Port of Miami and the Miami River was estimated to be \$4.3 billion of which \$3.9 billion was attributed to the Port of Miami and \$353 million was attributed to the Miami River.

The historic uses at the Port of Miami from 1979 to 2003 are graphed in Figure 7.1-7. The Port's operating revenue, the short tons of imports and exports shipped through the Port, and the number of cruise ship passengers using the Port are provided. All three measures of use have grown steadily since 1979, with Port operating revenue and weight of goods shipped increasing significantly. In 1979, 2.3 million short tons of exports and imports were shipped through the Port. By 2003, 9.0 million short tons were shipped. In 1979, 1.3 million cruise ship passengers passed through the Port. This value grew to 4.0 million by 2003. In 1979, Port operating revenue was \$12.6 million in 2004 dollars and grew to \$83.4 million by 2003.

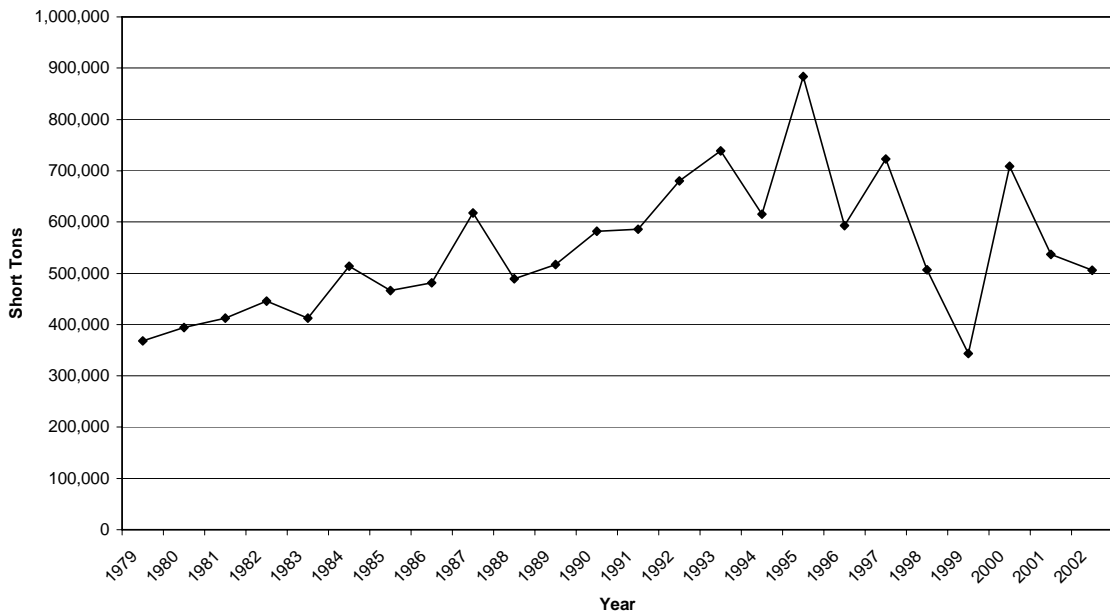
The historic short tons of imports and exports through the Miami River from 1979 through 2002 are graphed in Figure 7.1-8. Tons shipped increased steadily from 1979 through 1993 from 368,000 short tons to 739,000 short tons. They fell to 615,000 short tons in 1994, then increased to the peak of 884,000 short tons in 1995. Tons shipped has been cyclical since 1995. In 2002, 506,000 short tons were shipped through the Miami River.

7.0 Uses and Economic Contribution of Biscayne Bay

**Figure 7.1-7
Historic Ship and Cruise Activities at the Port of Miami, 1979 to 2003**



**Figure 7.1-8
Imports and Exports Through the Miami River, 1979 to 2002**



7.0 Uses and Economic Contribution of Biscayne Bay

7.2 Economic Contribution of Biscayne Bay

This section summarizes the economic contribution to Miami-Dade County, southeast Florida and Florida as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce, and cruise ship services from 1980 to 2004. All dollar values are reported in 2004 dollars, unless otherwise indicated.

2004 Economic Contribution to Miami-Dade County. A summary of the output, income, employment and tax revenue created in Miami-Dade County in 2004 as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce and cruise ship services is provided in Table 7.2-1. The economic contribution of Biscayne Bay-related activities as a percent of the overall Miami-Dade County economy is provided in Table 7.2-2 and Table 7.2-3.

**Table 7.2-1
Total Economic Contribution of Biscayne Bay to Miami-Dade County in 2004**

Activity	Direct, Indirect and Induced Economic Contribution (a)			
	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Recreation	\$3,789,000,000	\$2,112,000,000	57,100	\$257,000,000
Commercial Fishing (f)	\$28,336,000	\$17,404,000	469	\$1,837,000
Port of Miami Shipping	\$8,231,254,000	\$3,857,275,000	73,958	\$331,011,000
Miami River Shipping	\$682,539,000	\$338,889,000	6,106	\$37,347,000
Total	\$12,731,129,000	\$6,325,568,000	137,633	\$627,195,000

^a Includes direct, indirect and induced effects in 2004 dollars.

^b Output is defined as the value of the additional goods and services produced in the study area due to the activity.

^c Income is the sum of wages, salaries, proprietor's income, profits, rents, royalties and dividends due to the activity. It is the sum of labor income and other property type income.

^d Employment includes the number of full-time and part-time jobs created due to the activity.

^e Tax revenue is the sum of the excise taxes, property taxes, fees, licenses, and sales taxes collected due to the activity. It excludes taxes on profit and income.

^f Commercial fishing values represent the year 2002. Data for 2003 and 2004 were not available during this study.

Overall, the activities on Biscayne Bay in 2004 contributed \$12.7 billion in output, \$6.3 billion in income, 137,600 jobs and \$627 million in tax revenue to Miami-Dade County. These values represent 15 percent of total output produced in the county, 10 percent of all income earned in the county, 11 percent of employment in the county and 11 percent of all excise taxes, property taxes, fees, licenses, and sales tax revenues collected in the county.

The recreation component of this economic contribution generated about \$3.8 billion in output, \$2.1 billion in income, 57,100 jobs and \$257 million in tax revenues in Miami-Dade County. Recreation represents about 3.4 percent of the county's economy as measured by the percent of income generated in the county.

7.0 Uses and Economic Contribution of Biscayne Bay

Waterborne commerce and cruise ship services at the Port of Miami generated \$8.2 billion in output, \$3.9 billion in income, 74,000 jobs and \$331 million in tax revenues and represents about 6.2 percent of the county's economy.

Waterborne commerce at the Miami River generated \$683 million in output, \$339 million in income, 6,100 jobs and \$37 million in tax revenues and represents about 0.6 percent of the county's economy.

Bay-related commercial fishing generated \$28 million in output, \$17 million in income, 469 jobs and \$1.8 million in tax revenue and represents about 0.03 percent of the county's economy.

**Table 7.2-2
Economy of Study Areas, 2003**

Study Area	Gross Sales	Income	Employment	Tax Revenue
Miami-Dade County	\$85,245,887,000	\$62,037,209,000	1,293,315	\$5,935,746,000
Southeast Florida	\$222,040,661,966	\$171,714,743,000	2,923,679	\$14,219,109,000
Florida	\$642,280,422,229	\$496,706,399,000	9,185,622	\$38,749,048,000

Source: Gross Sales from Florida Department of Revenue and represent 2003. Personal income and employment data are from U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System web site and represent 2002. These are the most recent years for which data are available. Employment is number full-time and part-time jobs. Personal income is the income received by persons from all sources and is the sum of wage and salary disbursements, supplements to wages and salaries, proprietor's income, rental income, personal dividend income, personal interest income, personal current transfer receipts, less contributions for government social insurance. Tax revenue is indirect business taxes in 2000 from the 2000 IMPLAN model.

**Table 7.2-3
Total Economic Contribution of Biscayne Bay as a Percent of the Miami-Dade County Economy in 2004**

Activity	Direct, Indirect and Induced Economic Contribution			
	Output	Income	Employment	Tax Revenue
Recreation	4.44%	3.40%	4.42%	4.33%
Commercial Fishing	0.03%	0.03%	0.04%	0.03%
Port of Miami Shipping	9.66%	6.22%	5.72%	5.58%
Miami River Shipping	0.80%	0.55%	0.47%	0.63%
Total	14.93%	10.20%	10.64%	10.57%

2004 Economic Contribution to Southeast Florida. A summary of the direct, indirect and induced output, income, employment and tax revenue created in southeast Florida in 2004 as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce and cruise ship services is provided in Table 7.2-4. The economic contribution of Biscayne Bay-related activities as a percent of the overall southeast Florida economy is provided in Table 7.2-5.

7.0 Uses and Economic Contribution of Biscayne Bay

Overall, the activities on Biscayne Bay in 2004 contributed \$13.7 billion in output, \$6.9 billion in income, 143,000 jobs and \$686 million in tax revenue to southeast Florida. These values represent 6.2 percent of total output produced in southeast Florida, 4.0 percent of all income earned in southeast Florida, 4.9 percent of the employment in southeast Florida and 4.8 percent of all excise taxes, property taxes, fees, licenses, and sales tax revenues collected in southeast Florida.

The recreation component of this economic contribution generated about \$4.0 billion in output, \$2.2 billion in income, 58,800 jobs and \$272 million in tax revenues to southeast Florida. Recreation represents about 1.3 percent of the southeast Florida economy as measured by the percent of income generated in southeast Florida.

Waterborne commerce and cruise ship services at the Port of Miami generated \$8.9 billion in output, \$4.3 billion in income, 77,000 jobs and \$369 million in tax revenues and represents about 2.5 percent of the southeast Florida economy.

Waterborne commerce at the Miami River generated \$805 million in output, \$406 million in income, 6,700 jobs and \$44 million in tax revenues and represents about 0.2 percent of the southeast Florida economy.

Bay-related commercial fishing generated \$30 million in output, \$18 million in income, 473 jobs and \$2.0 million in tax revenue and represents about 0.01 percent of the southeast Florida economy.

**Table 7.2-4
Total Economic Contribution of Biscayne Bay to Southeast Florida in 2004**

Activity	Direct, Indirect and Induced Economic Contribution (a)			
	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Recreation	\$3,992,000,000	\$2,243,000,000	58,800	\$272,000,000
Commercial Fishing (f)	\$29,859,000	\$18,234,000	473	\$1,954,000
Port of Miami Shipping	\$8,894,946,000	\$4,259,185,000	77,048	\$368,385,000
Miami River Shipping	\$804,807,000	\$406,395,000	6,741	\$43,911,000
Total	\$13,721,612,000	\$6,926,814,000	143,062	\$686,250,000

Note: See Table 7.2-1 for footnote explanations.

**Table 7.2-5
Total Economic Contribution of Biscayne Bay as a Percent of the Southeast Florida Economy in 2004**

Activity	Direct, Indirect and Induced Economic Contribution			
	Output	Income	Employment	Tax Revenue
Recreation	1.80%	1.31%	2.01%	1.91%
Commercial Fishing	0.01%	0.01%	0.02%	0.01%
Port of Miami Shipping	4.01%	2.48%	2.64%	2.59%
Miami River Shipping	0.36%	0.24%	0.23%	0.31%
Total	6.18%	4.03%	4.89%	4.83%

7.0 Uses and Economic Contribution of Biscayne Bay

2004 Economic Contribution to Florida. A summary of the direct, indirect and induced output, income, employment and tax revenue created in Florida in 2004 as Biscayne Bay was used for recreation, commercial fishing, waterborne commerce and cruise ship services is provided in Table 7.2-6. The economic contribution of Biscayne Bay-related activities as a percent of the overall Florida economy is provided in Table 7.2-7.

Overall, the activities on Biscayne Bay in 2004 contributed \$14.7 billion in output, \$7.5 billion in income, 158,000 jobs and \$732 million in tax revenue to Florida. These values represent 2.3 percent of total sales in Florida, 1.5 percent of all income earned in Florida, 1.7 percent of the employment in Florida and 1.9 percent of all excise taxes, property taxes, fees, licenses, and sales tax revenues collected in Florida.

The recreation component of this economic contribution generated about \$4.6 billion in output, \$2.6 billion in income, 65,300 jobs and \$305 million in tax revenues. Biscayne Bay-related recreation represents about 0.5 percent of the Florida economy as measured by the percent of income generated in Florida.

Waterborne commerce and cruise ship services at the Port of Miami generated \$9.2 billion in output, \$4.4 billion in income, 84,300 jobs and \$380 million in tax revenues and represents about 0.9 percent of Florida's economy.

Waterborne commerce at the Miami River generated \$841 million in output, \$427 million in income, 7,500 jobs and \$45 million in tax revenues and represents about 0.09 percent of Florida's economy.

Bay-related commercial fishing generated \$31 million in output, \$19 million in income, 500 jobs and \$2.0 million in tax revenue and represents about 0.005 percent of Florida's economy.

**Table 7.2-6
Total Economic Contribution of Biscayne Bay to Florida in 2004**

Activity	Direct, Indirect and Induced Economic Contribution (a)			
	Output (b)	Income (c)	Employment (d)	Tax Revenue (e)
Recreation	\$4,567,000,000	\$2,565,000,000	65,300	\$305,000,000
Commercial Fishing (f)	\$31,118,000	\$18,958,000	500	\$1,991,000
Port of Miami Shipping	\$9,242,492,000	\$4,439,473,000	84,311	\$380,122,000
Miami River Shipping	\$841,836,000	\$427,334,000	7,502	\$45,081,000
Total	\$14,682,446,000	\$7,450,765,000	157,613	\$732,194,000

Note: See Table 7.2-1 for footnote explanations.

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.2-7
Total Economic Contribution of Biscayne Bay as a Percent of the Florida Economy in 2004

Activity	Direct, Indirect and Induced Economic Contribution			
	Output	Income	Employment	Tax Revenue
Recreation	0.71%	0.52%	0.71%	0.79%
Commercial Fishing	0.0048%	0.0038%	0.01%	0.01%
Port of Miami Shipping	1.44%	0.89%	0.92%	0.98%
Miami River Shipping	0.13%	0.09%	0.08%	0.12%
Total	2.29%	1.50%	1.72%	1.89%

Economic Contribution by Activity and Type of Impact. The economic contributions of Biscayne Bay-related activities to Miami-Dade County, southeast Florida and Florida by activity and type of impact (direct, indirect or induced) are provided in Tables 7.2-8 through 7.2-10. The economic contribution as a percent of the study area's economy is also provided for each activity and type of impact.

For example, Biscayne Bay-related recreation contributed 2.0 billion in direct output to Miami-Dade County or 2.4 percent of total county sales. This recreation contributed \$424 million in indirect output to Miami-Dade County or 0.50 percent of total county sales. The induced output produced in Miami-Dade County in 2004 was 1.33 billion or 1.57 percent of total county sales. Overall, the induced contributions are larger than the indirect contributions for the Biscayne Bay-related activities. In other words, the economic contribution generated as employees of the direct, indirect and induced businesses re-spend their income in the economy is larger than that generated as the businesses directly dependent on Biscayne Bay make purchases from other local businesses.

7.0 Uses and Economic Contribution of Biscayne Bay

**Table 7.2-8
Economic Contribution of Biscayne Bay to Miami-Dade County by Activity and Type of Economic Impact**

Activity	Direct		Indirect		Induced		Total
	Value	% of Economy	Value	% of Economy	Value	% of Economy	
Output in 2004 Dollars							
Recreation	\$2,031,240,000	2.38%	\$423,800,000	0.50%	\$1,334,552,000	1.57%	\$3,789,592,000
Commercial Fishing	\$13,171,000	0.02%	\$2,331,000	0.00%	\$12,834,000	0.02%	\$28,336,000
Port of Miami Shipping	\$3,835,902,000	4.50%	\$1,622,935,000	1.90%	\$2,772,416,000	3.25%	\$8,231,253,000
Miami River Shipping	\$314,544,000	0.37%	\$116,356,000	0.14%	\$251,640,000	0.30%	\$682,540,000
Total	\$6,194,857,000	7.27%	\$2,165,422,000	2.54%	\$4,371,442,000	5.13%	\$12,731,721,000
Income in 2004 Dollars							
Recreation	\$1,087,150,000	1.75%	\$230,710,000	0.37%	\$793,830,000	1.28%	\$2,111,690,000
Commercial Fishing	\$8,505,000	0.01%	\$1,261,000	0.00%	\$7,638,000	0.01%	\$17,404,000
Port of Miami Shipping	\$1,403,514,000	2.26%	\$815,538,000	1.31%	\$1,638,222,000	2.64%	\$3,857,274,000
Miami River Shipping	\$129,517,000	0.21%	\$59,495,000	0.10%	\$149,877,000	0.24%	\$338,889,000
Total	\$2,628,686,000	4.24%	\$1,107,004,000	1.78%	\$2,589,567,000	4.17%	\$6,325,257,000
Employment, Number of Full- and Part-Time Jobs							
Recreation	37,259	2.88%	4,457	0.34%	15,338	1.19%	57,054
Commercial Fishing	299	0.02%	23	0.00%	147	0.01%	469
Port of Miami Shipping	26,615	2.06%	15,534	1.20%	31,809	2.46%	73,958
Miami River Shipping	2,075	0.16%	1,133	0.09%	2,898	0.22%	6,106
Total	66,247	5.12%	21,147	1.64%	50,192	3.88%	137,587
Tax Revenue in 2004 Dollars							
Recreation	\$175,760,000	2.96%	\$18,051,950	0.30%	\$63,721,500	1.07%	\$257,533,450
Commercial Fishing	\$1,123,000	0.02%	\$107,000	0.00%	\$607,000	0.01%	\$1,837,000
Port of Miami Shipping	\$146,975,000	2.48%	\$48,323,000	0.81%	\$135,713,000	2.29%	\$331,011,000
Miami River Shipping	\$21,500,000	0.36%	\$3,753,000	0.06%	\$12,093,000	0.20%	\$37,346,000
Total	\$345,358,000	5.82%	\$70,234,950	1.18%	\$212,134,500	3.57%	\$627,727,450

7.0 Uses and Economic Contribution of Biscayne Bay

**Table 7.2-9
Economic Contribution of Biscayne Bay to Southeast Florida by Activity and Type of Economic Impact**

Activity	Direct		Indirect		Induced		Total
	Value	% of Economy	Value	% of Economy	Value	% of Economy	
Output in 2004 Dollars							
Recreation	\$2,038,700,000	0.92%	\$437,100,000	0.20%	\$1,516,050,000	0.68%	\$3,991,850,000
Commercial Fishing	\$13,171,000	0.01%	\$2,468,000	0.00%	\$14,220,000	0.01%	\$29,859,000
Port of Miami Shipping	\$3,917,051,000	1.76%	\$1,725,786,000	0.78%	\$3,252,108,000	1.46%	\$8,894,945,000
Miami River Shipping	\$353,418,000	0.16%	\$133,102,000	0.06%	\$318,287,000	0.14%	\$804,807,000
Total	\$6,322,340,000	2.85%	\$2,298,456,000	1.04%	\$5,100,665,000	2.30%	\$13,721,461,000
Income in 2004 Dollars							
Recreation	\$1,103,290,000	0.64%	\$240,250,000	0.14%	\$899,330,000	0.52%	\$2,242,870,000
Commercial Fishing	\$8,505,000	0.00%	\$1,367,000	0.00%	\$8,362,000	0.00%	\$18,234,000
Port of Miami Shipping	\$1,445,706,000	0.84%	\$899,328,000	0.52%	\$1,914,151,000	1.11%	\$4,259,185,000
Miami River Shipping	\$148,549,000	0.09%	\$70,539,000	0.04%	\$187,307,000	0.11%	\$406,395,000
Total	\$2,706,050,000	1.58%	\$1,211,484,000	0.71%	\$3,009,150,000	1.75%	\$6,926,684,000
Employment, Number of Full- and Part-Time Jobs							
Recreation	38,083	1.30%	4,514	0.15%	16,203	0.55%	58,799
Commercial Fishing	299	0.01%	23	0.00%	151	0.01%	473
Port of Miami Shipping	26,822	0.92%	15,760	0.54%	34,465	1.18%	77,048
Miami River Shipping	2,177	0.07%	1,185	0.04%	3,379	0.12%	6,741
Total	67,381	2.30%	21,482	0.73%	54,198	1.85%	143,061
Tax Revenue in 2004 Dollars							
Recreation	\$177,830,000	1.25%	\$19,490,000	0.14%	\$74,160,000	0.52%	\$271,480,000
Commercial Fishing	\$1,123,000	0.01%	\$116,000	0.00%	\$715,000	0.01%	\$1,954,000
Port of Miami Shipping	\$151,127,000	1.06%	\$52,538,000	0.37%	\$164,720,000	1.16%	\$368,385,000
Miami River Shipping	\$23,364,000	0.16%	\$4,522,000	0.03%	\$16,025,000	0.11%	\$43,911,000
Total	\$353,444,000	2.49%	\$76,666,000	0.54%	\$255,620,000	1.80%	\$685,730,000

7.0 Uses and Economic Contribution of Biscayne Bay

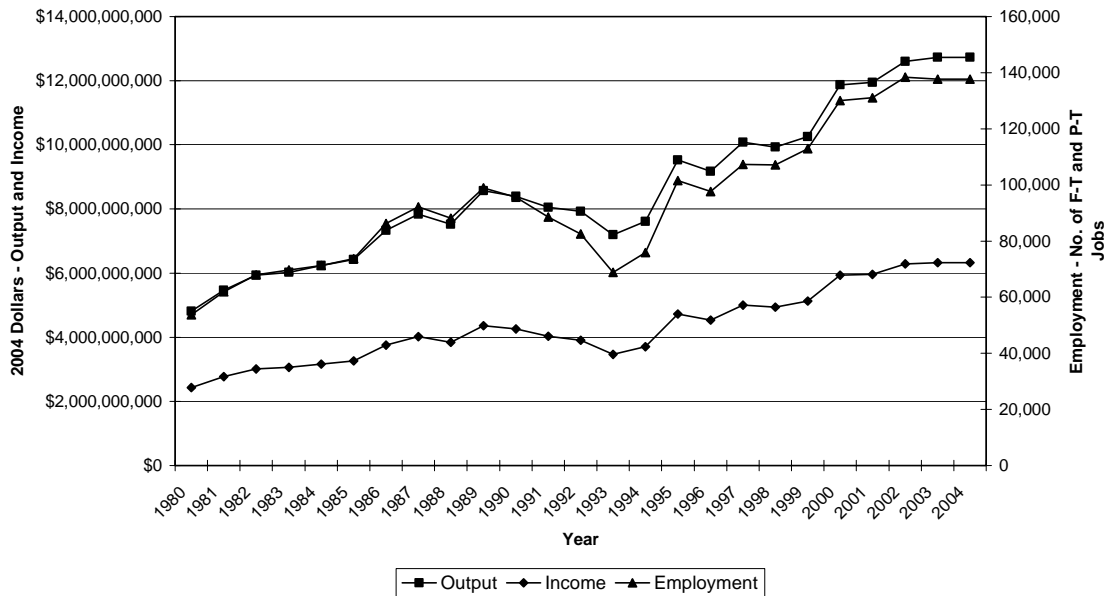
**Table 7.2-10
Economic Contribution of Biscayne Bay to Florida by Activity and Type of Economic Impact**

Activity	Direct		Indirect		Induced		Total
	Value	% of Economy	Value	% of Economy	Value	% of Economy	
Output in 2004 Dollars							
Recreation	\$2,249,190,000	0.35%	\$505,430,000	0.08%	\$1,813,070,000	0.28%	\$4,567,690,000
Commercial Fishing	\$13,171,000	0.00%	\$2,618,000	0.00%	\$15,329,000	0.00%	\$31,118,000
Port of Miami Shipping	\$3,917,051,000	0.61%	\$1,807,493,000	0.28%	\$3,517,948,000	0.55%	\$9,242,492,000
Miami River Shipping	\$353,418,000	0.06%	\$141,344,000	0.02%	\$347,074,000	0.05%	\$841,836,000
Total	\$6,532,830,000	1.02%	\$2,456,885,000	0.38%	\$5,693,421,000	0.89%	\$14,683,136,000
Income in 2004 Dollars							
Recreation	\$1,210,850,000	0.24%	\$280,870,000	0.06%	\$1,073,350,000	0.22%	\$2,565,070,000
Commercial Fishing	\$8,505,000	0.00%	\$1,418,000	0.00%	\$9,035,000	0.00%	\$18,958,000
Port of Miami Shipping	\$1,445,706,000	0.29%	\$923,906,000	0.19%	\$2,069,861,000	0.42%	\$4,439,473,000
Miami River Shipping	\$148,549,000	0.03%	\$73,247,000	0.01%	\$205,538,000	0.04%	\$427,334,000
Total	\$2,813,610,000	0.57%	\$1,279,441,000	0.26%	\$3,357,784,000	0.68%	\$7,450,835,000
Employment, Number of Full- and Part-Time Jobs							
Recreation	39,236	0.43%	5,244	0.06%	20,776	0.23%	65,256
Commercial Fishing	299	0.00%	26	0.00%	175	0.00%	500
Port of Miami Shipping	26,822	0.29%	17,428	0.19%	40,061	0.44%	84,311
Miami River Shipping	2,177	0.02%	1,358	0.01%	3,967	0.04%	7,502
Total	68,534	0.75%	24,055	0.26%	64,980	0.71%	157,569
Tax Revenue in 2004 Dollars							
Recreation	\$194,830,000	0.50%	\$22,430,000	0.06%	\$87,860,000	0.23%	\$305,120,000
Commercial Fishing	\$1,123,000	0.00%	\$121,000	0.00%	\$747,000	0.00%	\$1,991,000
Port of Miami Shipping	\$151,127,000	0.39%	\$54,040,000	0.14%	\$174,955,000	0.45%	\$380,122,000
Miami River Shipping	\$23,364,000	0.06%	\$4,718,000	0.01%	\$16,999,000	0.04%	\$45,081,000
Total	\$370,444,000	0.96%	\$81,309,000	0.21%	\$280,561,000	0.72%	\$732,314,000

7.0 Uses and Economic Contribution of Biscayne Bay

Historic Economic Contribution to Miami-Dade County. The output, income and employment generated in Miami-Dade County from Biscayne Bay-related activities during the period 1980 through 2004 are provided in Figure 7.2-1. All three measures of economic contribution increased throughout most of the 24 year period. In 1992 and 1993, Hurricane Andrew, which struck the county on August 24, 1992, significantly reduced recreation activity on the Bay. Output, income and employment begin to recover in 1994 and by 1995 the upward trend is back to pre-1992 levels.

Figure 7.2-1
Economic Contribution to Miami-Dade County of Activities On or Related
To Biscayne Bay, 1980 to 2004
Includes direct, indirect and induced effects



Historic Economic Contribution to Southeast Florida. The direct, indirect and induced output, income and employment generated in southeast Florida from Biscayne Bay-related activities during the period 1980 through 2004 are provided in Figure 7.2-2. Output, income and employment also exhibit an upward trend throughout the period and the impact of Hurricane Andrew in 1992 and 1993 is evident.

Historic Economic Contribution to Florida. The direct, indirect and induced output, income and employment generated in Florida from Biscayne Bay-related activities during the period 1980 through 2004 are provided in Figure 7.2-3. The trend mirrors the trend observed for southeast Florida because most of the economic contribution of Biscayne Bay to Florida benefits southeast Florida.

7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.2-2
Economic Contribution to Southeast Florida of Activities On or Related To Biscayne Bay, 1980 to 2004, Includes direct, indirect and induced effects

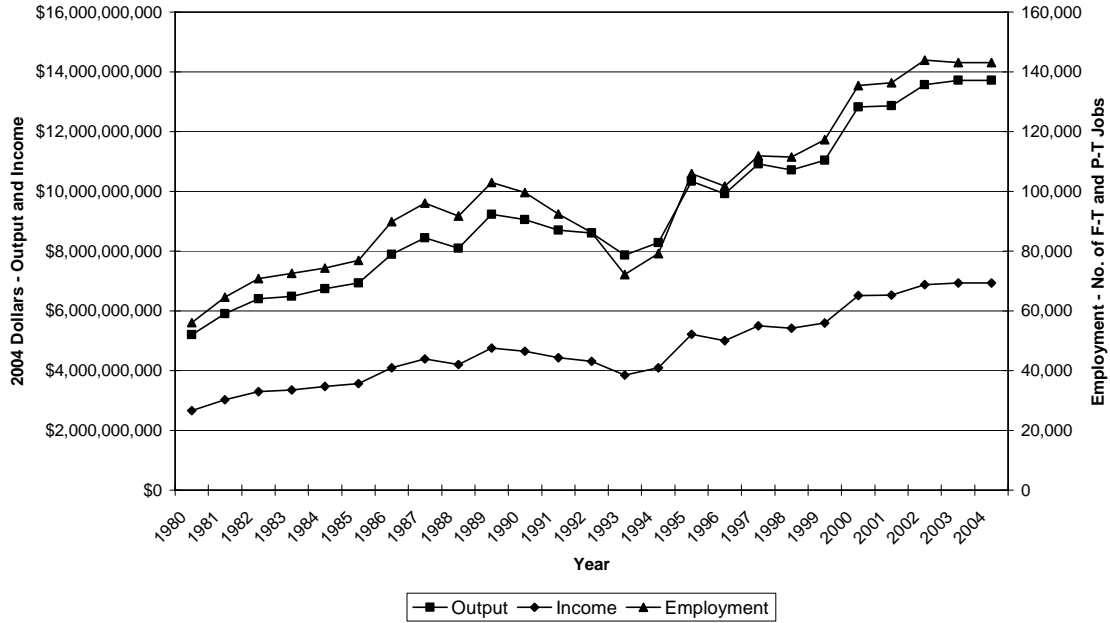
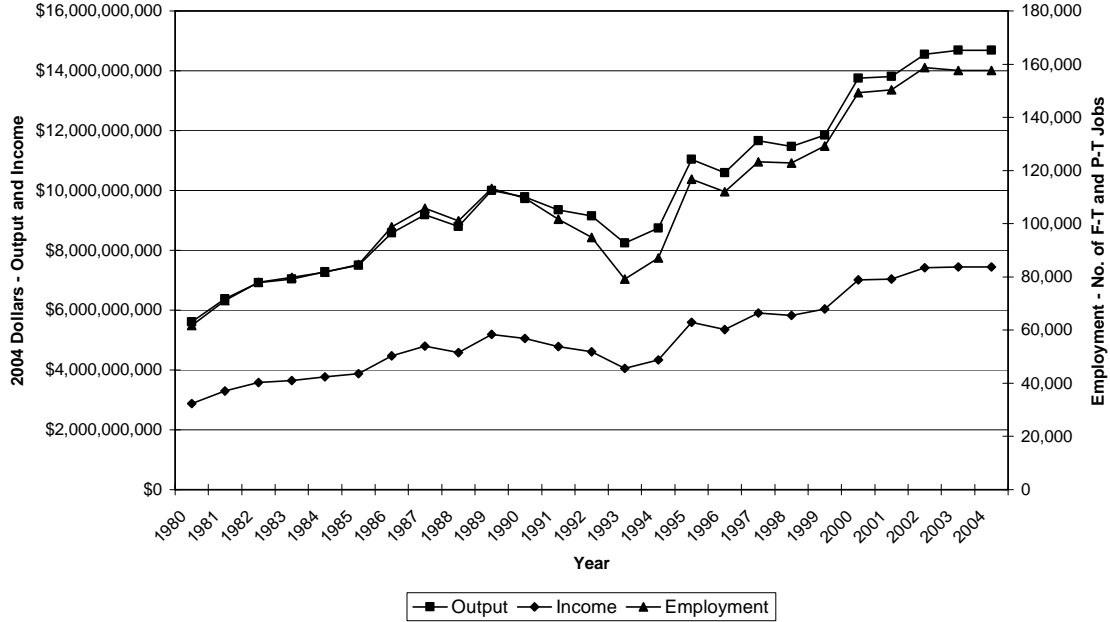


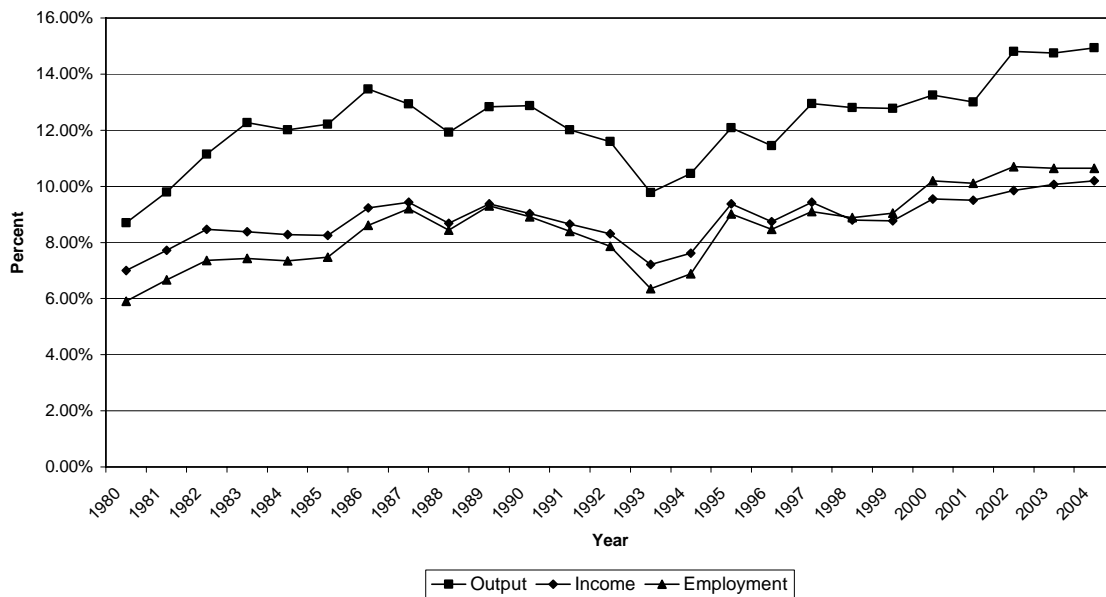
Figure 7.2-3
Economic Contribution to Florida of Activities On or Related To Biscayne Bay, 1980 to 2004, Includes direct, indirect and induced effects



7.0 Uses and Economic Contribution of Biscayne Bay

Historic Economic Contributions as Percent of Overall Economy. The economic contributions of Biscayne Bay-related activities as a percent of the Miami-Dade County economy from 1980 to 2004 are presented in Figure 7.2-4. Since 2000, activities on Biscayne Bay represented more than 10 percent of the county's economy as measured by income. The economic importance of Biscayne Bay to Miami-Dade County increased from 7.0 percent of county income in 1980 to 10.2 percent of county income in 2004. After 1980, the lowest economic contribution occurred in 1993 when Bay-related activities represented 7.2 percent of the county's economy. This relatively low value was due to the impact of Hurricane Andrew which struck the county in August 1992. By 1995, Bay-related activities recovered to their pre-1992 levels.

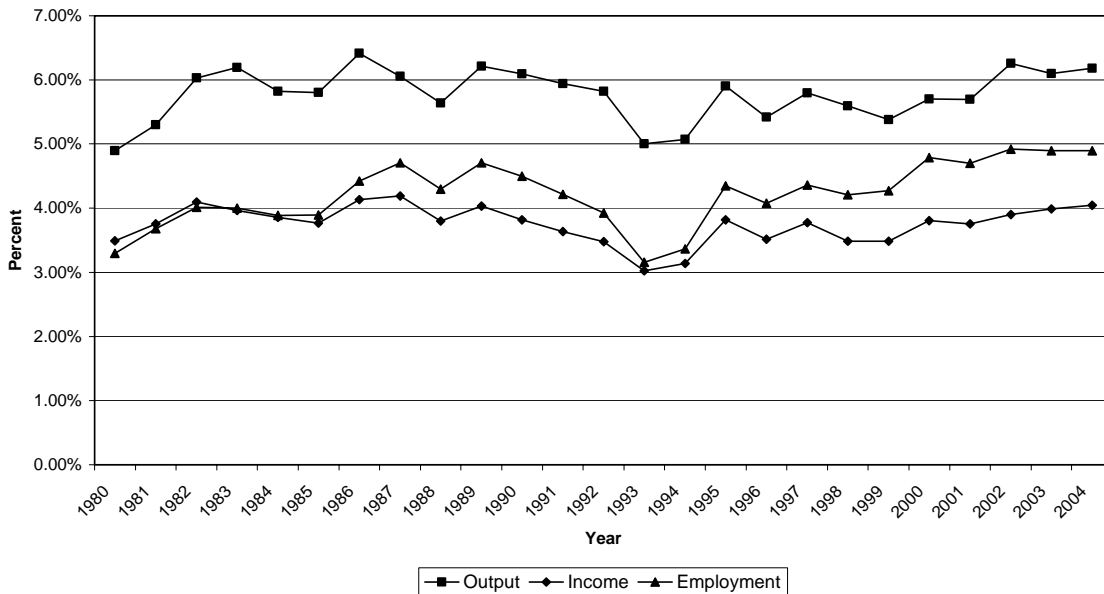
Figure 7.2-4
Economic Contribution of Activities On or Related
To Biscayne Bay as a Percent of the Miami-Dade County Economy, 1980 to 2004
Includes direct, indirect and induced effects



7.0 Uses and Economic Contribution of Biscayne Bay

The economic contributions of Biscayne Bay-related activities as a percent of the southeast Florida economy from 1980 to 2004 are presented in Figure 7.2-5. The economic importance of Biscayne Bay has been stable throughout the period. In 1980, income generated from Bay-related activities was 3.5 percent of total income earned in southeast Florida. By 2004, the Bay's relative contribution to the southeast Florida economy was 4.0 percent.

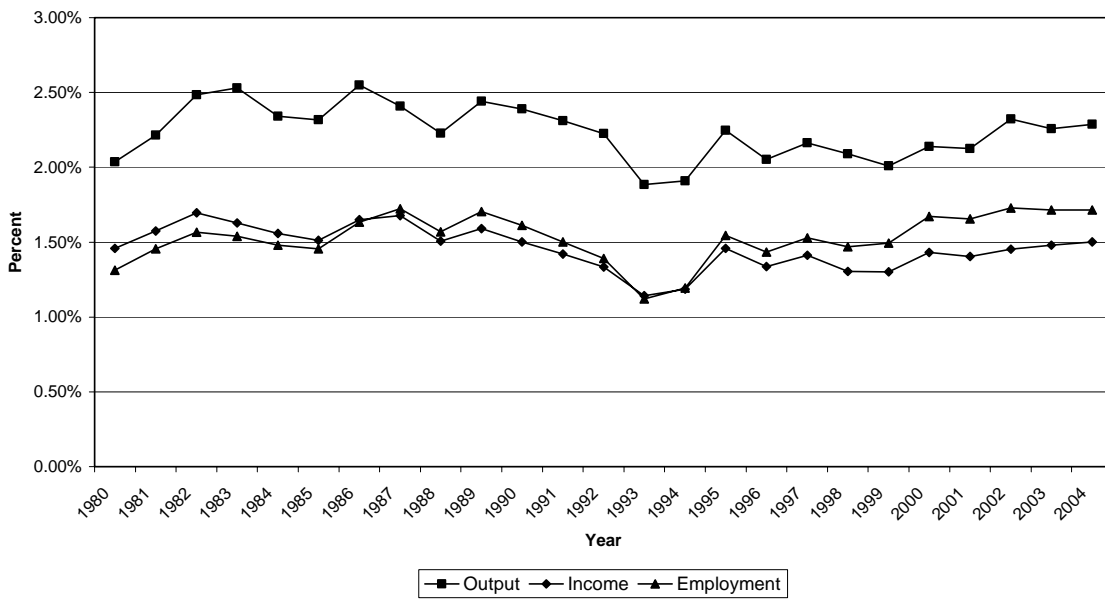
Figure 7.2-5
Economic Contribution of Activities On or Related
To Biscayne Bay as a Percent of the Southeast Florida Economy, 1980 to 2004
Includes direct, indirect and induced effects



7.0 Uses and Economic Contribution of Biscayne Bay

The economic contributions of Biscayne Bay-related activities as a percent of the Florida economy from 1980 to 2004 are presented in Figure 7.2-6. The economic importance of Biscayne Bay to Florida has also been stable throughout the period. In 1980 and in 2004, income generated from Bay-related activities was 1.5 percent of total income earned in Florida.

Figure 7.2-6
Economic Contribution of Activities On or Related
To Biscayne Bay as a Percent of the Florida Economy, 1980 to 2004
Includes direct, indirect and induced effects



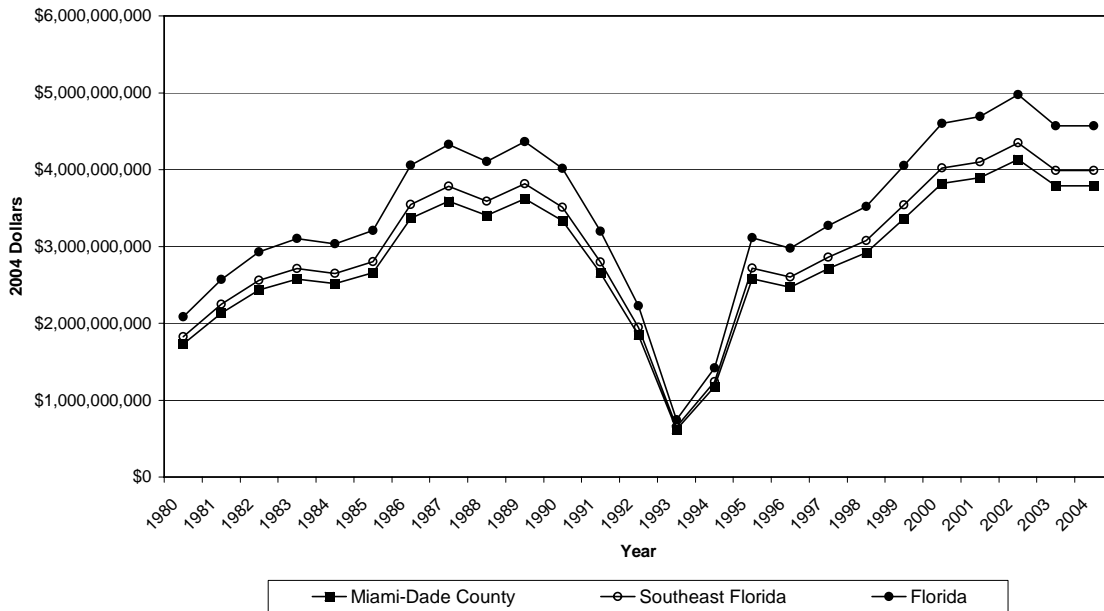
7.3 Economic Contribution as Biscayne Bay Supports Recreation, 1980 to 2004

This section summarizes current and historic the economic contribution to Miami-Dade County, southeast Florida and Florida as Biscayne Bay is used for recreation. The economic contributions include the direct, indirect and induced impacts in 2004 dollars or in number of full-time and part-time jobs.

The values of output produced in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay was used for recreation are provided in Figure 7.3-1. The output generated appears to be cyclical over the period because of the impact of Hurricane Andrew in 1992. Had this hurricane not struck Miami-Dade County, it is likely that the output contribution would have increased over the period.

In 1980, \$1.7 billion in output was generated in Miami-Dade County; \$1.8 billion in output was generated in southeast Florida and \$2.1 billion in output was generated in Florida. By 2004, the output contribution of the Bay was \$3.8 billion in Miami-Dade County, \$4.0 billion in southeast Florida and \$4.6 billion in Florida.

**Figure 7.3-1
Values of Output Produced in Miami-Dade County, Southeast Florida
and Florida Generated by Biscayne Bay Recreation, 1980 to 2004**

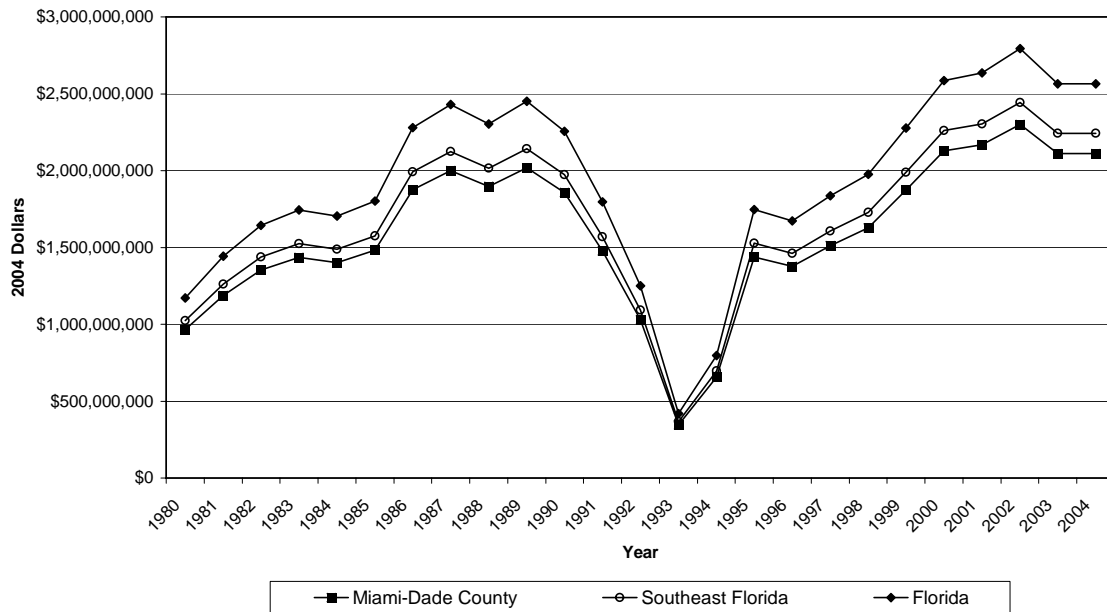


7.0 Uses and Economic Contribution of Biscayne Bay

The income produced in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay was used for recreation are provided in Figure 7.3-2. The values in this figure include the direct, indirect and induced income contributions. As with output, the income generated appears to be cyclical over the period because of the impact of Hurricane Andrew in 1992. Had this hurricane not struck Miami-Dade County, it is likely that the income contribution would have increased over the period.

In 1980, \$965 million in income was generated in Miami-Dade County; \$1.0 billion in income was generated in southeast Florida and \$1.2 billion in income was generated in Florida. By 2004, the income contribution of the Bay was \$2.1 billion in Miami-Dade County, \$2.2 billion in southeast Florida and \$2.6 billion in Florida.

Figure 7.3-2
Income to Residents in Miami-Dade County, Southeast Florida and Florida Generated by Biscayne Bay Recreation, 1980 to 2004

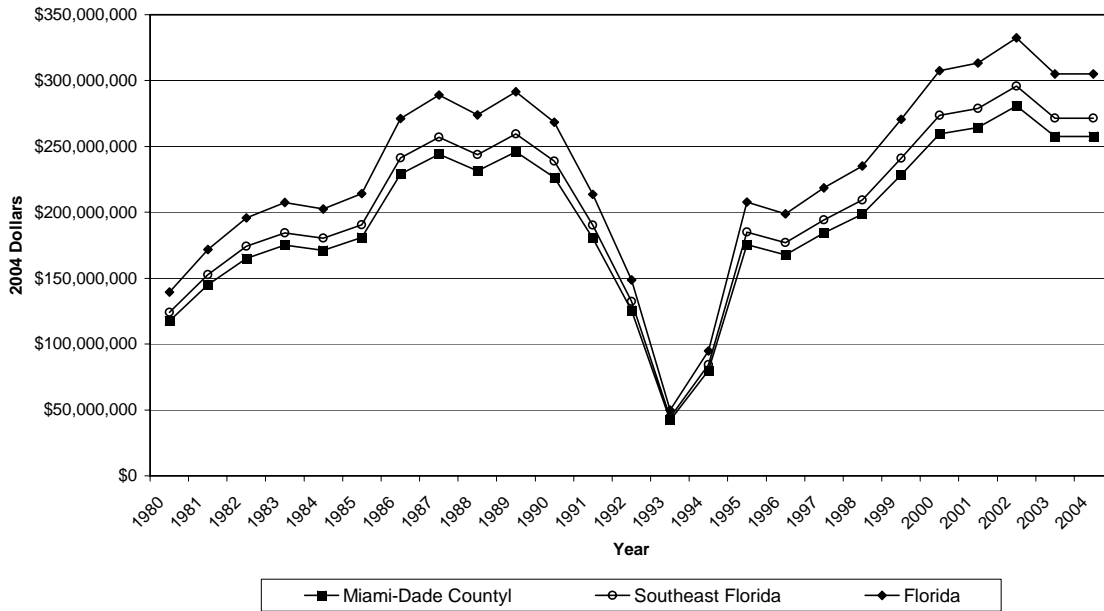


7.0 Uses and Economic Contribution of Biscayne Bay

The tax revenue collected in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay was used for recreation are provided in Figure 7.3-3. As with output and income, tax collections appear to be cyclical over the period because of the impact of Hurricane Andrew in 1992. Had this hurricane not struck Miami-Dade County, it is likely that the tax revenue contribution would have increased over the period.

In 1980, \$117 million in tax revenues were collected in Miami-Dade County; \$124 million in tax revenues were collected in southeast Florida and \$139 million in tax revenues were collected in Florida. By 2004, the tax revenues generated from uses of the Bay were \$257 million in Miami-Dade County, \$272 million in southeast Florida and \$305 million in Florida.

Figure 7.3-3
Tax Revenues Collected in Miami-Dade County, Southeast Florida
and Florida Generated by Biscayne Bay Recreation, 1980 to 2004

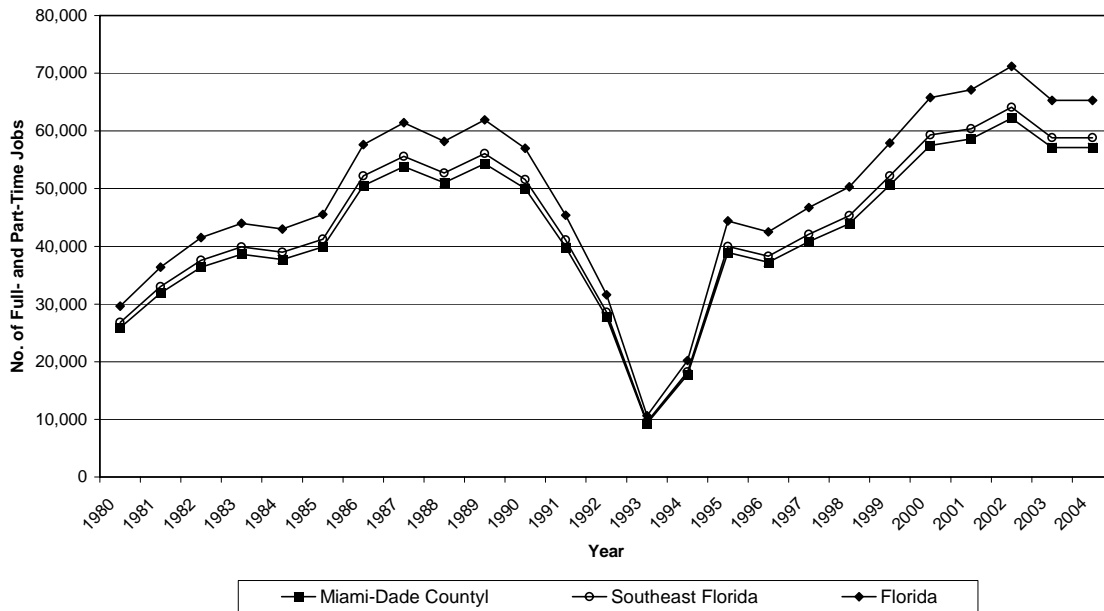


7.0 Uses and Economic Contribution of Biscayne Bay

Employment created in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay was used for recreation is provided in Figure 7.3-4. As with output, income and tax revenues, the employment created from Bay uses appears to be cyclical over the period because of the impact of Hurricane Andrew in 1992. Had this hurricane not struck Miami-Dade County, it is likely that the employment contribution would have increased over the period.

In 1980, an estimated 25,900 full-time and part-time jobs were created in Miami-Dade County as a result of Biscayne Bay-related uses. About 26,800 jobs were created in southeast Florida and about 29,600 jobs were created in Florida. By 2004, the employment contribution of the Bay was 57,100 jobs in Miami-Dade County, 58,800 jobs in southeast Florida and 65,300 jobs in Florida.

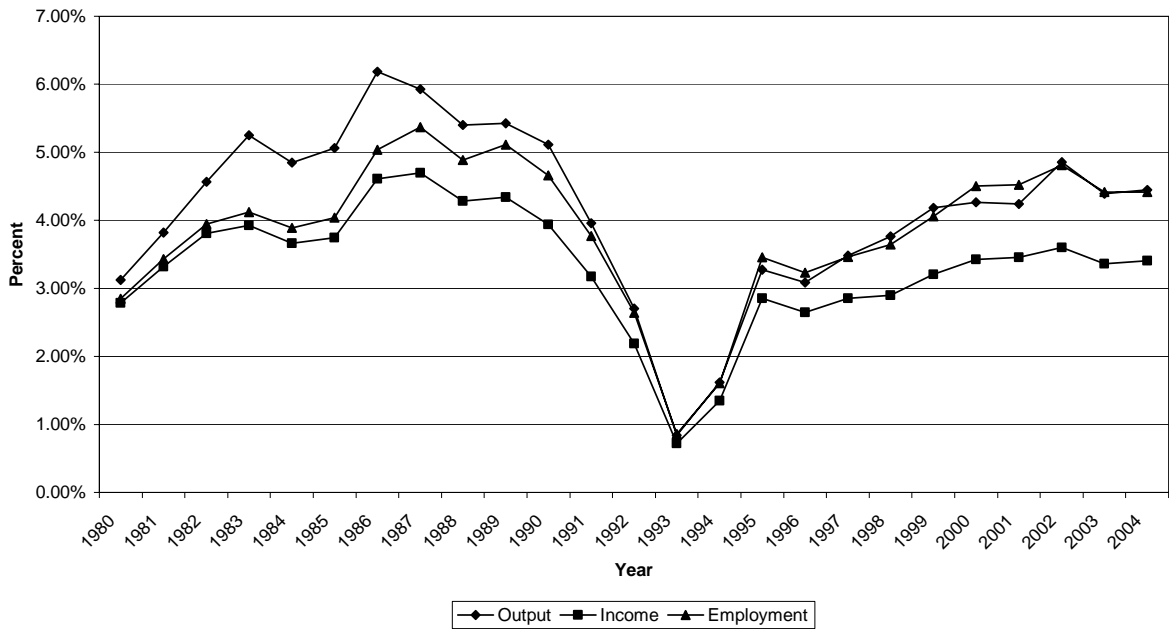
Figure 7.3-4
Employment in Miami-Dade County, Southeast Florida and Florida
Generated by Biscayne Bay Recreation, 1980 to 2004



7.0 Uses and Economic Contribution of Biscayne Bay

The economic contributions of Biscayne Bay as it is used for recreation as a percent of the overall economies of Miami-Dade County, southeast Florida and Florida from 1980 to 2004 are provided in Figures 7.3-5 through 7.3-7, respectively.

Figure 7.3-5
Economic Contribution of Biscayne Bay Recreation
As Percent of Miami-Dade County Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects



7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.3-6
Economic Contribution of Biscayne Bay Recreation
As Percent of Southeast Florida Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects

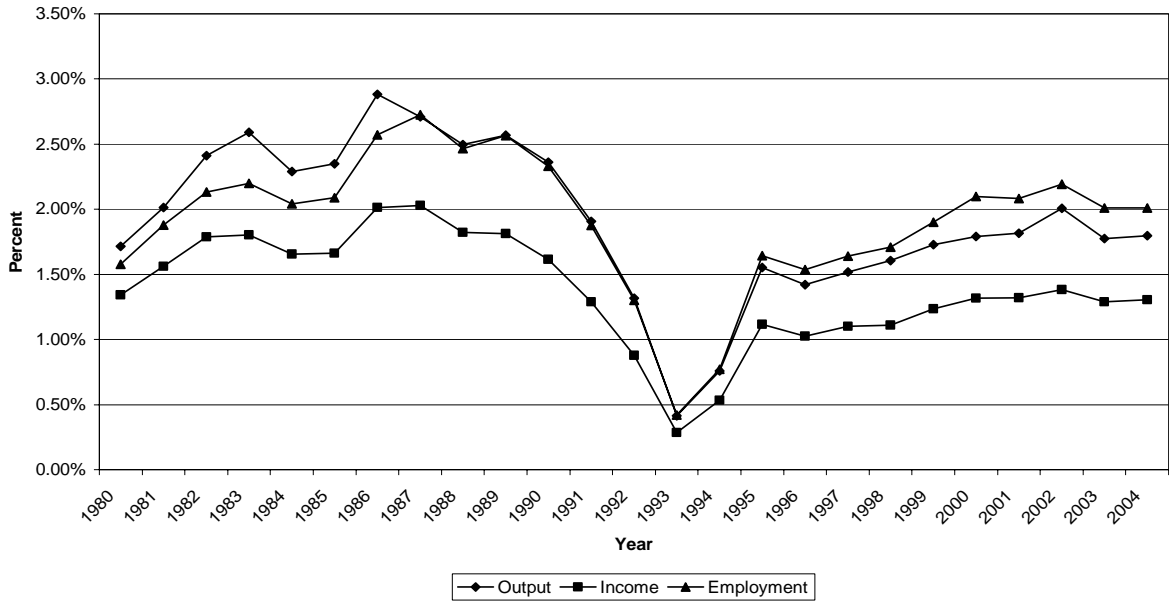
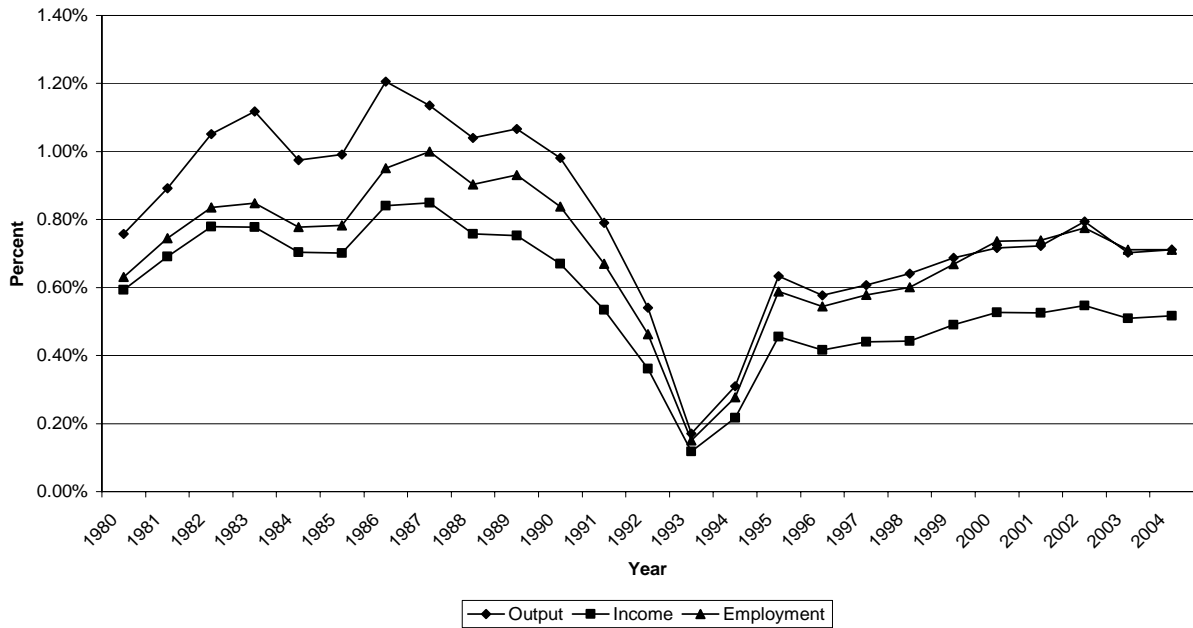


Figure 7.3-7
Economic Contribution of Biscayne Bay Recreation
As Percent of Florida's Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects



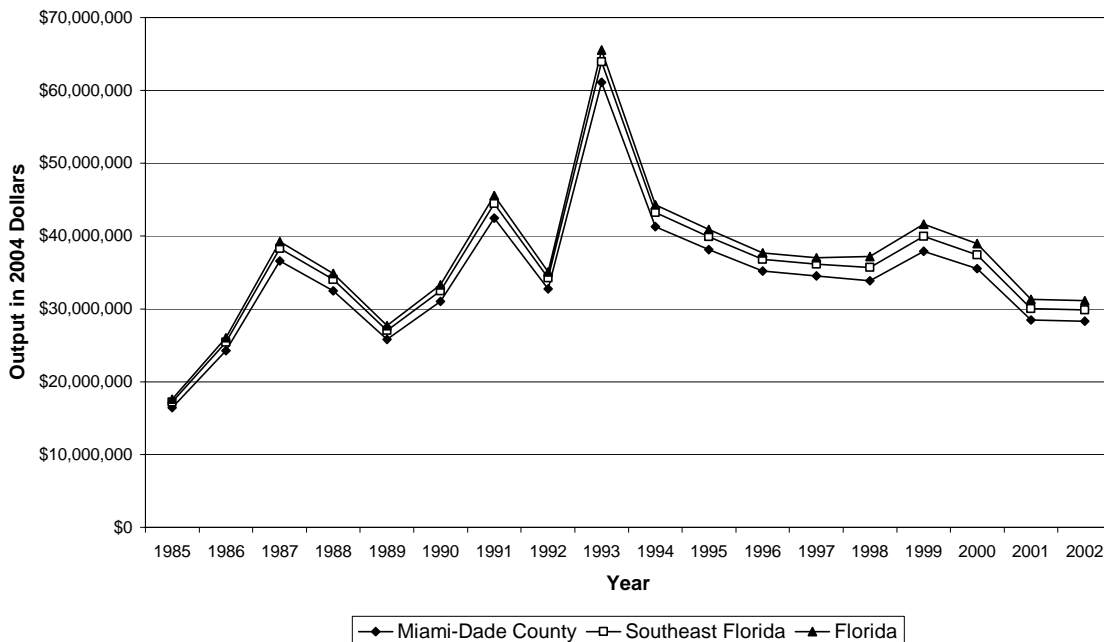
7.4 Economic Contribution as Biscayne Bay Supports Commercial Fishing, 1985 to 2002

This section summarizes current and historic the economic contribution to Miami-Dade County, southeast Florida and Florida as Biscayne Bay contributes to commercial fishing. The economic contributions include the direct, indirect and induced impacts in 2004 dollars or in number of full-time and part-time jobs.

The values of output produced in Miami-Dade County, southeast Florida and Florida from 1985 to 2002 as Biscayne Bay contributes to commercial fishing are provided in Figure 7.4-1. The output generated in all three economies exhibits a cyclical trend throughout the period.

In 1985, \$16.4 million in output was generated in Miami-Dade County; \$17.2 million in output was generated in southeast Florida and \$17.6 million in output was generated in Florida. By 2002, the output contribution of the Bay was \$28.3 million in Miami-Dade County, \$29.9 million in southeast Florida and \$31.1 million in Florida. The peak year is 1993 with \$61 million in output in Miami-Dade County, \$64 million in output in southeast Florida and \$66 million in output in Florida.

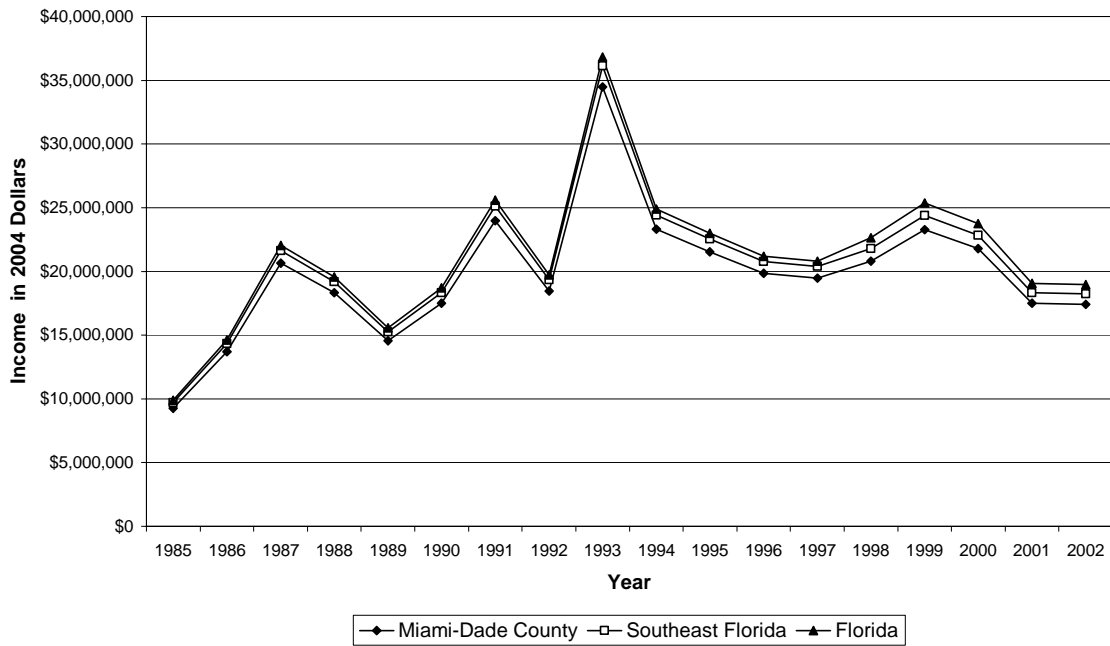
**Figure 7.4-1
Output Generated from Biscayne Bay-Related Commercial Fishing**



7.0 Uses and Economic Contribution of Biscayne Bay

The income generated in Miami-Dade County, southeast Florida and Florida from 1985 to 2002 as Biscayne Bay contributes to commercial fishing are provided in Figure 7.4-2. As with output, the income generated in all three economies exhibits a cyclical trend throughout the period. In 1985, \$9.3 million in income was generated in Miami-Dade County; \$9.7 million in income was generated in southeast Florida and \$9.9 million in income was generated in Florida. By 2002, the income contribution of the Bay was \$17.4 million in Miami-Dade County, \$18.2 million in southeast Florida and \$19 million in Florida. The peak income year is 1993 with \$35 million in Miami-Dade County, \$36 million in southeast Florida and \$37 million in Florida.

Figure 7.4-2
Income Generated from Biscayne Bay-Related Commercial Fishing

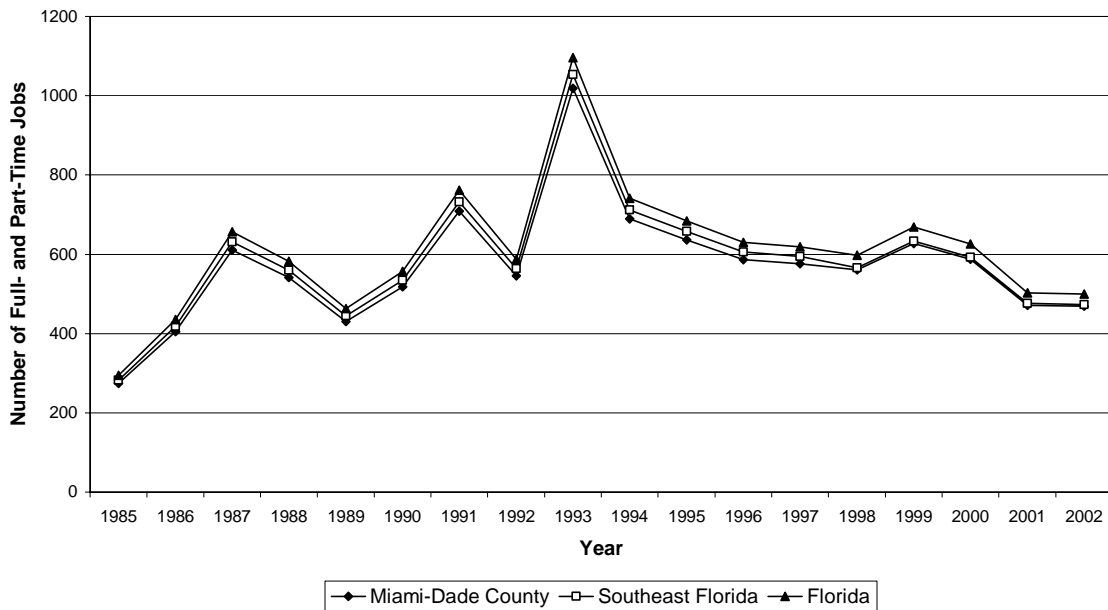


7.0 Uses and Economic Contribution of Biscayne Bay

The employment created in Miami-Dade County, southeast Florida and Florida from 1985 to 2002 as Biscayne Bay contributes to commercial fishing are provided in Figure 7.4-3. As with output and income, the employment created in all three economies exhibits a cyclical trend throughout the period.

In 1985, 274 jobs were created in Miami-Dade County; 283 jobs were created in southeast Florida and 294 jobs were created in Florida. By 2004, the employment contribution of the Bay was 469 jobs in Miami-Dade County, 473 jobs in southeast Florida and 500 jobs in Florida. The peak employment year is 1993 with 1,019 jobs in Miami-Dade County, 1,053 jobs in southeast Florida and 1,096 jobs in Florida.

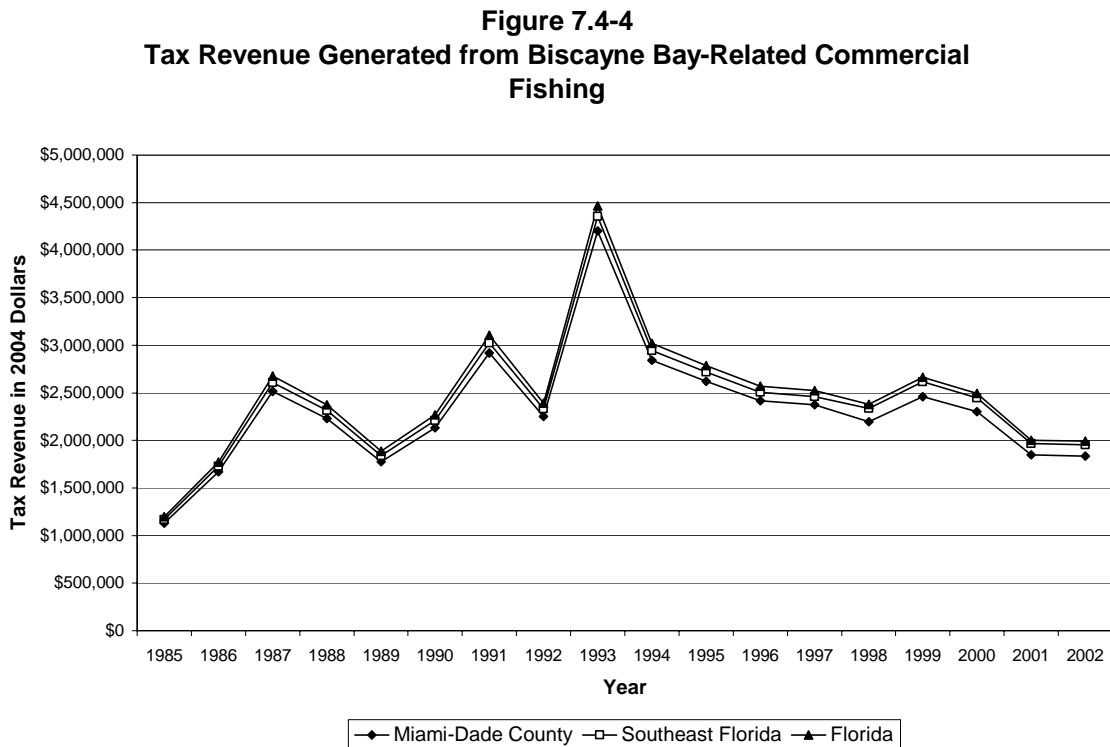
Figure 7.4-3
Employment Generated from Biscayne Bay-Related Commercial Fishing



7.0 Uses and Economic Contribution of Biscayne Bay

The tax revenues collected in Miami-Dade County, southeast Florida and Florida from 1985 to 2002 as Biscayne Bay contributes to commercial fishing are provided in Figure 7.4-4. As with output, income and employment, tax collections in all three economies exhibits a cyclical yet downward trend throughout the period.

In 1985, \$1.1 million in tax revenues were collected in Miami-Dade County; \$1.2 million in tax revenues were collected in southeast Florida and \$1.2 million in tax revenues were collected in Florida. By 2004, the tax revenue contribution of the Bay was \$1.8 million in Miami-Dade County, \$2.0 million in southeast Florida and \$2.0 million in Florida. The peak year for tax revenue is 1993 with \$4.2 million in Miami-Dade County, \$4.4 million in southeast Florida and \$4.5 million in Florida.



The economic contributions of Biscayne Bay as it contributes to commercial fishing as a percent of the overall economies of Miami-Dade County, southeast Florida and Florida from 1985 through 2002 are provided in Figures 7.4-5 through 7.4-7, respectively. In all three economies the relative economic contribution of the Bay is cyclical over the period from 1985 to 2002. The highest economic contribution during the period occurs in 1993 when Bay-related commercial fishing was 0.07 percent of the county's economy. In 1985, the income generated from Bay-related commercial fishing as a percent of total county income was 0.02 percent in 1985 and 0.03 percent in 2002.

7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.4-5
Economic Contribution of Biscayne Bay-Related Commercial Fishing
As Percent of Miami-Dade County Economy, 1985 to 2004
Includes Direct, Indirect and Induced Effects

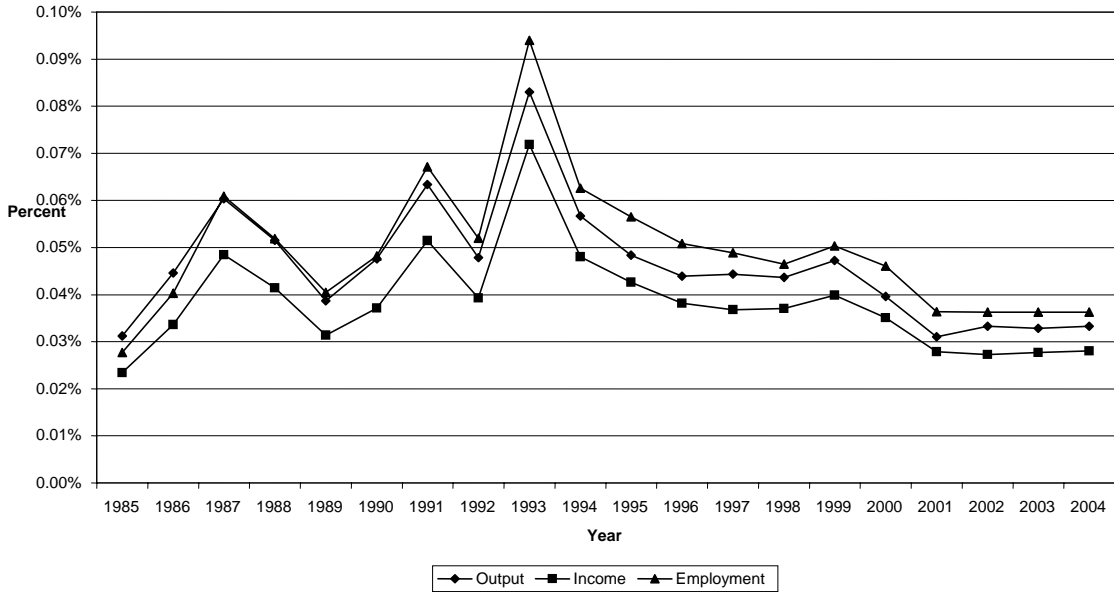
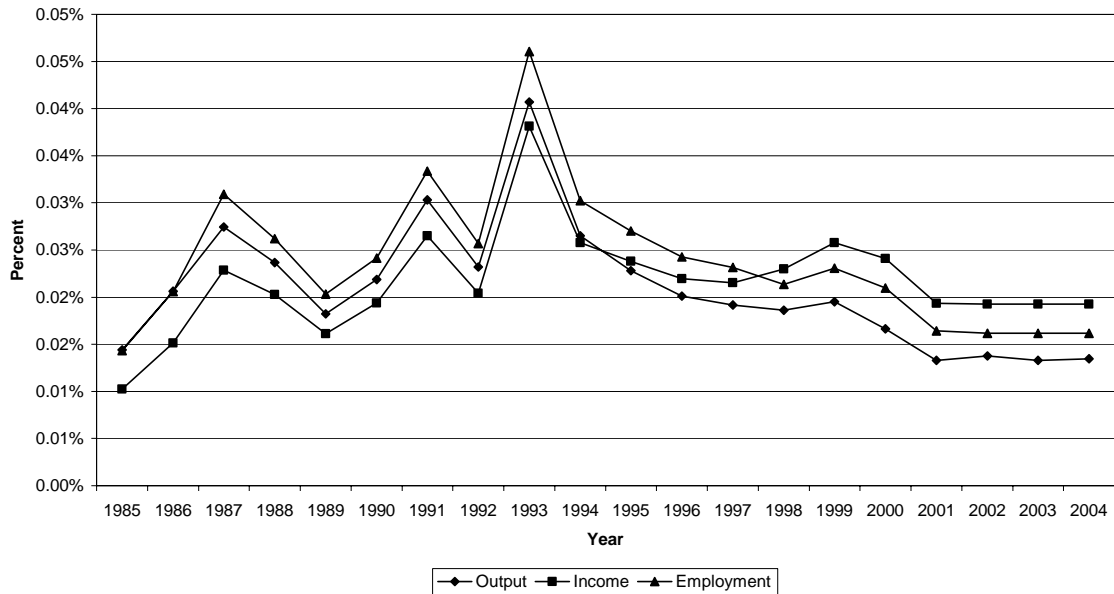
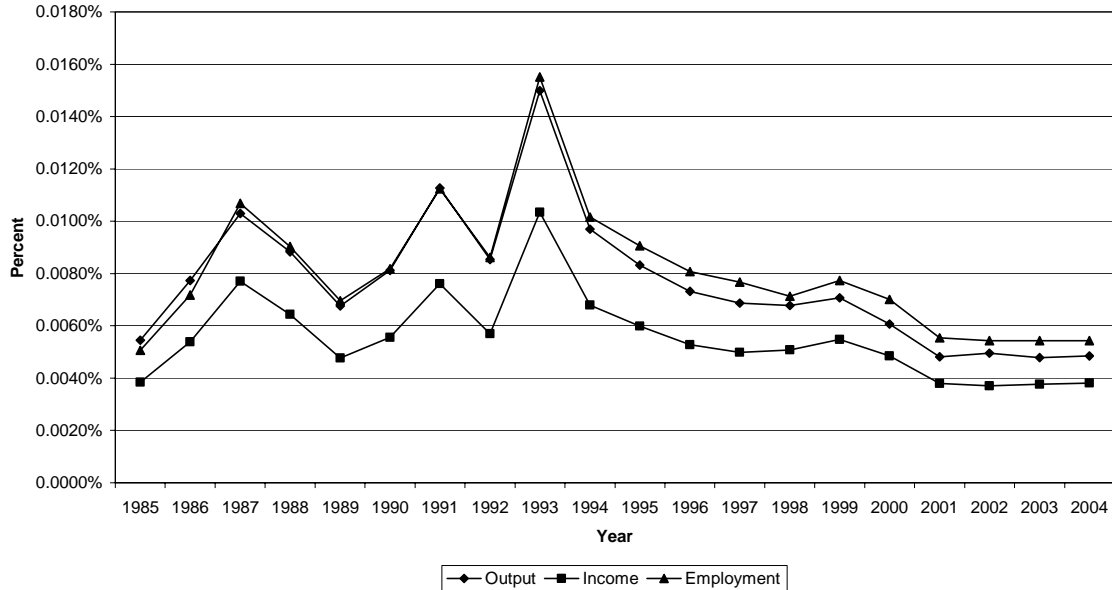


Figure 7.4-6
Economic Contribution of Biscayne Bay-Related Commercial Fishing
As Percent of Southeast Florida Economy, 1985 to 2004
Includes Direct, Indirect and Induced Effects



7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.4-7
Economic Contribution of Biscayne Bay-Related Commercial Fishing
As Percent of Florida's Economy, 1985 to 2004
Includes Direct, Indirect and Induced Effects



7.5 Economic Contribution as Biscayne Bay Supports Shipping, 1980 to 2004

This section summarizes current and historic the economic contribution to Miami-Dade County, southeast Florida and Florida as Biscayne Bay contributes to waterborne commerce and cruise passenger services at the Port of Miami and the Miami River. The economic contributions include the direct, indirect and induced impacts in 2004 dollars or in number of full-time and part-time jobs.

Port of Miami. The values of output produced in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce and cruise passenger services through the Port of Miami are provided in Figure 7.5-1. The output generated in all three areas exhibits a strong upward trend throughout the period. In 1980, \$2.5 billion in output was generated in Miami-Dade County; \$2.7 billion in output was generated in southeast Florida and \$2.8 billion in output was generated in Florida. By 2004, the output contribution of the Bay was \$8.2 billion in Miami-Dade County, \$8.9 billion in southeast Florida and \$9.2 billion in Florida.

The income generated in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce and cruise passenger services through the Port of Miami are provided in Figure 7.5-2. As with output, the income generated in all three areas exhibits a strong upward trend throughout the period. In 1980, \$1.2 billion in income was generated in Miami-Dade County; \$1.3 billion in income was generated in southeast Florida and \$1.4 billion in income was generated in Florida. By 2004, the income contribution of the Port of Miami was \$3.9 billion in Miami-Dade County, \$4.3 billion in southeast Florida and \$4.4 billion in Florida.

7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.5-1
Values of Goods and Services Produced in Miami-Dade County, Southeast Florida and Florida Generated by Port of Miami Shipping, 1980 to 2004
 (direct, indirect and induced effects)

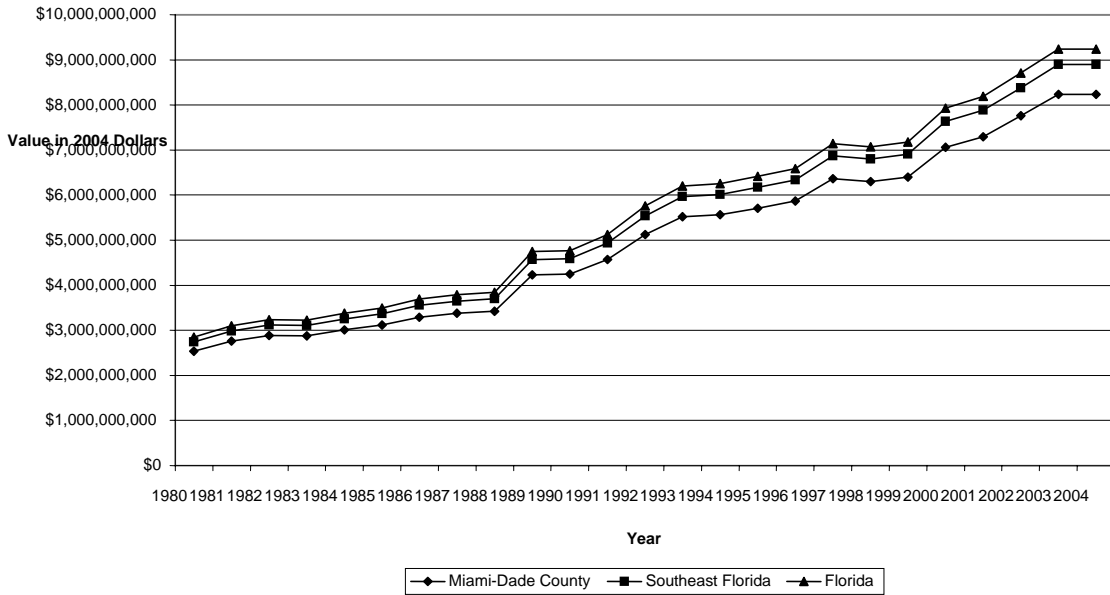
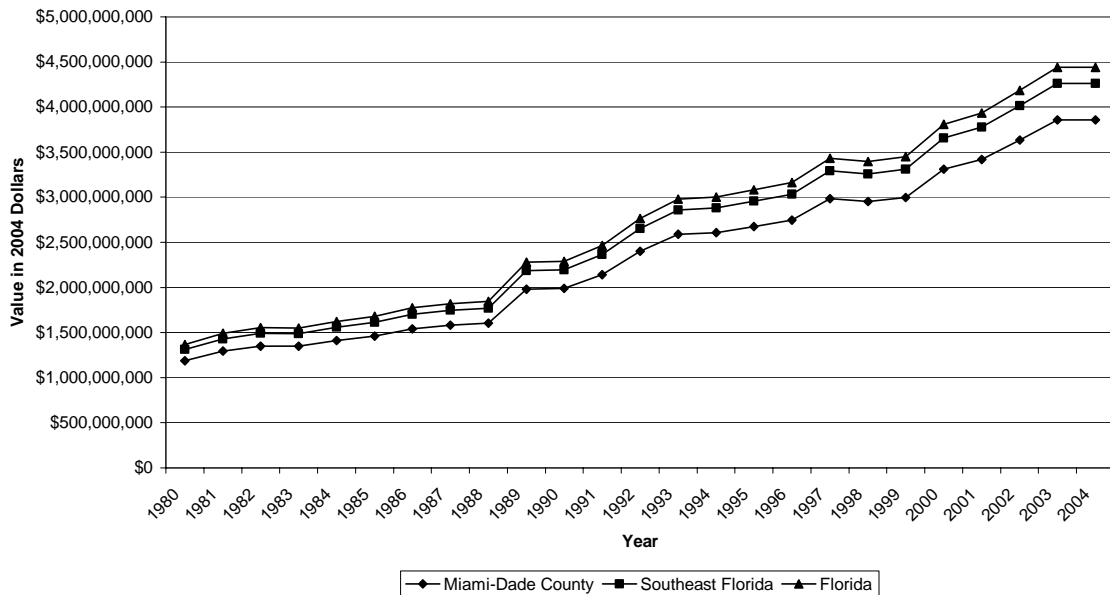


Figure 7.5-2
Income to Residents in Miami-Dade County, Southeast Florida and Florida Generated by Port of Miami Shipping, 1980 to 2004
 (direct, indirect and induced effects)

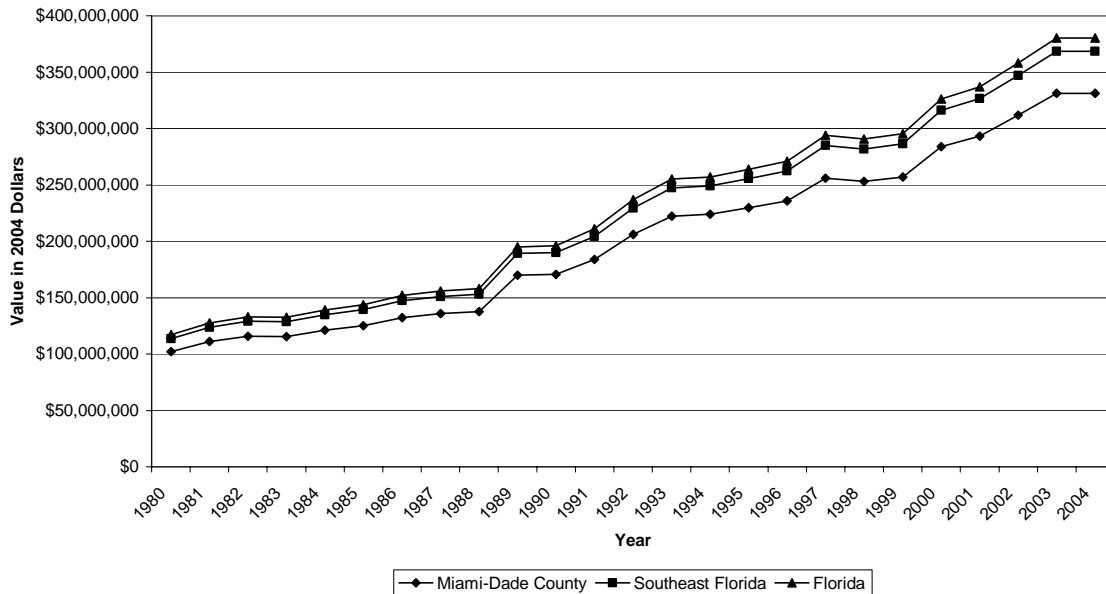


7.0 Uses and Economic Contribution of Biscayne Bay

The tax revenues collected in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce and cruise passenger services through the Port of Miami are provided in Figure 7.5-3. As with output and income, the tax revenues collected in all three areas exhibits a strong upward trend throughout the period.

In 1980, \$102 million in tax revenues were collected in Miami-Dade County; \$114 million in tax revenues were collected in southeast Florida and \$117 million in tax revenues were collected in Florida. By 2004, the tax revenue contribution of the Port of Miami was \$331 million in Miami-Dade County, \$368 million in southeast Florida and \$380 million in Florida.

Figure 7.5-3
Tax Revenues Collected in Miami-Dade County, Southeast Florida and Florida
Generated by Port of Miami Shipping, 1980 to 2004
(direct, indirect and induced effects)

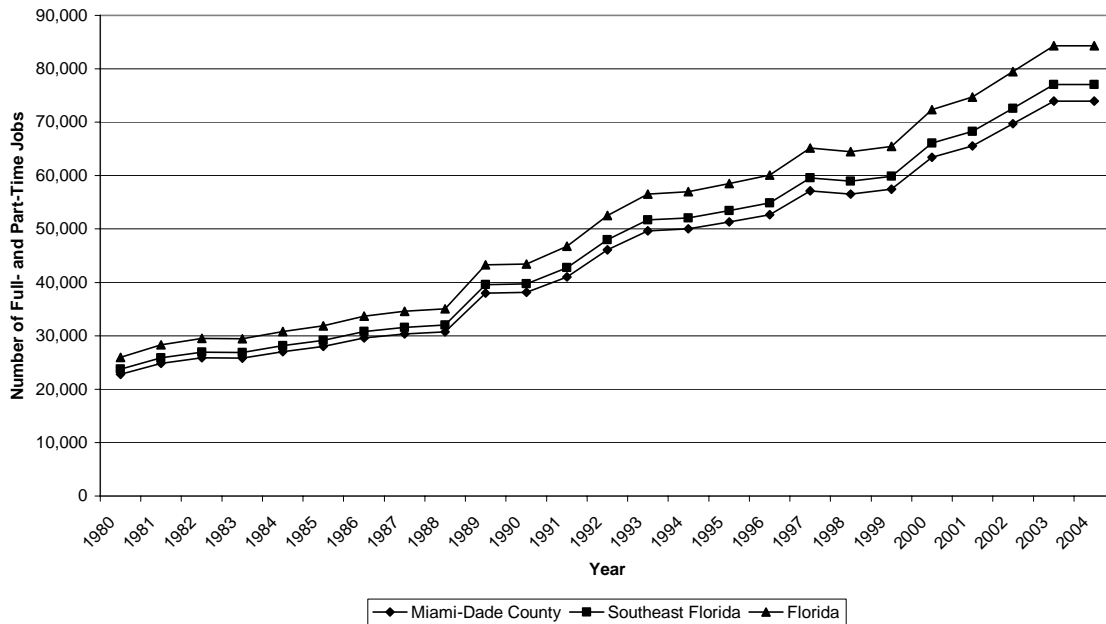


7.0 Uses and Economic Contribution of Biscayne Bay

The employment created in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce and cruise passenger services through the Port of Miami are provided in Figure 7.5-4. As with output, income, and tax revenues, the employment created in all three areas exhibits a strong upward trend throughout the period.

In 1980, 22,800 full-time and part-time jobs were created in Miami-Dade County; 23,700 jobs were created in southeast Florida and 26,000 jobs were created in Florida. By 2004, the employment contribution of the Port of Miami was 74,000 jobs in Miami-Dade County, 77,000 jobs in southeast Florida and 84,300 jobs in Florida.

Figure 7.5-4
Employment in Miami-Dade County, Southeast Florida and Florida Generated by
Port of Miami Shipping, 1980 to 2004 (direct, indirect and induced effects)



The contributions of Biscayne Bay as it supports waterborne commerce and cruise passenger services through the Port of Miami as a percent of the overall economies of Miami-Dade County, southeast Florida and Florida from 1980 through 2004 are provided in Figures 7.5-5 through 7.5-7, respectively. In all three areas the relative economic contribution of the Bay increases over the period.

In 1980, the economic contribution of the Port of Miami represented 3.4 percent of the Miami Dade County economy, 1.7 percent of the southeast Florida economy and 0.70 percent of Florida's economy as measured by income. In 2004, the Port of Miami contributed to 6.2 percent of the county's economy, 2.5 percent of the southeast Florida economy and 0.90 percent of Florida's economy.

7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.5-5
Economic Contribution of Port of Miami Shipping Activities
As Percent of Miami-Dade County Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects

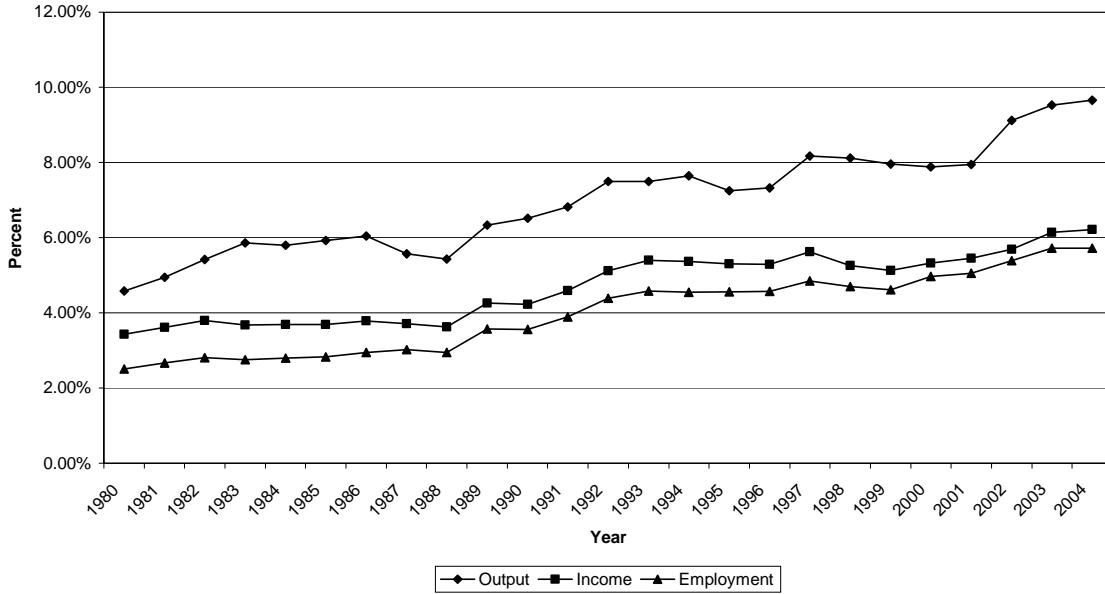
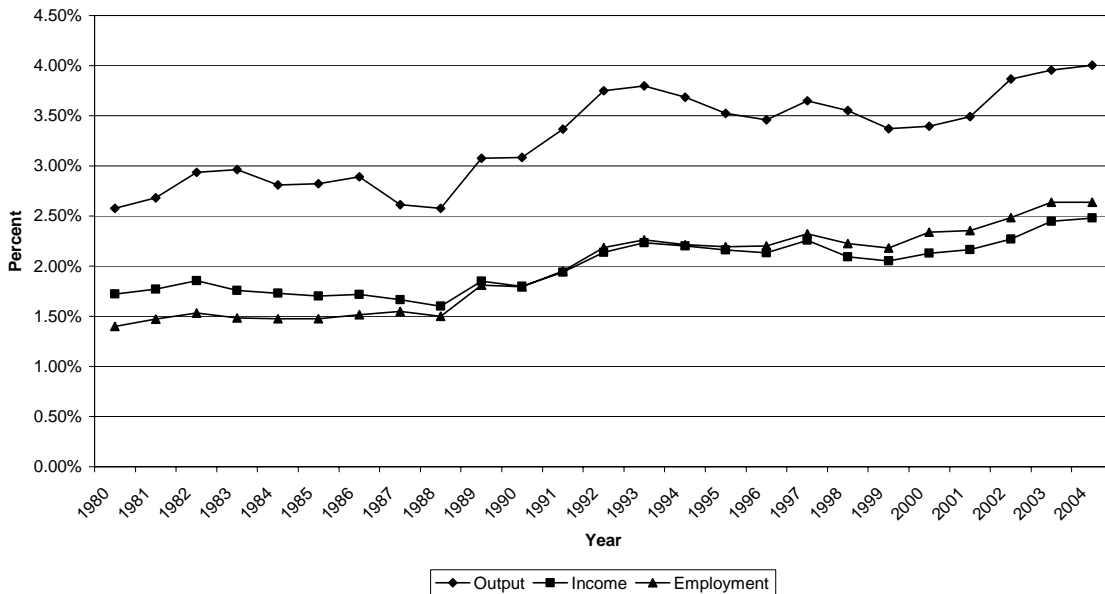
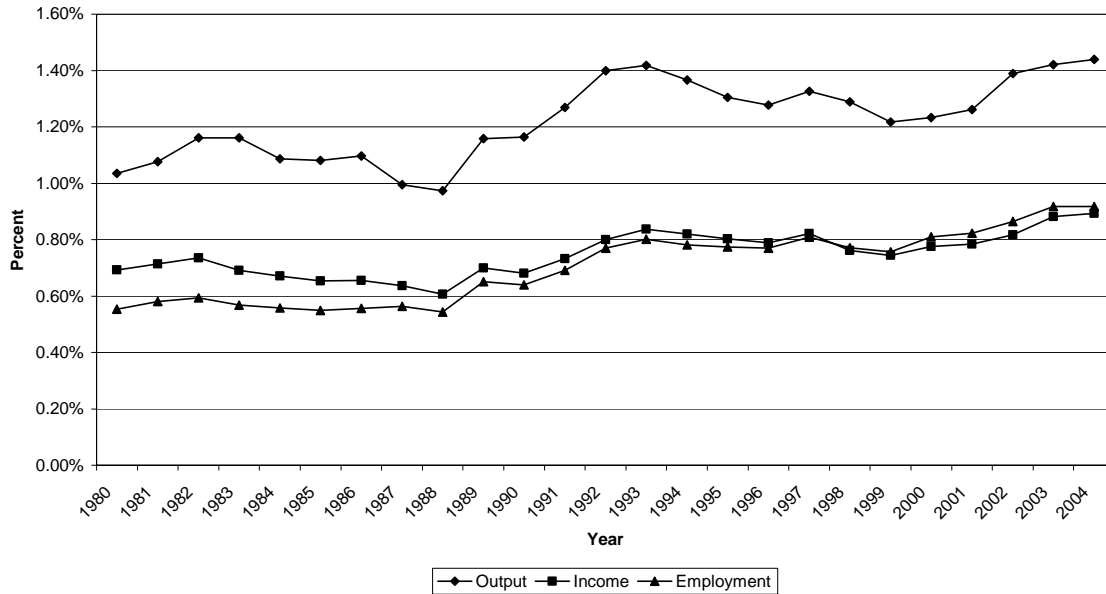


Figure 7.5-6
Economic Contribution of Port of Miami Shipping Activities
As Percent of Southeast Florida Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects



7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.5-7
Economic Contribution of Port of Miami Shipping Activities
As Percent of Florida's Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects



Miami River. The values of output produced in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce through the Miami River are provided in Figure 7.5-8. The output generated in all three areas was cyclical but increased at slow rate throughout the period.

In 1980, \$532 million in output was generated in Miami-Dade County; \$627 million in output was generated in southeast Florida and \$656 million in output was generated in Florida. By 2004, the output contribution of Miami River shipping was \$682 million in Miami-Dade County, \$805 million in southeast Florida and \$842 million in Florida.

The income generated in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce through the Miami River are provided in Figure 7.5-9. As with output, income generated in all three areas was cyclical but increased at slow rate throughout the period.

In 1980, \$264 million in income was generated in Miami-Dade County; \$317 million in income was generated in southeast Florida and \$333 million in income was generated in Florida. By 2004, the income contribution of Miami River shipping was \$339 million in Miami-Dade County, \$406 million in southeast Florida and \$427 million in Florida.

7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.5-8
Values of Goods and Services Produced in Miami-Dade County, Southeast Florida and Florida Generated by Miami River Shipping, 1980 to 2004
 (direct, indirect and induced effects)

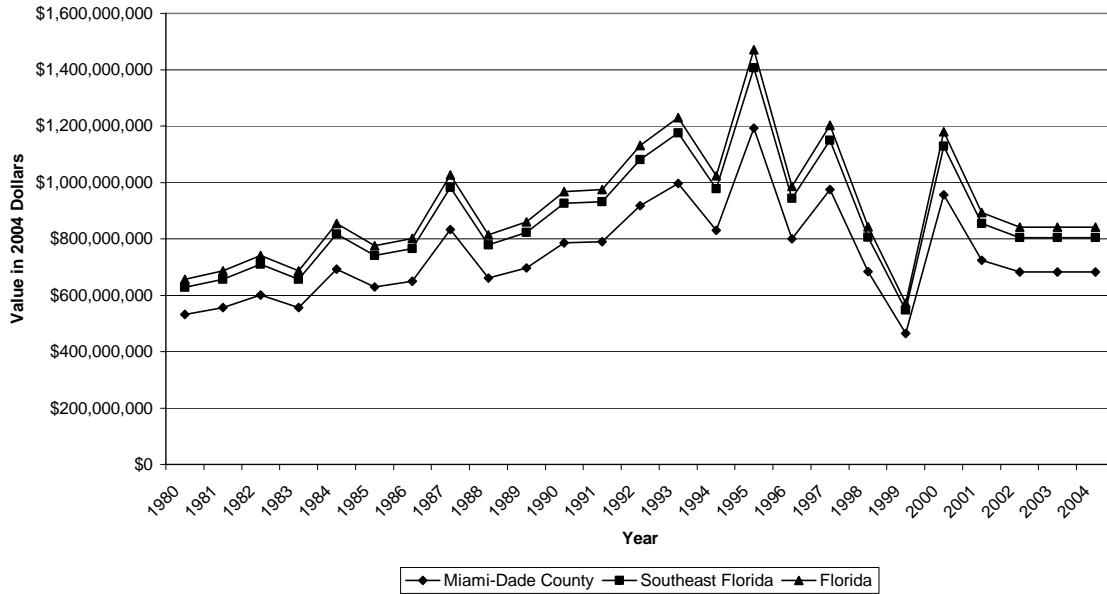
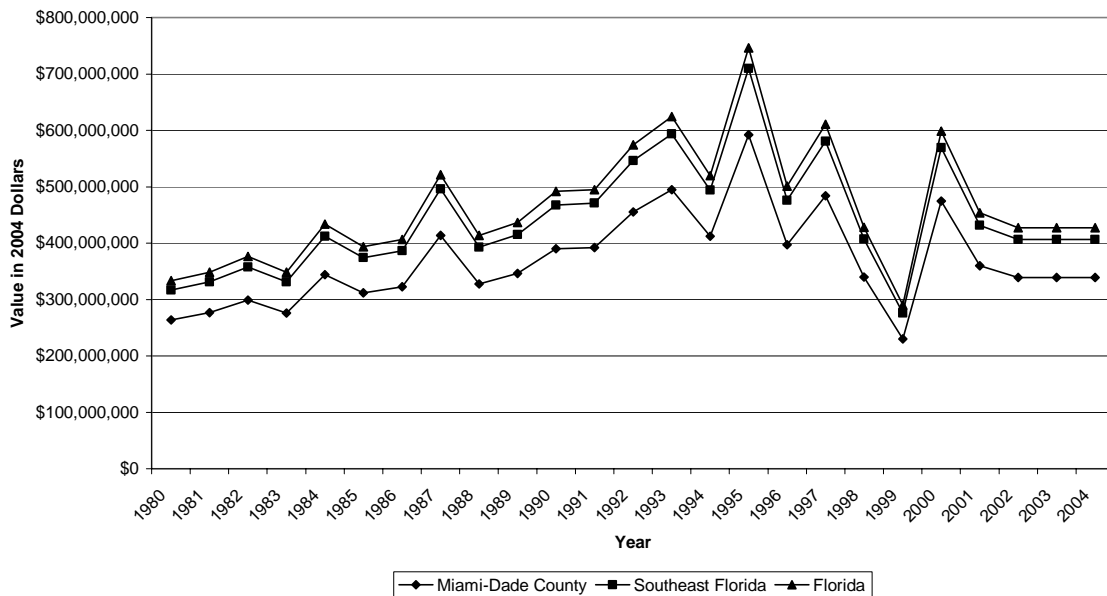


Figure 7.5-9
Income to Residents in Miami-Dade County, Southeast Florida and Florida Generated by Miami River Shipping, 1980 to 2004
 (direct, indirect and induced effects)

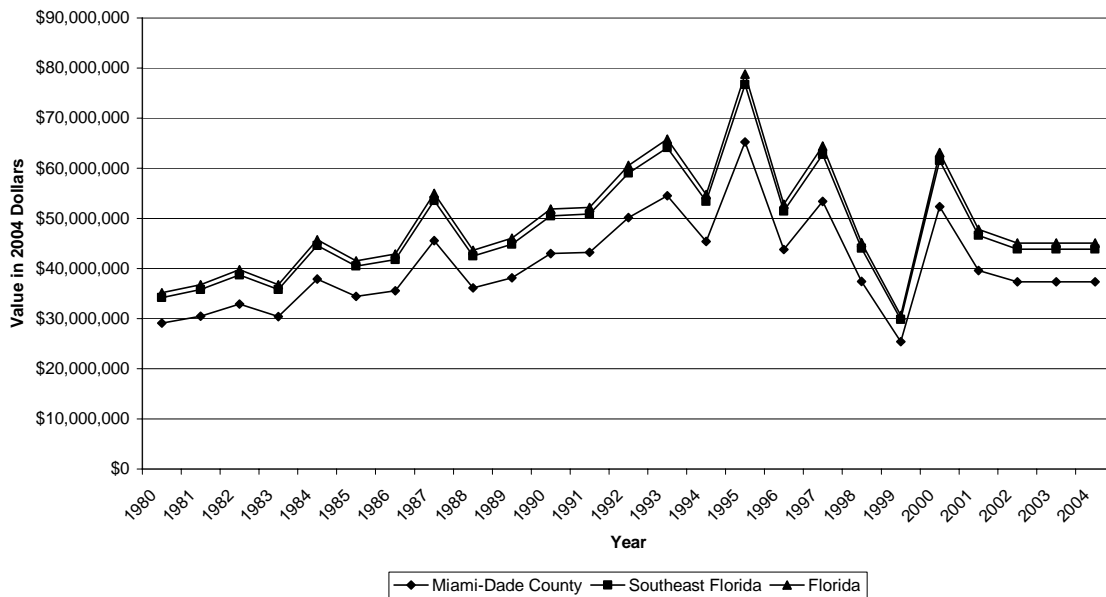


7.0 Uses and Economic Contribution of Biscayne Bay

The tax revenues in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce through the Miami River are provided in Figure 7.5-10. As with output and income, tax revenues in all three areas were cyclical but increased at slow rate throughout the period.

In 1980, \$29 million in tax revenues were collected Miami-Dade County; \$34 million in tax revenues were collected in southeast Florida and \$35 million in tax revenues were collected in Florida. By 2004, the tax revenue contribution of Miami River shipping was \$37 million in Miami-Dade County, \$44 million in southeast Florida and \$45 million in Florida.

Figure 7.5-10
Tax Revenues Collected in Miami-Dade County, Southeast Florida and Florida
Generated by Miami River Shipping, 1980 to 2004
(direct, indirect and induced effects)

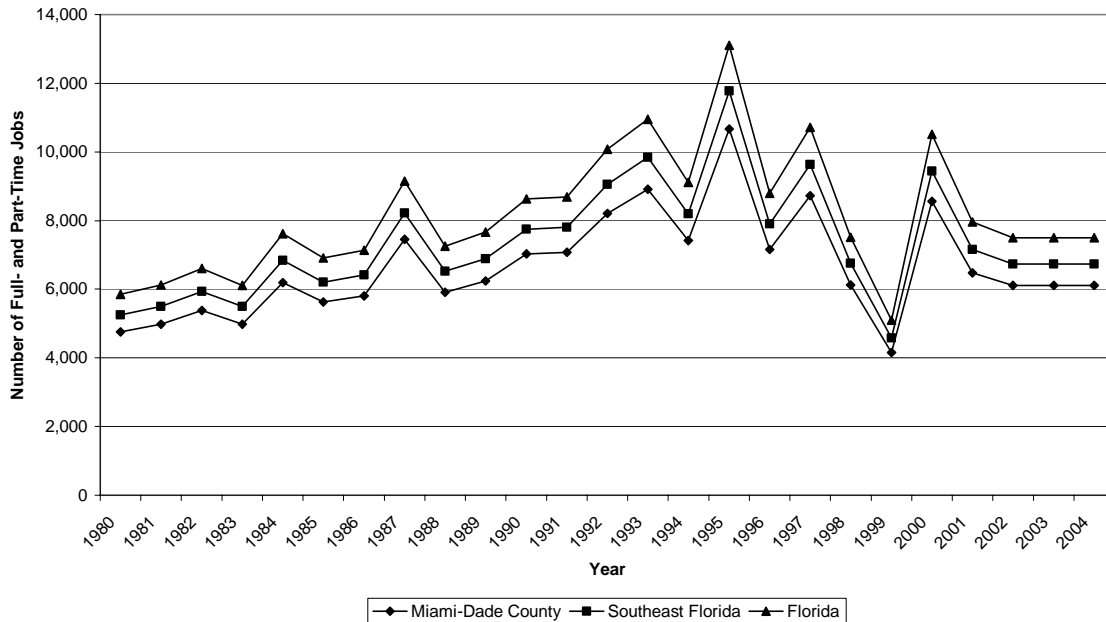


7.0 Uses and Economic Contribution of Biscayne Bay

Employment created in Miami-Dade County, southeast Florida and Florida from 1980 to 2004 as Biscayne Bay contributes to waterborne commerce through the Miami River is provided in Figure 7.5-11. As with output, income and tax revenues, employment in all three areas were cyclical but increased at slow rate throughout the period.

In 1980, 4,800 full-time and part-time jobs were created in Miami-Dade County; 5,300 jobs were created in southeast Florida and 5,900 jobs were created in Florida. By 2004, the employment contribution of Miami River shipping was 6,100 jobs in Miami-Dade County, 6,700 jobs in southeast Florida and 7,500 jobs in Florida.

Figure 7.5-11
Employment in Miami-Dade County, Southeast Florida and Florida Generated by
Miami River Shipping, 1980 to 2004 (direct, indirect and induced effects)



The economic contributions of Biscayne Bay as it supports waterborne commerce through the Miami River as a percent of the overall economies of Miami-Dade County, southeast Florida and Florida from 1980 through 2004 are provided in Figures 7.5-12 through 7.5-14, respectively. In all three economies, the relative economic contribution of the Bay is stable from 1980 through 1994, and then becomes cyclical from 1995 through 2001.

In 1980, the economic contribution of Miami River shipping represented 0.8 percent of the Miami Dade County economy, 0.4 percent of the southeast Florida economy and 0.2 percent of Florida's economy as measured by income. In 2004, the Miami River shipping contributed to 0.55 percent of the county's economy, 0.24 percent of the southeast Florida economy and 0.09 percent of Florida's economy.

7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.5-12
Economic Contribution of Miami River Shipping Activities
As Percent of Miami-Dade County Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects

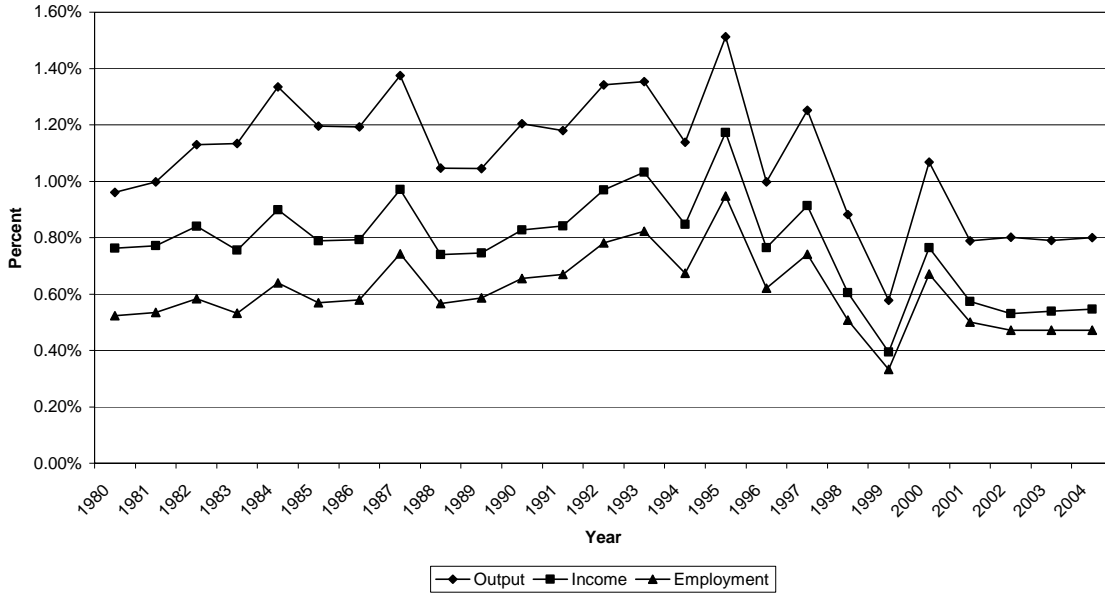
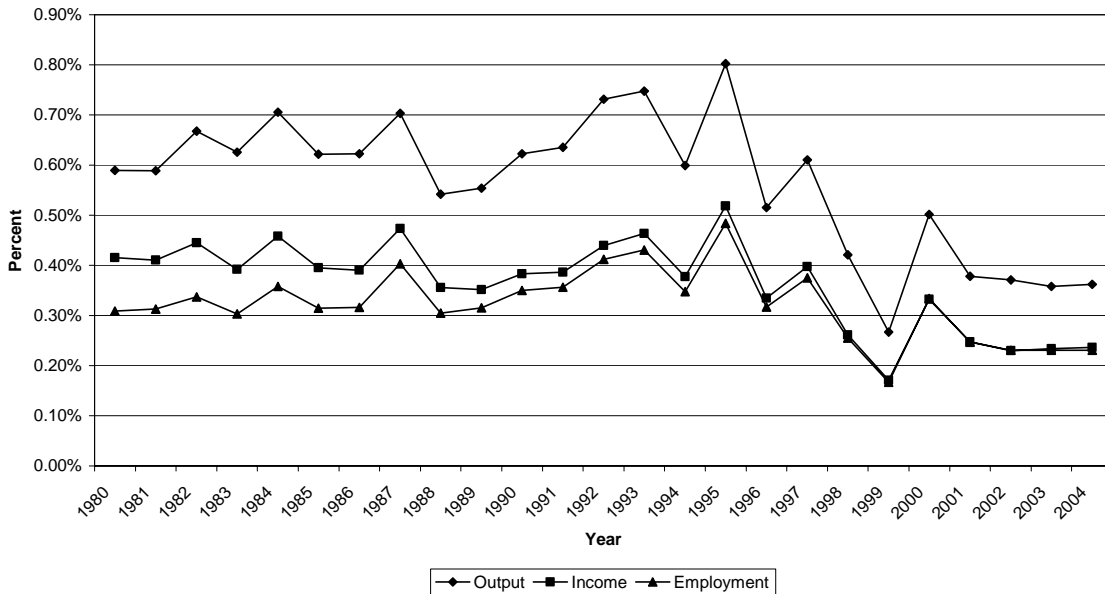
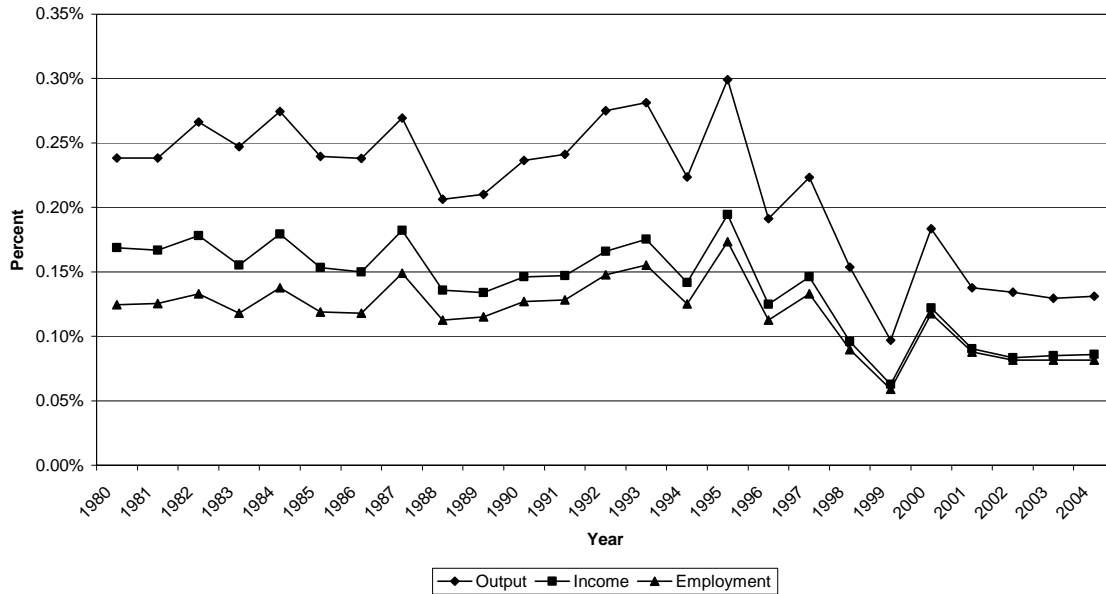


Figure 7.5-13
Economic Contribution of Miami River Shipping Activities
As Percent of Southeast Florida Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects



7.0 Uses and Economic Contribution of Biscayne Bay

Figure 7.5-14
Economic Contribution of Miami River Shipping Activities
As Percent of Florida's Economy, 1980 to 2004
Includes Direct, Indirect and Induced Effects



7.6 Identification of Industries That Benefit from Biscayne Bay, 2004

The direct, indirect and induced output, income, employment and tax revenue accruing to specific industries in Miami-Dade County are provided in Tables 7.6-1 through 7.6-4. Table 7.6-1 presents businesses that benefit from Biscayne Bay-related recreation. Table 7.6-2 presents businesses that benefit from Bay-related commercial fishing. Table 7.6-3 presents businesses that benefit from Port of Miami shipping operations and cruise passenger services. Table 7.6-4 presents businesses that benefit from the shipping operations on the Miami River.

Of the businesses in Miami-Dade County that benefit from Bay-related recreation, eating and drinking establishments enjoyed the greatest benefits. For example, Bay-related recreation generated \$253 million in labor and proprietor's income to those working at eating and drinking establishments. State, local and Federal governments, hotels and lodging places, and automotive dealers and service stations also received some of the largest economic benefits from Bay-related recreation.

Of the businesses in Miami-Dade County that benefit from Port of Miami shipping activities, about 25 percent of the economic benefits are enjoyed by firms in the water transportation industry. For example, Port of Miami shipping generated \$366 million in labor and proprietor's income to those working at water transportation establishments.

7.0 Uses and Economic Contribution of Biscayne Bay

Other transportation-related industries such as freight forwarding, State, local and Federal government agencies, construction, and finance, insurance and real estate also received some of the largest economic benefits from Port of Miami shipping activities.

Of the businesses in Miami-Dade County that benefit from Miami River shipping activities, about 19 percent of the economic benefits are enjoyed by firms in the wholesale trade industry. For example, Miami River shipping generated \$58 million in labor and proprietor's income to those working at wholesale trade establishments.

Water transportation, State, local and Federal government agencies, construction, and finance, insurance and real estate also received some of the largest economic benefits from Miami River shipping activities.

7.0 Uses and Economic Contribution of Biscayne Bay

**Table 7.6-1
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay-Related Recreation, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$2,770,000	\$5,410,000	\$8,180,000
Commercial Fishing	\$0	\$20,000	\$2,000	\$22,000
Mining	\$0	\$70,000	\$120,000	\$190,000
Construction	\$0	\$11,800,000	\$164,390,000	\$176,190,000
Manufacturing: Food Products	\$0	\$18,170,000	\$15,880,000	\$34,050,000
Textiles	\$0	\$190,000	\$720,000	\$910,000
Apparel and Fabric Products	\$0	\$1,400,000	\$7,020,000	\$8,420,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$950,000	\$12,120,000	\$13,070,000
Printing, Publishing and Allied Products	\$0	\$14,690,000	\$7,440,000	\$22,130,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,040,000	\$12,410,000	\$13,450,000
Boat Building and Repairing	\$25,340,000	\$90,000	\$30,000	\$25,460,000
All other products	\$0	\$3,910,000	\$25,700,000	\$29,610,000
Transportation: Water Transportation	\$171,130,000	\$14,570,000	\$2,780,000	\$188,480,000
All Other Transportation	\$0	\$25,400,000	\$28,550,000	\$53,950,000
Communications, Electric, Gas and Sanitary Services	\$0	\$29,780,000	\$32,710,000	\$62,490,000
Wholesale Trade	\$0	\$37,960,000	\$78,920,000	\$116,880,000
Retail Trade: Food Stores	\$143,830,000	\$200,000	\$20,650,000	\$164,680,000
Automotive Dealers and Service Stations	\$256,950,000	\$1,510,000	\$26,020,000	\$284,480,000
Eating and Drinking Establishments	\$591,240,000	\$5,220,000	\$44,190,000	\$640,650,000
All Other Retail Stores	\$135,370,000	\$1,440,000	\$68,130,000	\$204,940,000
Finance, Insurance and Real Estate	\$0	\$82,610,000	\$236,960,000	\$319,570,000
Services: Hotels and Lodging Places	\$347,390,000	\$6,770,000	\$13,210,000	\$367,370,000
Automobile Rental and Leasing	\$145,110,000	\$5,720,000	\$5,830,000	\$156,660,000
Amusement and Recreation Services, n.e.c.	\$213,240,000	\$40,000	\$5,650,000	\$218,930,000
All Other Service Industries	\$0	\$146,460,000	\$308,960,000	\$455,420,000
Government - State, Local, Federal	\$1,640,000	\$11,020,000	\$210,750,000	\$223,410,000
Total	\$2,031,240,000	\$423,800,000	\$1,334,552,000	\$3,789,592,000

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-1, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay-Related Recreation, 2004

Industry	Labor Income, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$0	\$1,070,000	\$2,030,000	\$3,100,000
Commercial Fishing	\$0	\$10,000	\$0	\$10,000
Mining	\$0	\$0	\$10,000	\$10,000
Construction	\$0	\$7,250,000	\$46,070,000	\$53,320,000
Manufacturing: Food Products	\$0	\$3,500,000	\$2,280,000	\$5,780,000
Textiles	\$0	\$40,000	\$170,000	\$210,000
Apparel and Fabric Products	\$0	\$460,000	\$1,780,000	\$2,240,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$110,000	\$3,310,000	\$3,420,000
Printing, Publishing and Allied Products	\$0	\$5,220,000	\$2,550,000	\$7,770,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$150,000	\$2,820,000	\$2,970,000
Boat Building and Repairing	\$9,180,000	\$30,000	\$10,000	\$9,220,000
All other products	\$0	\$1,170,000	\$7,180,000	\$8,350,000
Transportation: Water Transportation	\$30,430,000	\$2,590,000	\$490,000	\$33,510,000
All Other Transportation	\$0	\$11,150,000	\$11,390,000	\$22,540,000
Communications, Electric, Gas and Sanitary Services	\$0	\$8,800,000	\$8,270,000	\$17,070,000
Wholesale Trade	\$0	\$15,910,000	\$33,070,000	\$48,980,000
Retail Trade: Food Stores	\$85,520,000	\$120,000	\$12,280,000	\$97,920,000
Automotive Dealers and Service Stations	\$114,660,000	\$670,000	\$11,610,000	\$126,940,000
Eating and Drinking Establishments	\$233,010,000	\$2,060,000	\$17,410,000	\$252,480,000
All Other Retail Stores	\$64,860,000	\$690,000	\$32,370,000	\$97,920,000
Finance, Insurance and Real Estate	\$0	\$19,460,000	\$40,910,000	\$60,370,000
Services: Hotels and Lodging Places	\$141,380,000	\$2,760,000	\$5,380,000	\$149,520,000
Automobile Rental and Leasing	\$44,250,000	\$1,740,000	\$1,780,000	\$47,770,000
Amusement and Recreation Services, n.e.c.	\$87,590,000	\$20,000	\$2,320,000	\$89,930,000
All Other Service Industries	\$0	\$76,540,000	\$168,250,000	\$244,790,000
Government - State, Local, Federal	\$390,000	\$5,200,000	\$166,430,000	\$172,020,000
Total	\$811,270,000	\$166,720,000	\$580,170,000	\$1,558,160,000

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-1, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay-Related Recreation, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$470,000	\$930,000	\$1,400,000
Commercial Fishing	\$0	\$10,000	\$0	\$10,000
Mining	\$0	\$0	\$10,000	\$10,000
Construction	\$0	\$630,000	\$5,670,000	\$6,300,000
Manufacturing: Food Products	\$0	\$2,600,000	\$1,620,000	\$4,220,000
Textiles	\$0	\$10,000	\$40,000	\$50,000
Apparel and Fabric Products	\$0	\$160,000	\$440,000	\$600,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$30,000	\$810,000	\$840,000
Printing, Publishing and Allied Products	\$0	\$1,760,000	\$870,000	\$2,630,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$130,000	\$2,750,000	\$2,880,000
Boat Building and Repairing	\$1,310,000	\$0	\$0	\$1,310,000
All other products	\$0	\$370,000	\$1,320,000	\$1,690,000
Transportation: Water Transportation	\$11,470,000	\$980,000	\$190,000	\$12,640,000
All Other Transportation	\$0	\$3,040,000	\$3,020,000	\$6,060,000
Communications, Electric, Gas and Sanitary Services	\$0	\$5,410,000	\$7,870,000	\$13,280,000
Wholesale Trade	\$0	\$4,920,000	\$10,230,000	\$15,150,000
Retail Trade: Food Stores	\$22,310,000	\$30,000	\$3,200,000	\$25,540,000
Automotive Dealers and Service Stations	\$38,580,000	\$230,000	\$3,910,000	\$42,720,000
Eating and Drinking Establishments	\$55,910,000	\$490,000	\$4,180,000	\$60,580,000
All Other Retail Stores	\$20,070,000	\$220,000	\$10,350,000	\$30,640,000
Finance, Insurance and Real Estate	\$0	\$29,880,000	\$103,070,000	\$132,950,000
Services: Hotels and Lodging Places	\$53,650,000	\$1,050,000	\$2,040,000	\$56,740,000
Automobile Rental and Leasing	\$40,470,000	\$1,600,000	\$1,620,000	\$43,690,000
Amusement and Recreation Services, n.e.c.	\$31,860,000	\$10,000	\$840,000	\$32,710,000
All Other Service Industries	\$0	\$9,460,000	\$17,030,000	\$26,490,000
Government - State, Local, Federal	\$250,000	\$500,000	\$31,650,000	\$32,400,000
Total	\$275,880,000	\$63,990,000	\$213,660,000	\$553,530,000

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-1, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay-Related Recreation, 2004

Industry	Tax Revenue, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$60,000	\$100,000	\$160,000
Commercial Fishing	\$0	\$520	\$70	\$590
Mining	\$0	\$670	\$1,130	\$1,800
Construction	\$0	\$50,000	\$1,020,000	\$1,070,000
Manufacturing: Food Products	\$0	\$150,000	\$890,000	\$1,040,000
Textiles	\$0	\$0	\$10,000	\$10,000
Apparel and Fabric Products	\$0	\$10,000	\$40,000	\$50,000
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$0	\$80,000	\$80,000
Printing, Publishing and Allied Products	\$0	\$170,000	\$90,000	\$260,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$30,000	\$140,000	\$170,000
Boat Building and Repairing	\$220,000	\$760	\$300	\$221,060
All other products	\$0	\$30,000	\$260,000	\$290,000
Transportation: Water Transportation	\$3,730,000	\$320,000	\$60,000	\$4,110,000
All Other Transportation	\$0	\$610,000	\$850,000	\$1,460,000
Communications, Electric, Gas and Sanitary Services	\$0	\$1,150,000	\$1,670,000	\$2,820,000
Wholesale Trade	\$0	\$5,420,000	\$11,260,000	\$16,680,000
Retail Trade: Food Stores	\$22,980,000	\$30,000	\$3,300,000	\$26,310,000
Automotive Dealers and Service Stations	\$39,730,000	\$230,000	\$4,020,000	\$43,980,000
Eating and Drinking Establishments	\$40,320,000	\$360,000	\$3,010,000	\$43,690,000
All Other Retail Stores	\$20,660,000	\$220,000	\$10,660,000	\$31,540,000
Finance, Insurance and Real Estate	\$0	\$5,800,000	\$20,450,000	\$26,250,000
Services: Hotels and Lodging Places	\$25,090,000	\$490,000	\$950,000	\$26,530,000
Automobile Rental and Leasing	\$11,460,000	\$450,000	\$460,000	\$12,370,000
Amusement and Recreation Services, n.e.c.	\$11,570,000	\$0	\$310,000	\$11,880,000
All Other Service Industries	\$0	\$2,470,000	\$4,090,000	\$6,560,000
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$175,760,000	\$18,051,950	\$63,721,500	\$257,533,450

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-1, continued
Economic Contribution to Miami-Dade County of Visitor and Resident Expenditures
for Biscayne Bay-Related Recreation, 2004

Industry	Employment, Full and Part time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	0	52	103	155
Commercial Fishing	0	1	0	1
Mining	0	1	1	2
Construction	0	166	1,146	1,312
Manufacturing: Food Products	0	71	51	122
Textiles	0	2	6	7
Apparel and Fabric Products	0	10	55	65
Lumber, Wood Products, Furniture, Paper and Allied Products	0	7	96	103
Printing, Publishing and Allied Products	0	103	51	154
Chemicals, Petroleum, Rubber and Leather Products	0	4	59	64
Boat Building and Repairing	182	1	0	183
All other products	0	24	114	137
Transportation: Water Transportation	696	59	11	767
All Other Transportation	0	282	268	550
Communications, Electric, Gas and Sanitary Services	0	126	133	259
Wholesale Trade	0	303	631	934
Retail Trade: Food Stores	3,898	6	560	4,464
Automotive Dealers and Service Stations	2,828	17	286	3,131
Eating and Drinking Establishments	13,535	120	1,012	14,666
All Other Retail Stores	3,149	32	1,559	4,741
Finance, Insurance and Real Estate	0	499	852	1,351
Services: Hotels and Lodging Places	4,606	90	175	4,870
Automobile Rental and Leasing	984	39	39	1,062
Amusement and Recreation Services, n.e.c.	7,374	1	195	7,571
All Other Service Industries	0	2,370	4,782	7,151
Government – State, Local, Federal	7	74	3,151	3,232
Total	37,259	4,457	15,338	57,054

7.0 Uses and Economic Contribution of Biscayne Bay

**Table 7.6-2
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$13,171	\$53,033	\$66,204
Commercial Fishing	\$3,914,950	\$315	\$64	\$3,915,328
Mining	\$0	\$372	\$1,144	\$1,516
Construction	\$0	\$81,425	\$1,586,917	\$1,668,342
Manufacturing: Food Products	\$0	\$105,957	\$156,387	\$262,344
Textiles	\$0	\$332	\$7,049	\$7,382
Apparel and Fabric Products	\$0	\$6,471	\$69,054	\$75,525
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$26,620	\$118,145	\$144,765
Printing, Publishing and Allied Products	\$0	\$95,587	\$73,097	\$168,685
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$9,033	\$121,724	\$130,757
Ship Building and Repairing	\$0	\$2	\$8	\$10
Boat Building and Repairing	\$942,667	\$354	\$329	\$943,350
All other products	\$0	\$40,161	\$250,015	\$290,176
Transportation: Water Transportation	\$0	\$34,507	\$27,270	\$61,777
All Other Transportation	\$0	\$77,246	\$198,037	\$275,283
Communications, Electric, Gas and Sanitary Services	\$0	\$192,126	\$321,185	\$513,311
Wholesale Trade	\$2,425,558	\$294,245	\$772,467	\$3,492,270
Retail Trade: Food Stores	\$0	\$1,067	\$203,624	\$204,691
Automotive Dealers and Service Stations	\$0	\$7,895	\$256,036	\$263,931
Eating and Drinking Establishments	\$2,834,944	\$31,579	\$436,009	\$3,302,532
All Other Retail Stores	\$2,935,834	\$6,697	\$581,155	\$3,523,686
Finance, Insurance and Real Estate	\$0	\$394,427	\$2,334,301	\$2,728,728
Services: Hotels and Lodging Places	\$0	\$43,198	\$129,838	\$173,036
Automobile Rental and Leasing	\$0	\$28,231	\$57,135	\$85,366
Amusement and Recreation Services, n.e.c.	\$0	\$259	\$55,786	\$56,045
All Other Service Industries	\$0	\$779,897	\$3,038,372	\$3,818,269
Government - State, Local, Federal	\$116,904	\$59,582	\$1,985,977	\$2,162,463
Total	\$13,170,857	\$2,330,758	\$12,834,157	\$28,335,772

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-2, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Labor Income, 2004 Dollars			Total
	Direct	Indirect	Induced	
Agriculture, Forestry, Agricultural Services	\$0	\$5,116	\$19,885	\$25,001
Commercial Fishing	\$2,334,916	\$188	\$38	\$2,335,142
Mining	\$0	\$20	\$61	\$81
Construction	\$0	\$50,421	\$443,959	\$494,380
Manufacturing: Food Products	\$0	\$20,563	\$22,492	\$43,055
Textiles	\$0	\$73	\$1,641	\$1,714
Apparel and Fabric Products	\$0	\$2,585	\$17,475	\$20,060
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$4,315	\$32,262	\$36,578
Printing, Publishing and Allied Products	\$0	\$33,860	\$25,082	\$58,942
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,362	\$27,673	\$29,034
Ship Building and Repairing	\$0	\$1	\$4	\$5
Boat Building and Repairing	\$341,657	\$128	\$119	\$341,905
All other products	\$0	\$11,619	\$69,802	\$81,420
Transportation: Water Transportation	\$0	\$6,136	\$4,850	\$10,986
All Other Transportation	\$0	\$28,584	\$77,440	\$106,024
Communications, Electric, Gas and Sanitary Services	\$0	\$56,640	\$81,182	\$137,821
Wholesale Trade	\$1,016,381	\$123,298	\$323,687	\$1,463,365
Retail Trade: Food Stores	\$0	\$634	\$121,077	\$121,711
Automotive Dealers and Service Stations	\$0	\$3,523	\$114,255	\$117,778
Eating and Drinking Establishments	\$1,117,256	\$12,445	\$171,832	\$1,301,533
All Other Retail Stores	\$1,406,657	\$3,301	\$283,062	\$1,693,020
Finance, Insurance and Real Estate	\$0	\$81,367	\$402,744	\$484,111
Services: Hotels and Lodging Places	\$0	\$17,581	\$52,842	\$70,424
Automobile Rental and Leasing	\$0	\$8,608	\$17,421	\$26,029
Amusement and Recreation Services, n.e.c.	\$0	\$106	\$22,913	\$23,020
All Other Service Industries	\$0	\$403,052	\$1,654,976	\$2,058,029
Government - State, Local, Federal	\$3,311	\$31,114	\$1,563,504	\$1,597,929
Total	\$6,220,179	\$906,640	\$5,552,278	\$12,679,097

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-2, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$2,162	\$9,066	\$11,229
Commercial Fishing	\$1,216,843	\$98	\$20	\$1,216,961
Mining	\$0	\$16	\$52	\$68
Construction	\$0	\$4,338	\$54,613	\$58,951
Manufacturing: Food Products	\$0	\$15,155	\$15,929	\$31,084
Textiles	\$0	\$16	\$354	\$370
Apparel and Fabric Products	\$0	\$667	\$4,368	\$5,036
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$2,067	\$7,885	\$9,952
Printing, Publishing and Allied Products	\$0	\$11,281	\$8,546	\$19,827
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,161	\$26,952	\$28,114
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$48,568	\$18	\$17	\$48,603
All other products	\$0	\$3,972	\$12,885	\$16,856
Transportation: Water Transportation	\$0	\$2,313	\$1,828	\$4,140
All Other Transportation	\$0	\$7,916	\$20,730	\$28,646
Communications, Electric, Gas and Sanitary Services	\$0	\$34,753	\$77,281	\$112,034
Wholesale Trade	\$314,507	\$38,153	\$100,161	\$452,820
Retail Trade: Food Stores	\$0	\$165	\$31,590	\$31,755
Automotive Dealers and Service Stations	\$0	\$1,186	\$38,447	\$39,633
Eating and Drinking Establishments	\$268,103	\$2,986	\$41,234	\$312,323
All Other Retail Stores	\$435,203	\$1,015	\$88,002	\$524,220
Finance, Insurance and Real Estate	\$0	\$154,811	\$1,015,789	\$1,170,599
Services: Hotels and Lodging Places	\$0	\$6,671	\$20,051	\$26,723
Automobile Rental and Leasing	\$0	\$7,874	\$15,936	\$23,810
Amusement and Recreation Services, n.e.c.	\$0	\$39	\$8,335	\$8,373
All Other Service Industries	\$0	\$52,410	\$167,526	\$219,936
Government - State, Local, Federal	\$1,680	\$3,188	\$318,016	\$322,884
Total	\$2,284,903	\$354,431	\$2,085,611	\$4,724,946

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-2, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$277	\$1,002	\$1,279
Commercial Fishing	\$127,272	\$10	\$2	\$127,284
Mining	\$0	\$4	\$11	\$15
Construction	\$0	\$373	\$9,888	\$10,260
Manufacturing: Food Products	\$0	\$858	\$8,760	\$9,618
Textiles	\$0	\$3	\$63	\$66
Apparel and Fabric Products	\$0	\$55	\$417	\$471
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$131	\$818	\$949
Printing, Publishing and Allied Products	\$0	\$1,121	\$848	\$1,969
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$122	\$1,303	\$1,425
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$8,312	\$3	\$3	\$8,318
All other products	\$0	\$434	\$2,613	\$3,047
Transportation: Water Transportation	\$0	\$751	\$594	\$1,345
All Other Transportation	\$0	\$1,083	\$3,046	\$4,130
Communications, Electric, Gas and Sanitary Services	\$0	\$7,290	\$16,432	\$23,723
Wholesale Trade	\$346,108	\$41,986	\$110,225	\$498,319
Retail Trade: Food Stores	\$0	\$170	\$32,527	\$32,697
Automotive Dealers and Service Stations	\$0	\$1,221	\$39,588	\$40,809
Eating and Drinking Establishments	\$193,312	\$2,153	\$29,731	\$225,197
All Other Retail Stores	\$448,113	\$1,045	\$90,612	\$539,770
Finance, Insurance and Real Estate	\$0	\$29,578	\$201,495	\$231,073
Services: Hotels and Lodging Places	\$0	\$3,120	\$9,379	\$12,499
Automobile Rental and Leasing	\$0	\$2,230	\$4,513	\$6,744
Amusement and Recreation Services, n.e.c.	\$0	\$14	\$3,026	\$3,040
All Other Service Industries	\$0	\$12,657	\$40,227	\$52,884
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$1,123,117	\$106,691	\$607,123	\$1,836,931

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-2, continued
Economic Contribution to Miami-Dade County of Biscayne Bay-Related Commercial Fishing, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	0	0	1	1
Commercial Fishing	140	0	0	140
Mining	0	0	0	0
Construction	0	1	11	12
Manufacturing: Food Products	0	0	1	1
Textiles	0	0	0	0
Apparel and Fabric Products	0	0	1	1
Lumber, Wood Products, Furniture, Paper and Allied Products	0	0	1	1
Printing, Publishing and Allied Products	0	1	1	1
Chemicals, Petroleum, Rubber and Leather Products	0	0	1	1
Ship Building and Repairing	0	0	0	0
Boat Building and Repairing	7	0	0	7
All other products	0	0	1	1
Transportation: Water Transportation	0	0	0	0
All Other Transportation	0	1	2	3
Communications, Electric, Gas and Sanitary Services	0	1	1	2
Wholesale Trade	19	2	6	28
Retail Trade: Food Stores	0	0	6	6
Automotive Dealers and Service Stations	0	0	3	3
Eating and Drinking Establishments	65	1	10	76
All Other Retail Stores	68	0	13	82
Finance, Insurance and Real Estate	0	2	8	10
Services: Hotels and Lodging Places	0	1	2	2
Automobile Rental and Leasing	0	0	0	1
Amusement and Recreation Services, n.e.c.	0	0	2	2
All Other Service Industries	0	12	47	59
Government - State, Local, Federal	0	0	30	30
Total	299	23	147	469

7.0 Uses and Economic Contribution of Biscayne Bay

**Table 7.6-3
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$307,000	\$1,248,263	\$11,419,317	\$12,974,580
Commercial Fishing	\$0	\$4,124	\$4,565	\$8,689
Mining	\$0	\$407,304	\$245,499	\$652,803
Construction	\$93,997,592	\$10,974,140	\$327,011,478	\$431,983,210
Manufacturing: Food Products	\$0	\$4,568,597	\$33,997,668	\$38,566,265
Textiles	\$0	\$282,565	\$1,536,715	\$1,819,280
Apparel and Fabric Products	\$1,273,418	\$7,285,075	\$15,044,866	\$23,603,359
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$3,748,472	\$25,009,935	\$28,758,408
Printing, Publishing and Allied Products	\$0	\$48,950,109	\$15,775,097	\$64,725,206
Chemicals, Petroleum, Rubber and Leather Products	\$1,714,308	\$3,303,275	\$26,193,079	\$31,210,662
Ship Building and Repairing	\$17,350,562	\$129,230	\$1,733	\$17,481,525
Boat Building and Repairing	\$0	\$1,535,066	\$70,674	\$1,605,739
All other products	\$12,914,400	\$22,613,310	\$52,699,895	\$88,227,605
Transportation: Water Transportation	\$2,412,835,328	\$366,697,216	\$5,864,081	\$2,785,396,625
All Other Transportation	\$817,911,324	\$175,513,929	\$59,964,922	\$1,053,390,175
Communications, Electric, Gas and Sanitary Services	\$0	\$81,143,017	\$69,252,290	\$150,395,306
Wholesale Trade	\$240,064,000	\$77,166,752	\$165,183,712	\$482,414,464
Retail Trade: Food Stores	\$0	\$383,599	\$44,371,232	\$44,754,831
Automotive Dealers and Service Stations	\$0	\$2,839,224	\$55,501,008	\$58,340,232
Eating and Drinking Establishments	\$77,956,160	\$7,510,490	\$95,124,208	\$180,590,858
All Other Retail Stores	\$28,104,558	\$2,702,322	\$146,284,072	\$177,090,952
Finance, Insurance and Real Estate	\$0	\$207,558,192	\$507,365,678	\$714,923,870
Services: Hotels and Lodging Places	\$130,446,128	\$14,158,611	\$28,077,888	\$172,682,627
Automobile Rental and Leasing	\$0	\$7,932,584	\$12,281,062	\$20,213,646
Amusement and Recreation Services, n.e.c.	\$0	\$28,407	\$12,196,423	\$12,224,830
All Other Service Industries	\$915,143	\$555,230,192	\$657,913,620	\$1,214,058,954
Government - State, Local, Federal	\$112,318	\$19,020,909	\$404,025,581	\$423,158,808
Total	\$3,835,902,238	\$1,622,934,971	\$2,772,416,298	\$8,231,253,507

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-3, continued
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004
Labor Income, 2004 Dollars

Industry	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$117,300	\$486,676	\$4,279,097	\$4,883,072
Commercial Fishing	\$0	\$2,457	\$2,720	\$5,177
Mining	\$0	\$21,384	\$13,182	\$34,565
Construction	\$31,714,744	\$6,579,395	\$91,079,789	\$129,373,928
Manufacturing: Food Products	\$0	\$877,442	\$4,891,753	\$5,769,196
Textiles	\$0	\$61,545	\$357,752	\$419,297
Apparel and Fabric Products	\$318,947	\$3,187,436	\$3,805,696	\$7,312,079
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$814,299	\$6,819,580	\$7,633,879
Printing, Publishing and Allied Products	\$0	\$17,420,201	\$5,414,364	\$22,834,566
Chemicals, Petroleum, Rubber and Leather Products	\$357,147	\$515,567	\$5,965,809	\$6,838,523
Ship Building and Repairing	\$9,181,659	\$68,387	\$917	\$9,250,963
Boat Building and Repairing	\$0	\$556,364	\$25,615	\$581,979
All other products	\$3,570,592	\$6,306,480	\$14,702,517	\$24,579,588
Transportation: Water Transportation	\$429,077,632	\$65,210,240	\$1,042,817	\$495,330,689
All Other Transportation	\$410,992,792	\$95,543,008	\$23,937,814	\$530,473,614
Communications, Electric, Gas and Sanitary Services	\$0	\$25,235,422	\$17,507,738	\$42,743,161
Wholesale Trade	\$100,593,960	\$32,335,166	\$69,216,888	\$202,146,014
Retail Trade: Food Stores	\$0	\$228,091	\$26,383,510	\$26,611,601
Automotive Dealers and Service Stations	\$0	\$1,266,988	\$24,767,020	\$26,034,008
Eating and Drinking Establishments	\$30,722,634	\$2,959,895	\$37,488,588	\$71,171,117
All Other Retail Stores	\$13,465,843	\$1,304,072	\$69,488,505	\$84,258,420
Finance, Insurance and Real Estate	\$0	\$59,544,439	\$87,379,834	\$146,924,273
Services: Hotels and Lodging Places	\$53,089,948	\$5,762,378	\$11,427,349	\$70,279,675
Automobile Rental and Leasing	\$0	\$2,418,696	\$3,744,574	\$6,163,270
Amusement and Recreation Services, n.e.c.	\$0	\$11,668	\$5,009,514	\$5,021,182
All Other Service Industries	\$553,719	\$299,705,769	\$358,564,896	\$658,824,383
Government - State, Local, Federal	\$26,934	\$8,876,697	\$316,335,456	\$325,239,087
Total	\$1,083,783,850	\$637,300,162	\$1,189,653,292	\$2,910,737,305

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-3, continued
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$40,598	\$229,523	\$1,946,489	\$2,216,610
Commercial Fishing	\$0	\$1,280	\$1,417	\$2,698
Mining	\$0	\$17,766	\$11,123	\$28,889
Construction	\$2,563,656	\$575,674	\$11,213,504	\$14,352,833
Manufacturing: Food Products	\$0	\$704,313	\$3,465,071	\$4,169,384
Textiles	\$0	\$13,706	\$77,056	\$90,762
Apparel and Fabric Products	\$58,272	\$791,023	\$949,954	\$1,799,249
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$223,285	\$1,668,863	\$1,892,148
Printing, Publishing and Allied Products	\$0	\$5,878,310	\$1,845,853	\$7,724,163
Chemicals, Petroleum, Rubber and Leather Products	\$272,435	\$365,807	\$5,799,633	\$6,437,875
Ship Building and Repairing	\$809,115	\$6,026	\$81	\$815,222
Boat Building and Repairing	\$0	\$79,089	\$3,641	\$82,731
All other products	\$409,402	\$1,197,380	\$2,719,892	\$4,326,674
Transportation: Water Transportation	\$161,708,752	\$24,576,126	\$393,012	\$186,677,890
All Other Transportation	\$91,007,402	\$21,582,791	\$6,337,982	\$118,928,174
Communications, Electric, Gas and Sanitary Services	\$0	\$12,792,815	\$16,654,363	\$29,447,178
Wholesale Trade	\$31,127,568	\$10,005,721	\$21,418,320	\$62,551,609
Retail Trade: Food Stores	\$0	\$59,511	\$6,883,696	\$6,943,207
Automotive Dealers and Service Stations	\$0	\$426,349	\$8,334,244	\$8,760,593
Eating and Drinking Establishments	\$7,372,368	\$710,272	\$8,995,962	\$17,078,602
All Other Retail Stores	\$4,166,172	\$410,481	\$22,220,457	\$26,797,110
Finance, Insurance and Real Estate	\$0	\$62,476,155	\$221,014,627	\$283,490,781
Services: Hotels and Lodging Places	\$20,145,290	\$2,186,568	\$4,336,175	\$26,668,033
Automobile Rental and Leasing	\$0	\$2,212,537	\$3,425,404	\$5,637,941
Amusement and Recreation Services, n.e.c.	\$0	\$4,244	\$1,822,210	\$1,826,454
All Other Service Industries	\$32,355	\$29,985,837	\$36,283,827	\$66,302,018
Government - State, Local, Federal	\$16,991	\$725,657	\$60,746,290	\$61,488,938
Total	\$319,730,375	\$178,238,247	\$448,569,146	\$946,537,767

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-3, continued
Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$5,634	\$27,995	\$215,517	\$249,146
Commercial Fishing	\$0	\$133	\$147	\$279
Mining	\$0	\$3,933	\$2,379	\$6,312
Construction	\$709,842	\$49,879	\$2,036,961	\$2,796,681
Manufacturing: Food Products	\$0	\$39,110	\$1,908,157	\$1,947,267
Textiles	\$0	\$2,463	\$13,716	\$16,179
Apparel and Fabric Products	\$6,203	\$60,293	\$90,706	\$157,202
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$22,044	\$172,814	\$194,857
Printing, Publishing and Allied Products	\$0	\$575,304	\$182,992	\$758,296
Chemicals, Petroleum, Rubber and Leather Products	\$24,631	\$39,227	\$279,986	\$343,843
Ship Building and Repairing	\$190,852	\$1,421	\$19	\$192,293
Boat Building and Repairing	\$0	\$13,535	\$623	\$14,159
All other products	\$149,595	\$213,592	\$549,962	\$913,149
Transportation: Water Transportation	\$52,533,060	\$7,983,855	\$127,675	\$60,644,590
All Other Transportation	\$40,067,847	\$4,154,944	\$1,786,522	\$46,009,314
Communications, Electric, Gas and Sanitary Services	\$0	\$2,638,466	\$3,540,942	\$6,179,407
Wholesale Trade	\$34,255,212	\$11,011,078	\$23,570,394	\$68,836,684
Retail Trade: Food Stores	\$0	\$61,276	\$7,087,895	\$7,149,171
Automotive Dealers and Service Stations	\$0	\$438,996	\$8,581,472	\$9,020,468
Eating and Drinking Establishments	\$5,315,760	\$512,133	\$6,486,434	\$12,314,326
All Other Retail Stores	\$4,289,758	\$422,658	\$22,879,607	\$27,592,022
Finance, Insurance and Real Estate	\$0	\$11,565,016	\$43,823,838	\$55,388,854
Services: Hotels and Lodging Places	\$9,422,827	\$1,022,753	\$2,028,217	\$12,473,797
Automobile Rental and Leasing	\$0	\$626,651	\$970,168	\$1,596,820
Amusement and Recreation Services, n.e.c.	\$0	\$1,541	\$661,554	\$663,095
All Other Service Industries	\$3,287	\$6,835,093	\$8,714,028	\$15,552,409
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$146,974,509	\$48,323,389	\$135,712,723	\$331,010,622

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-3, continued

Economic Contribution of Port of Miami Shipping Activities to Miami-Dade County by Benefiting Industry Type, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	3	28	216	247
Commercial Fishing	0	0	0	0
Mining	0	4	2	6
Construction	716	151	2,281	3,148
Manufacturing: Food Products	0	17	110	127
Textiles	0	2	13	15
Apparel and Fabric Products	11	64	118	192
Lumber, Wood Products, Furniture, Paper and Allied Products	0	27	199	226
Printing, Publishing and Allied Products	0	344	108	452
Chemicals, Petroleum, Rubber and Leather Products	5	12	126	143
Ship Building and Repairing	105	1	0	105
Boat Building and Repairing	0	11	1	12
All other products	59	115	233	406
Transportation: Water Transportation	9,812	1,491	24	11,327
All Other Transportation	9,807	2,485	564	12,856
Communications, Electric, Gas and Sanitary Services	0	352	282	634
Wholesale Trade	1,918	617	1,320	3,855
Retail Trade: Food Stores	0	10	1,203	1,213
Automotive Dealers and Service Stations	0	31	611	642
Eating and Drinking Establishments	1,785	172	2,178	4,134
All Other Retail Stores	654	60	3,348	4,063
Finance, Insurance and Real Estate	0	1,421	1,819	3,239
Services: Hotels and Lodging Places	1,729	188	372	2,289
Automobile Rental and Leasing	0	54	83	137
Amusement and Recreation Services, n.e.c.	0	1	422	423
All Other Service Industries	11	7,751	10,192	17,955
Government - State, Local, Federal	0	126	5,985	6,112
Total	26,615	15,534	31,809	73,958

7.0 Uses and Economic Contribution of Biscayne Bay

**Table 7.6-4
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004**

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$147,000	\$126,389	\$1,025,716	\$1,299,105
Commercial Fishing	\$0	\$91	\$406	\$497
Mining	\$0	\$31,633	\$22,166	\$53,798
Construction	\$18,133,994	\$925,603	\$30,070,919	\$49,130,517
Manufacturing: Food Products	\$0	\$105,177	\$3,030,230	\$3,135,407
Textiles	\$0	\$57,911	\$136,834	\$194,745
Apparel and Fabric Products	\$610,000	\$475,592	\$1,339,798	\$2,425,390
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$240,626	\$2,238,562	\$2,479,188
Printing, Publishing and Allied Products	\$0	\$3,773,083	\$1,412,967	\$5,186,049
Chemicals, Petroleum, Rubber and Leather Products	\$821,000	\$889,969	\$2,354,543	\$4,065,512
Ship Building and Repairing	\$975,398	\$7,275	\$157	\$982,831
Boat Building and Repairing	\$0	\$85,720	\$6,294	\$92,014
All other products	\$6,187,000	\$1,744,775	\$4,735,895	\$12,667,670
Transportation: Water Transportation	\$135,655,600	\$20,783,014	\$525,787	\$156,964,401
All Other Transportation	\$34,184,274	\$11,225,579	\$5,380,559	\$50,790,411
Communications, Electric, Gas and Sanitary Services	\$0	\$7,004,167	\$6,201,886	\$13,206,053
Wholesale Trade	\$115,014,000	\$7,204,478	\$14,781,494	\$136,999,972
Retail Trade: Food Stores	\$0	\$32,596	\$3,937,894	\$3,970,491
Automotive Dealers and Service Stations	\$0	\$241,263	\$4,937,196	\$5,178,459
Eating and Drinking Establishments	\$0	\$584,814	\$8,453,724	\$9,038,538
All Other Retail Stores	\$0	\$229,631	\$12,987,398	\$13,217,029
Finance, Insurance and Real Estate	\$0	\$14,805,176	\$45,160,554	\$59,965,729
Services: Hotels and Lodging Places	\$0	\$1,300,300	\$2,514,409	\$3,814,709
Automobile Rental and Leasing	\$0	\$894,514	\$1,102,850	\$1,997,364
Amusement and Recreation Services, n.e.c.	\$0	\$6,996	\$1,081,615	\$1,088,611
All Other Service Industries	\$0	\$41,875,615	\$58,773,253	\$100,648,868
Government - State, Local, Federal	\$2,816,000	\$1,703,722	\$39,426,417	\$43,946,138
Total	\$314,544,266	\$116,355,708	\$251,639,522	\$682,539,497

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-4, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$56,166	\$50,178	\$384,559	\$490,903
Commercial Fishing	\$0	\$54	\$242	\$296
Mining	\$0	\$1,748	\$1,191	\$2,939
Construction	\$6,357,394	\$558,660	\$8,466,312	\$15,382,366
Manufacturing: Food Products	\$0	\$19,682	\$435,973	\$455,655
Textiles	\$0	\$11,756	\$31,858	\$43,613
Apparel and Fabric Products	\$152,784	\$196,024	\$338,976	\$687,784
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$36,522	\$610,209	\$646,731
Printing, Publishing and Allied Products	\$0	\$1,334,510	\$484,770	\$1,819,280
Chemicals, Petroleum, Rubber and Leather Products	\$171,065	\$127,140	\$535,676	\$833,881
Ship Building and Repairing	\$516,166	\$3,850	\$83	\$520,099
Boat Building and Repairing	\$0	\$31,068	\$2,281	\$33,349
All other products	\$1,710,662	\$485,169	\$1,321,543	\$3,517,374
Transportation: Water Transportation	\$24,123,810	\$3,695,870	\$93,501	\$27,913,181
All Other Transportation	\$16,907,818	\$5,872,834	\$2,147,738	\$24,928,389
Communications, Electric, Gas and Sanitary Services	\$0	\$2,098,129	\$1,567,491	\$3,665,620
Wholesale Trade	\$48,194,288	\$3,018,891	\$6,193,886	\$57,407,065
Retail Trade: Food Stores	\$0	\$19,382	\$2,341,505	\$2,360,887
Automotive Dealers and Service Stations	\$0	\$107,662	\$2,203,197	\$2,310,859
Eating and Drinking Establishments	\$0	\$230,476	\$3,331,625	\$3,562,101
All Other Retail Stores	\$0	\$110,814	\$6,169,402	\$6,280,216
Finance, Insurance and Real Estate	\$0	\$4,053,883	\$7,792,264	\$11,846,147
Services: Hotels and Lodging Places	\$0	\$529,206	\$1,023,333	\$1,552,539
Automobile Rental and Leasing	\$0	\$272,743	\$336,266	\$609,009
Amusement and Recreation Services, n.e.c.	\$0	\$2,873	\$444,259	\$447,132
All Other Service Industries	\$0	\$22,221,273	\$32,020,726	\$54,241,999
Government - State, Local, Federal	\$2,182,966	\$917,350	\$31,087,057	\$34,187,372
Total	\$100,373,118	\$46,007,749	\$109,365,922	\$255,746,788

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-4, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$19,439	\$24,352	\$175,253	\$219,044
Commercial Fishing	\$0	\$28	\$126	\$154
Mining	\$0	\$1,444	\$1,005	\$2,449
Construction	\$819,555	\$48,709	\$1,039,270	\$1,907,533
Manufacturing: Food Products	\$0	\$17,561	\$308,762	\$326,323
Textiles	\$0	\$2,413	\$6,862	\$9,275
Apparel and Fabric Products	\$27,914	\$47,802	\$84,668	\$160,384
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$10,141	\$149,260	\$159,401
Printing, Publishing and Allied Products	\$0	\$443,004	\$165,183	\$608,187
Chemicals, Petroleum, Rubber and Leather Products	\$130,513	\$217,571	\$521,137	\$869,221
Ship Building and Repairing	\$45,486	\$339	\$7	\$45,833
Boat Building and Repairing	\$0	\$4,416	\$324	\$4,741
All other products	\$196,122	\$93,522	\$244,773	\$534,418
Transportation: Water Transportation	\$9,091,667	\$1,392,882	\$35,238	\$10,519,787
All Other Transportation	\$3,267,007	\$1,346,590	\$568,628	\$5,182,225
Communications, Electric, Gas and Sanitary Services	\$0	\$1,204,183	\$1,492,655	\$2,696,838
Wholesale Trade	\$14,913,133	\$934,159	\$1,916,622	\$17,763,914
Retail Trade: Food Stores	\$0	\$5,057	\$610,920	\$615,977
Automotive Dealers and Service Stations	\$0	\$36,229	\$741,388	\$777,617
Eating and Drinking Establishments	\$0	\$55,306	\$799,475	\$854,781
All Other Retail Stores	\$0	\$34,881	\$1,972,776	\$2,007,657
Finance, Insurance and Real Estate	\$0	\$4,686,482	\$19,652,201	\$24,338,683
Services: Hotels and Lodging Places	\$0	\$200,810	\$388,310	\$589,120
Automobile Rental and Leasing	\$0	\$249,496	\$307,604	\$557,100
Amusement and Recreation Services, n.e.c.	\$0	\$1,045	\$161,599	\$162,644
All Other Service Industries	\$0	\$2,413,978	\$3,240,664	\$5,654,642
Government – State, Local, Federal	\$633,035	\$14,498	\$5,926,515	\$6,574,048
Total	\$29,143,871	\$13,486,898	\$40,511,228	\$83,141,997

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-4, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$2,698	\$2,910	\$19,384	\$24,992
Commercial Fishing	\$0	\$3	\$13	\$16
Mining	\$0	\$309	\$215	\$524
Construction	\$117,490	\$4,213	\$187,160	\$308,863
Manufacturing: Food Products	\$0	\$972	\$169,399	\$170,371
Textiles	\$0	\$543	\$1,221	\$1,764
Apparel and Fabric Products	\$2,972	\$3,850	\$8,080	\$14,901
Lumber, Wood Products, Furniture, Paper and Allied Products	\$0	\$1,006	\$15,472	\$16,479
Printing, Publishing and Allied Products	\$0	\$44,186	\$16,388	\$60,575
Chemicals, Petroleum, Rubber and Leather Products	\$11,797	\$8,806	\$25,215	\$45,818
Ship Building and Repairing	\$10,729	\$80	\$2	\$10,811
Boat Building and Repairing	\$0	\$756	\$55	\$811
All other products	\$71,669	\$17,029	\$49,440	\$138,138
Transportation: Water Transportation	\$2,953,539	\$452,495	\$11,448	\$3,417,482
All Other Transportation	\$1,917,973	\$265,373	\$160,123	\$2,343,469
Communications, Electric, Gas and Sanitary Services	\$0	\$248,166	\$317,423	\$565,588
Wholesale Trade	\$16,411,577	\$1,028,021	\$2,109,201	\$19,548,799
Retail Trade: Food Stores	\$0	\$5,207	\$629,042	\$634,249
Automotive Dealers and Service Stations	\$0	\$37,304	\$763,381	\$800,685
Eating and Drinking Establishments	\$0	\$39,878	\$576,452	\$616,330
All Other Retail Stores	\$0	\$35,916	\$2,031,297	\$2,067,212
Finance, Insurance and Real Estate	\$0	\$845,923	\$3,897,296	\$4,743,219
Services: Hotels and Lodging Places	\$0	\$93,928	\$181,629	\$275,557
Automobile Rental and Leasing	\$0	\$70,664	\$87,122	\$157,786
Amusement and Recreation Services, n.e.c.	\$0	\$379	\$58,669	\$59,048
All Other Service Industries	\$0	\$544,797	\$778,329	\$1,323,126
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$21,500,445	\$3,752,713	\$12,093,455	\$37,346,613

7.0 Uses and Economic Contribution of Biscayne Bay

Table 7.6-4, continued
Economic Contribution of Miami River Shipping to Miami-Dade County, 2004

Industry	Employment, Number of Full- and Part-Time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	1	3	19	24
Commercial Fishing	0	0	0	0
Mining	0	0	0	1
Construction	147	13	210	370
Manufacturing: Food Products	0	0	10	10
Textiles	0	0	1	2
Apparel and Fabric Products	5	4	10	20
Lumber, Wood Products, Furniture, Paper and Allied Products	0	2	18	20
Printing, Publishing and Allied Products	0	27	10	36
Chemicals, Petroleum, Rubber and Leather Products	2	2	11	16
Ship Building and Repairing	6	0	0	6
Boat Building and Repairing	0	1	0	1
All other products	28	9	21	58
Transportation: Water Transportation	552	85	2	638
All Other Transportation	380	152	51	582
Communications, Electric, Gas and Sanitary Services	0	30	25	55
Wholesale Trade	919	58	118	1,095
Retail Trade: Food Stores	0	1	107	108
Automotive Dealers and Service Stations	0	3	54	57
Eating and Drinking Establishments	0	13	194	207
All Other Retail Stores	0	5	297	302
Finance, Insurance and Real Estate	0	95	162	257
Services: Hotels and Lodging Places	0	17	33	51
Automobile Rental and Leasing	0	6	7	14
Amusement and Recreation Services, n.e.c.	0	0	37	38
All Other Service Industries	0	594	910	1,505
Government - State, Local, Federal	34	13	589	636
*Total	2,075	1,133	2,898	6,106

8.0 Bibliography

Adamowicz W., J. Louviere, and M. Williams, “Combining Revealed And Stated Preference Methods For Valuing Environmental Amenities.” *Journal of Environmental Economics and Management* 26: 271-292. 1994.

Agnello Richard, J., Lawrence P. Donnelley, Kenneth W. Eckhardt, and Robert A. Rothman, “Coastal Zone Recreational Activity and Potential Demand of Delaware Residents.” A Delaware Sea Grant Technical Report. DEL-SG-8-77.

Ahrens, Michael J., “An Annotated Bibliography of the Natural Resources of the Peconic Estuary and Adjacent Locations on Eastern Long Island, NY – A Literature Survey Submitted to the Peconic Estuary Program (PEP). Marine Sciences Research Center, State University of New York (SUNY). April 1997.

Ault, Jerald S., James A. Bohnsack, and Geoffrey A. Meester, “A retrospective (1979 – 1996) multispecies assessment of coral reef fish stocks in the Florida Keys”, *Fishery Bulletin* 96(3):395-414(1998), accepted December 16, 1997.

Ault, Jerald S., Jiangang Luo, and John D. Wang, “A Spatial Ecosystem Model to Assess Spotted Seatrout Population Risks from Exploitation and Environmental Changes”, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 2003.

Ault, Jerald S., Michael F. Larkin, and Anya A. Barranco, “Access-Intercept Survey of Biscayne National Park Marine Resource Users”, Final Report, Fisheries Ecosystem Modeling and Assessment Research, University of Miami, Deliverable on Contract No. NPS H500000B494 from Biscayne National Park, January 27, 2003.

Ault, Jerald S., Robert Humston, Michael F. Larkin, and Jiangang Luo, “Development of a Bonefish Conservation Program in South Florida”, Final Report, Fisheries Ecosystem Modeling and Assessment Research, University of Miami, for the National Fish and Wildlife Foundation Challenge Grant No. 20010078000-SC, September 2002.

Ault, Jerald S., Steven G. Smith, Geoffrey A. Meester, Jiangang Luo, and James A. Bohnsack, “Site Characterization for Biscayne National Park: Assessment of Fisheries Resources and Habitats, NOAA Technical Memorandum NMFS-SEFSE-468, National Oceanic and Atmospheric Administration, US Department of Commerce, Miami Florida, October 2001.

Ault, Jerald, Joseph Serafy, Daniel DiResta, and John Dandelski, “Impacts of Commercial Fishing on Key Habitats Within Biscayne National Park”, 2nd Quarterly Report on Coop. Agreement No. CA-5250-6-9018, University of Miami, submitted to Biscayne National Park, February 28, 1997.

Austin, Charles Bruce, “An Economic Inventory of the Miami River and its Economic and Environmental Role in Biscayne Bay.” University of Miami – Sea Grant Institutional Program, Sea Grant Technical Bulletin Number 17. October 1971.

Austin, Charles Bruce, “Recreational Boating in Biscayne Bay.” National Sea Grant Library – MIAU-Z-76-019. pp. 247 – 253. 1976.

Barnegat Bay National Estuary Program, “Barnegat Bay National Estuary Program Characterization Report – Chapter 4, Historic Uses.” Scientific and Technical Advisory Committee. January 2001.

Barnegat Bay National Estuary Program, “Barnegat Bay National Estuary Program Characterization Report – Chapter 10, Human Uses in the Barnegat Bay-Little Egg Harbor Estuary and Watershed.” Scientific and Technical Advisory Committee. January 2001.

Bell, Frederick W., “The Economic Value of Saltwater Marsh to Florida’s Commercial Fisheries” Chapter 5, in Florida Coastal Environmental Resources, A Guide to Economic Valuation and Impact Analysis, edited by David Letson and J. Walter Milon for the Florida Sea Grant College Program, Gainesville, Florida, 2002.

Bell, Frederick W., “The Economic Valuation of Saltwater Marsh Supporting Marine Recreational Fishing in the Southeastern United States.” Ecological Economics. Volume 21. pp. 243-254. 1997.

Bell, Frederick W., “Estimation of the Present and Projected Demand and Supply of Boat Ramps for Florida’s Coastal Regions and Counties”, Florida Sea Grant College Program, Gainesville, Florida, April 1995.

Bell, Frederick W., “Current and Projected Tourist Demand for Saltwater Recreational Fisheries in Florida”, Florida Sea Grant College Program, Gainesville, Florida, May 1993.

Bell, Frederick, P. Sorenson, and V.R. Leeworthy. “*Economic Impact and Valuation of Saltwater Recreational Fisheries in Florida.*” Florida Sea Grant Report No. 47. August 1982.

Berkeley, Steven A., Donald W. Pybas and Wilfredo L. Campos, “Bait Shrimp Fishery of Biscayne Bay”, Florida Sea Grant College, Technical Paper No. 40, Gainesville, Florida, November 1985.

Biscayne Bay Partnership Initiative – Policy Development Committee, “Survey Team Final Reports.” 2001.

Biscayne Bay Partnership Initiative – Policy Development Committee, “A Bright, Great Bay.” January 2001.

Brock-Getz, Petra and Adina Wasserman, “Measuring the Perception and Awareness of Biscayne Bay Among Miami-Dade Residents.” Prepared for The Trust for Public Land. Coral Gables, Florida. June 17, 2002.

Browder, Joan, Jeremy Hall, Liz Uzgiden, Pamela Eyo, Michael Robblee, David Moore, and Andre Daniels, “Annual report – C13401 – Biscayne Bay Coastal and Nearshore Community Baseline Study to develop Biological Performance Measures, Faunal Density and Community Composition of the Nearshore Zone (Part I)” September 2003.

Burzycki, Gwen M. and Deborah L. Drum, Metro-Dade Department of Environmental Resources Management, “Technical Summary Document: Environmental/Regulatory Planning for the SW Biscayne Bay Wetlands (Advance Identification of Disposal Areas)”, Final Draft, Miami, Florida, November 1992.

Buzzards Bay Project National Estuary Program, “Scientific Sample of Town Residents: Carver Open Space and Recreation Plan Survey Results”, March 6, 2002 .

Canzanelli, Linda, “Letter from Linda Canzanelli Regarding Management of Biscayne National Park” , Biscayne National Park.

Carson, Richard T. and Robert Cameron Mitchell, “The Value of Clean Water: The Public’s Willingness to Pay for Boatable, Fishable, and Swimmable Quality Water.” Water Resources Research. Volume 29, Number 7. Pages 2445-2454. July 1993.

Champ, Patricia A. and Richard C. Bishop, “Evidence on the Accuracy of Expenditures Reported in Recreational Surveys.” Journal of Agricultural and Resource Economics 21(1):150-159. 1996.

City of Miami Department of Planning, Building and Zoning, “Miami River Master Plan”, Final Report, City of Miami Department of Planning, Building and Zoning, January 23, 1992.

Coverden, Erica Van, “An Evaluation of the Bill Baggs Beach Preference Survey”, Economics of Natural Resources, MAF 502, Dr. David Letson, November 18, 1997.

Del Giudice, Prof. Michael, “Miami Dade County Blueways – Paddle Miami Dade County”, FIU-Landscape Architecture, Miami, Florida, Prepared for Miami-Dade County Parks Department, April 25, 2002.

Department of Environmental Resources Management (DERM), “Biscayne Bay Restoration and Enhancement Program.” State of Florida, Department of Environmental Regulation.

Dial Cordy and Associates, “Miami Harbor General Reevaluation Report Study – Draft Environmental Impact Statement”, Jacksonville District US Army Corps of Engineers, Jacksonville, FL, February 2003.

EDAW, Inc., “Biscayne National Park- Ethnographic Overview and Assessment Final Report.” Everglades National Park, October 2003.

Englin, Jeffrey, David Lambert and W. Douglass Shaw, “A Structural Equations Approach to Modeling Consumptive Recreation Demand.” Journal of Environmental Economics and Management. Volume 33. 1997.

ERDC/CHL, “ERDC Publications Coastal and Hydraulics Laboratory (CHL) Technical Report”, TR-02-8 Vol. 1 Biscayne Bay Field Data – Vol. 1, main text.

Fedler, Anthony J., “Participation in Boating and Fishing: A Literature Review.” Recreational Boating & Fishing Foundation - Sport Fish Restoration. September 2000.

Florida Administrative Code. Chapter 18-18 – Biscayne Bay Aquatic Preserve, 2004.

Florida Department of Natural Resources, Division of State Lands, “Management Plan (Cabinet Draft) for Biscayne Bay Aquatic Preserve Card Sound.” December 1991.

Gaby, Donald C., “The Miami River and its Tributaries.” The Historical Association of Southern Florida. 1993.

Gentner, Brad, Michael Price, and Scott Steinback, “Marine Angler Expenditures in the Southern Region, 1999”, US Department of Commerce, NOAA Technical Memorandum NMFS-F/SPO, August 2001.

Gomez, Edwin, “The Ethnicity and Public Recreation Participation Model.” Leisure Sciences. Volume 24: 123 – 142. 2002.

Greater Miami Convention and Visitors Bureau, “2002 Profile of Overnight Visitors to Greater Miami and the Beaches - Synovate Miami.” 2002.

Greater Miami Convention and Visitors Bureau, “Miami: 2003 Greater Miami and the Beaches Meeting Planner”, Greater Miami Convention and Visitors Bureau, Miami, FL 2003.

Greater Miami Convention and Visitors Bureau, “Visitor Profile and Economic Impact Study”, 2002.

Green, G, “NSRE 2000 – Version 13: Saltwater Recreation Module.” United States department of Agriculture (USDA) – Forest Service. January 2002.

Grigalunas, Thomas and Jerry Diamantides (Economic Analysis, Incorporated), “The Estuary System: Perspective on Uses, Sectors, and Economic Impacts – Revised Annual Report.” Prepared for Peconic Estuary Program, Suffolk County Department of Health Services. November 1996.

Haab, T., J. Whitehead, and T. McConnell. 2001. “The Economic Value of Marine Recreational Fishing in the Southeast US – 1997 Southeast Economic Data Analysis.” U.S. Department of Commerce, NOAA Technical Memorandum No NMFS-SEFSC-466.

Hanley Nick, David Bell and Begona Alvarez-Farizo, “Valuing The Benefits Of Coastal Water Quality Improvements Using Contingent And Real Behavior.” Environmental and Resource Economics. Volume 24: pages 273-285. 2003.

Harper, Douglas E., James A. Bohnsack, and Brian R. Lockwood, “Recreational Fisheries in Biscayne National Park, Florida, 1976 – 1991.” Marine Fisheries Review.

Hazen and Sawyer in association with Florida State University and NOAA, “Socioeconomic Study of Reefs in Southeast Florida”, prepared for Broward County Florida, Fort Lauderdale, October 2001.

Holiman, Stephen G. Ph.D., “Economic Summary of the Gulf of Mexico Reef Fish Recreational Fishery”, Fisheries Economics Office, SERO-ECON-00-02, NMFS, St. Petersburg, FL, October 1999.

Idyll, C.P., “Economically Important Marine Organisms in Biscayne Bay.” Division of Fishery Sciences. Institute of Marine Sciences, University of Miami, Coral Gables Florida. 1967?. Restored and transferred to electronic form by A. Y. Cantillo (NOAA) in 1999.

Idyll, C.P., D.C. Tabb, Bernard Yokel, Richard Wade, Donald Moore, “Conservation in Biscayne Bay.” Institute of Marine Sciences University of Miami, November 1965.

Jainarain, Charles, “Miami River Study, 1990, Miami, Florida”, Beacon Council, Miami, Florida, November 1990.

Kaoru Yoshiaki, “Measuring Marine Recreation Benefits of Water Quality Improvements by the Nested Random Utility Model.” *Resource and Energy Economics*. Volume 17, pages 119-136. 1995.

Kaoru, Yoshiaki, V. Kerry Smith and Jin Long Liu, “Using Random Utility Models To Estimate The Recreational Value Of Estuarine Resources.” *American Journal of Agricultural Economics*. 77:141-151. 1995.

Kildow, Judith T., Brian Baird, Charles S. Colgan, Hauke Kite-Powell, and Rodney Weiher, “Developing Better Economic Information About Coastal Resources as a Tool for Integrated Ocean and Coastal Management”, Wrigley Institute, University of Southern California.

Kildow, Judith T., Hauke Kite-Powell, Charles S. Colgan, Elizabeth J. Bruce, “The National Ocean Economics Project: The Contribution of the Coast and Coastal Ocean to the US Economy – Research Strategy and Work Plan”, University of Southern California, Wrigley Institute, April 2000.

Kimley-Horn and Associates, Inc., “Miami River Corridor Urban Infill Plan.” Miami River Commission, September 2002.

Larkin, Sherry L., Charles M. Adams, Robert L. Degner, Donna J. Lee and J. Walter Milon, “An Economic Profile of Florida’s Marine Life Industry. Florida Sea Grant – Technical Publication Number 113. November 2001.

Latham, William R. III, and John E. Stapleford, “Economic Impacts of the Delaware Estuary – How Much Does the Delaware Economy Benefit from the Delaware River Estuary.” The Delaware Estuary Program. 1987.

Lee, Hee-Chan, “Estimating Recreational Boater Expenditures on Trips and Boating Use in a Wave Survey.” *Leisure Sciences*, Volume 25, pages 381-397. 2003.

Leeworthy, Vernon R. (Bob) and Peter C. Wiley, “A Socioeconomic Overview of the Santa Barbara and Ventura Counties as it Relates to Marine Related Industries and Activities.” US Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service – Special Projects Office. Silver Spring, Maryland. – Draft June 2000.

Leeworthy, Vernon R. (Bob) and Peter C. Wiley, “Current Participation Patterns in Marine Recreation.” US Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service – Special Projects. Silver Spring, Maryland. November 2001.

Leeworthy, Vernon R. (Bob), “Preliminary Estimates from Versions 1-6: Coastal Recreation Participation.” US Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service – Special Projects Office. Silver Spring, Maryland. May 15, 2001.

Lenze, David G., “Florida: Long-term Economic Forecast 2002”, Vol. 2 – State and Counties, BEBR, University of Florida, August 2002.

Letson, David and J. Walter Milon, “Florida Coastal Environmental Resources: A Guide to Economic Valuation and Impact Analysis.” Florida Sea Grant Program. FLSGP-H-02-002. 2002.

Leynes, Jennifer Brown and David Cullison, “Biscayne National Park Historic Resource Study.” National Park Service, Southeast Region (Atlanta Georgia). January 1998.

Lipner, J. Kenneth, Ph.D., “Miami River Economic Study 2000”, prepared for the Miami River Commission, Miami, Florida.

Lorenz, Jerry, Peter Frezza, and David Green, “Annual report – C13401 – Biscayne Bay Coastal and Nearshore Community Baseline Study to develop Biological Performance Measures, Spatial and Temporal Patterns in the Coastal Creek Open Wetland Flats Community (Part II).” September 2003.

Magat, W., J. Huber, K. Viscusi, and J. Bell, “An Iterative Choice Approach to Valuing Clean Lakes, Rivers, and Streams” *Journal of Risk and Uncertainty* 21:1:7-43. 2000.

McGuinn, Kristine K. and Pearl M. Mosher-Ashley, “Participation in Recreational Activities and Its Effect on Perception of Life Satisfaction in Residential Settings.” *Activities, Adaptation & Aging*. Volume 25 (1). 2000.

Meeder, John F., Ph.D., Peter W. Harlem, Amy Renshaw, “Restoration of the Black Creek Coastal Wetlands and Adjacent Nearshore Estuarine Zone of Biscayne Bay.” Southeast Environmental Research Center, Florida International University, August 16, 2002.

Metropolitan Dade County Planning Department, “A Planning Study of the Miami River”, Board of County Commissioners, Miami, Florida, April, 1962.

Metropolitan Dade County, Florida Environmental Resources Management Department and Metropolitan Dade County Planning Department, “Biscayne Bay Management Plan.” Miami, Florida, March 1981.

Metropolitan Dade County, Florida, “Biscayne Bay Aquatic Preserve Management Plan”, Miami, Florida, no date.

Metropolitan Dade County, Florida, Department of Environmental Resources Management, “Dade County Manatte Protection Plan”, DERM Technical Report 95-5, no date.

MGT of America, Inc., “An Analysis of the Economic and Fiscal Impact of Florida’s Seaports”, Prepared for Florida Ports Financing Commission, MGT of America, Inc., Tallahassee Florida, February 4, 1999.

Miami River Commission, “Miami River Corridor Urban Infill Plan”, 1st Annual Update, December 1, 2003.

Miami-Dade County and City of Miami, “Exploratory Analysis of How Trust Influences WTP for Beach Renourishment on Hobie Beach”.

Miami-Dade County, Florida, Miami-Dade Seaport Department, “Port of Miami Comprehensive Annual Financial Report for the fiscal year ended September 30, 2002.

Milon, J. Walter, and Eric M. Thunberg, “A Regional Analysis of Current and Future Florida Resident Participation in Marine Recreational Fishing.” Florida Department of Natural Resources, Florida Sea Grant College Program, Report, SGR-112. May 1993.

Milon, J. Walter, et al. “Economic Impact of Marine Recreational Boating on the Florida Economy.” Florida Sea Grant Report No. 54, 1983.

Milon, J. Walter. “Current and Future Participation in Marine Recreational Fishing in the Southeast U.S. Region.” U.S. Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum No NMFS-F/SPO-44, 2000.

Milon, J. Walter, Sherry L. Larkin and Melson M. Ehrhardt, “Bioeconomic Models of the Florida Commercial Spiny Lobster Fishery”, Sea Grant Report Number 117, University of Florida, Gainesville, Florida, August 1999.

Milon, Walter J., “Artificial Marine Habitat Characteristics and Participation Behavior by Sport Anglers and Divers.” Bulletin of Marine Science, 44 (2): pp. 853 – 862. 1989.

National Oceanic and Atmospheric Administration, US Department of Commerce, “Biscayne Bay: Environmental History and Annotated Bibliography.” NOAA Technical Memorandum NOS NCCOS CCMA 145. Silver Spring, Maryland. July 2000.

National Oceanic and Atmospheric Administration, National Marine Fisheries Service, “Appendix A Marine Recreational Fishery Statistics Survey Procedures Manual”, Silver Spring, Maryland, December 1997.

National Park Service, “General Management Plan Amendment/ Draft Environment Impact Statement, Stiltsville Management”, National Park Service, US Department of Interior, Biscayne National Park, no date.

National Park Service, “Record of Decision: General Management Plan Amendment/Final Environmental Impact Statement, Stiltsville Management”, National Park Service, US Department of the Interior, Biscayne National Park, Homestead, FL., May 9, 2003.

O’Brien, Kevin P., “An Analysis of Survey Design and Economic Embedding for Key Biscayne Beach Valuation Studies:”, Division of Marine Affairs and Policy, RSMAS MAF 502: Natural Resource Economics, Dr. Letson Fall, 1997.

Opaluch, James J., Thomas Grigalunas Jerry Diamantides, Marisa Mazzotta, and Robert Johnston (Economic Analysis, Incorporated) in association with Applied Science Associates, “Final Report – Recreational and Resource Economic Values for the Peconic Estuary System.” Prepared for Peconic Estuary Program, Suffolk County Department of Health Services. February 1999.

Price Waterhouse, “The Economic Impact of the Passenger Cruise Industry on the United States in 1992”, Prepared for the International Council of Cruise Lines, February 1993.

Pybas, Don, “Dade County Marine and Aquatic Industry Data.” Compiled for Florida Sea Grant Extension Program. August 1996.

Roessier, M.A., A.Y. Cantillo, and J. Garcia-Gomez, “Biodiversity Study of Southern Biscayne Bay and Card Sound 1968 - 1973”, NOAA/University of Miami Joint Publication, Coastal and Estuarine Data Archaeology and Rescue Program, January 2002.

Shin, Won Sop, Reiner Jaakson, and Eun Il Kim, “Environmental Auditing: Benefits-Based Analysis of Visitor Use of Sorak-San National Park in Korea.” Environmental Management. Volume 28, pages 413-419. 2001.

Simmons, Todd and Margaret Littlejohn, “Biscayne National Park Visitor Study – Spring 2001.” National Park Service, U.S. Department of the Interior: Visitor Services Project, Report 125. February 2002.

Smith, F. G. Walton, “Preliminary Report on the Florida Crawfish Investigation”, The Marine Laboratory, University of Miami, Miami, Florida, September, 1945, Restored and transferred to electronic form by A. Y. Cantillo (NOAA) in 1999.

South Florida Water Management District Planning Department, “An Update of the Surface Water Improvement and Management Plan for Biscayne Bay: Planning Document, Technical Supporting Document and Appendices.” November 1995.

Southwick Associates, Inc., “The 2001 Economic Benefits of Watchable Wildlife Recreation in Florida.” Florida Fish and Wildlife Conservation Commission, February 10, 2003

State of Florida, “Florida Fishing and Boating Guide 2003.” Published under contract with the Florida Sports Foundation by: Florida Media, Inc., Orlando, Florida.

Stynes, Daniel, and Ya-Yen Sun, "Impacts of Visitor Spending on Local Economy: Biscayne National Park, 2001" Department of Park, Recreation and Tourism Resources, Michigan State University, January, 2003.

Suffolk County Department of Planning, "Peconic Estuary Program Land Use Change Analysis - DRAFT." Hauppauge, New York. March 1998.

The Boating Research Center, "Boat Use Patterns and Boat Traffic Study: Biscayne Bay Dade County, Florida", Final Report, University of Miami, Prepared for the Dade County Department of Environmental Resources, October 10, 1991.

The Boating Research Center, "Marina Hurricane Evacuation Study: Dade County", University of Miami, Prepared for the Dade County Planning Department and the Office of Emergency Management, December 27, 1990.

The National Ocean Economics Project, "Market Values Database".

The Redland Conservancy, "South Dade Greenway Network: Master Plan", South Dade Greenway Network, November, 1994.

Thomas J. Murray & Associates, "Florida's Recreational Marine Industry – Economic Impact and Growth 1980 – 2000." Prepared for Marine Industries Association of Florida, Inc. March 2001.

Thomas J. Murray & Associates, Inc, "Recent Growth, Current Activity, and Economic Impacts of Mega Yachts in South Florida – 1997 – 2002." Prepared on behalf of Marine Industries Association of South Florida & the Broward Alliance. October 2003.

Thomas, Michael H., Ph.D., with Nicholas Stratis, Ph.D., "Assessing the Economic Impact and Value of Florida's Public Piers and Boat Ramps." Florida Fish and Wildlife Conservation Commission, March 2001.

Trust for Public Land, "C-13404 Biscayne Bay Strategic Access Plan – Inventory Report with May of Existing Conditions", Deliverable No. 2.2., 2003.

U.S. Army Corps of Engineers Jacksonville District, "Miami Harbor Navigation Study General Reevaluation Report, Miami-Dade County, Florida – Appendix A, Economics", Jacksonville District, Florida, February 2004.

U.S. Army Corps of Engineers Jacksonville District, "Environmental Impact Statement, River Sediments Dredging and Disposal Maintenance Dredging of Miami River, Miami-Dade County, Florida", Final Report, Jacksonville District, Florida, September 2002.

U.S. Army Corps of Engineers Jacksonville District, "Waterborne Commerce of the United States, 2002, Part 1 - Waterways and Harbors Atlantic Coast".

U.S. Census Bureau, "Florida 1997 Economic Census: Arts, Entertainment, and Recreation - Geographic Series", Economics and Statistics Administration, US Department of Commerce, November 1999.

U.S. Census Bureau, “Florida: 2001 – County Business Patterns” Economics and Statistics Administration, US Department of Commerce, April 2003.

U.S. Department of Commerce, “Biscayne Bay: Environmental History and Annotated Bibliography.” National Oceanic and Atmospheric Administration, National Status and Trends Program for Marine Environmental Quality, NOAA Technical Memorandum NOS NCCOS CCMA 145, July 2000.

U.S. Fish and Wildlife Service, “1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation”, Florida, US Department of the Interior and US Department of Commerce, March 1998.

U.S. Fish and Wildlife Service, “2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation: Florida”, US Department of the Interior, US Department of Commerce, March 2003.

United States Fish and Wildlife Service, “Analysis of the 1980 National Survey of Fishing, Hunting and Wildlife-Associated Recreation.” Division of Division of Program Plans, United States Fish and Wildlife Service. Washington, D.C. 1980.

University of Florida Bureau of Economic and Business Research, “Florida Statistical Abstract 2003”, Gainesville, Florida, 2003.

University of Florida Bureau of Economic and Business Research, “Per Capita and Total Personal Income, 1999-2001”, US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, May 2003.

University of Miami, Department of Architecture and Planning – School of Engineering and Architecture, “Biscayne Bay Urban Waterfront Charrette.” Prepared for the Metropolitan Dade County, Florida Planning Department. 1981.

USDA Forest Service and Department of Agricultural and Resource Economics, “A Survey of 1997 Colorado Anglers and Their Willingness to Pay Increased License Fees.” Colorado Division of Wildlife, HDNRU Report No.39, February 1999.

Vander Linden, Katrinka, “The Miami River: Past, Present and Future.” An Internship report submitted to the Faculty of University of Miami Rosenstiel School of Marine and Atmospheric Science in partial requirement for the degree of Master of Art. Miami, Florida. November 27, 1996.

Volker, Dan, “South Florida’s Coastal Ecology and Implications for Commercial Fishing, Recreational Line Fishing, Scuba Spearfishing, and Freedive Spearfishing”.

Von Haefen, Roger H. and Daniel J. Phaneauf, “Estimating Preferences For Outdoor Recreation: A Comparison Of Continuous And Count Data Demand System Frameworks.” Journal Of Environmental Economics And Management 45: 612-630. 2003.

Washington Economics Group, Inc. “The Economic Impact of International Merchandise Trade in Miami-Dade County”, prepared for Jay Malina International Trade Consortium, April 30, 2004.

Washington Economics Group, Inc., “A Forecast of Florida’s International Trade Flow and the Economic Impact of Florida Seaports”, prepared for The Florida Seaport Transportation and Economic Development Council, November 23, 2003.

Washington Economics Group, Inc., “Investing in Florida Seaports and the Future of the State’s Economy”, prepared for The Florida Seaport Transportation and Economic Development Council, June 4, 2004.

Ward, Frank A., Brian A. Roach and Jim E. Henderson, “The Economic Value of Water in Recreation: Evidence from the California Drought.” *Water Resources Research*. Volume 32, Number 4. Pages 1075-1081. April 1996.

Wellman, Katherine F., Ph.D, Benjamin Noble, Ph.D, “Selected Recreational Values of the Corpus Christi Bay National Estuary Program Study Area”, Corpus Christi Bay National Estuary Program, CCBNEP-18, September 1997.

Whitehead, J., T. Haab, and J. Huang, “Measuring Recreation Benefits of Quality Improvements with Revealed and Stated Behavior Data.” *Resource and Energy Economics*. Volume 22: pages 339-354. 2000.

Other Related References

Alvarez-Farizo, Begona, Nick Hanley and Ramon Barberan, “The Value of Leisure Time: A Contingent Rating Approach.” *Journal of Environmental Planning and Management*., 44 (5), 681-699. 2001.

Baker, D.L., and B.E. Pierce, “Does Fisheries Management Reflect Societal Values? Contingent Valuation Evidence for the River Murray.” *Fisheries Management and Ecology*. Volume 4, pages 1-15. 1997.

Bell, Frederick W., “Damage Assessment of the Tampa Bay Oil Spill: Travel Cost Method.” Chapter 6 from *Florida Coastal Environmental Resources: A Guide to Economic Valuation and Impact Analysis*, Edited by David Letson and J. Walter Milon for the Florida Sea Grant College Program, Gainesville, Florida, 2002.

Bergstrom, John C. and John R. Stoll, “Value estimator Models for Wetlands-Based Recreational Use Values.” *Land Economics*. Volume 69(2), pages 132-137. 1993.

Bergstrom, John C., and H. Ken Cordell, “An Analysis of the Demand for and Value of Outdoor Recreation in the United States”, *Journal of Leisure Research*, Vol. 23, No. 1, pp. 67-86, National Recreation and Park Association, 1991.

Other Related References

- Bockstael, N.E., K. E. McConnell and I. E. Strand, “Measuring the Benefits of Improvements in Water Quality: The Chesapeake Bay.” *Marine Resource Economics*. Volume 6. pp. 1-18.
- Bockstael, Nancy E., A. Myrick Freeman III, Raymond J. Kopp, Paul R. Portney and V. Kerry Smith, “On Measuring Economic Values for Nature.” *Environmental Science and Technology*. Volume 34, Number 8. 2000.
- Bockstael, Nancy E., W. Michael Hanemann and Catherine L. Kling, “Estimating the Value of Water Quality Improvements in a Recreational Demand Framework.” *Water Resources Research*, Volume 23, Number 5. Pages 951-960. May 1987.
- Bowen, Odessa E., “Analysis of Scientific Programs and Management Plans Affecting Nutrient Loading and Algal Blooms in Florida Bay”, University of Miami, Rosenstiel School of Marine and Atmospheric Science, Miami, Florida, May, 1999.
- Colgan, Charles S., “Estimating the Economic Value of the Ocean in a National Income Accounting Framework – Preliminary Estimates of Gross Product Originating for 1997”, Wrigley Institute, University of Southern California, National Ocean Economics Project , Working Paper 1, July 2000.
- Colgan, Charles S., “The Changing Ocean and Coastal Economy of the United States: A Briefing Paper for Governors”, University of Southern Maine, Prepared for National Governors Association, March 25, 2004.
- Creason, Jared, Jamal Kadri, Travis Warziniack, Gregg Serenbetz, “Economic Profiles for EPA’s National Estuary Program”, 2002 National IMPLAN User’s Conference, pp. 77-82, New Orleans, Louisiana, March 2003.
- Curry, Nigel, “Community Participation in Outdoor Recreation and the Development of Millennium Greens in England.” *Leisure Studies*. Volume 19, pages 17-35. 2000.
- Davis, Derrin and Clem Tisdell, *Economic Management of Recreational Scuba Diving and the Environment.* Journal of Environmental Management. Volume 48, pages 229-248. 1996.
- Deacon, Robert T. and Charles D. Kolstad, “Valuing Beach Recreation Lost in Environmental Accidents.” *Journal of Water Resources Planning and Management*. November/December 2000.
- Farber, Stephen and Brian Griner, “Using Conjoint Analysis to Value Ecosystem Change.” *Environmental Science Technology*. 2000, 34, 1407 – 1412.
- Florida Inland Navigation District, “Economic Impact of Waterways within Boundaries of FIND in Martin County 1999, Martin County, 1999.
- Freeman, Myrick A. III, “The Benefits of Water Quality Improvements for Marine Recreation: A Review of the Empirical Evidence”, *Marine Resource Economics*, Vol. 10, pp. 385-406, Department of Economics, Bowdoin College, Brunswick, Maine, 1995.

Other Related References

- Freeman, Myrick A. III., Ph.D., “The Economics of Valuing Marine Recreation: A Review of the Empirical Evidence”, Bowdoin College, Economics Working Paper Series 93 – 102, Brunswick, ME, September 1993.
- French, Deborah and Heidi Schuttenberg (Applied Science Associates), “Review Draft – Estimated Food Web and Habitat Values for Habitats in the Peconic Estuary System.” Submitted to Economics Analysis Inc., January 1998.
- G.E.C., Inc., “An Economic Analysis of The District’s Waterways in Martin County”, Final Report, Submitted to Florida Inland Navigation District, Jupiter Florida, June 2001.
- Hassan, Rashid M., “Measuring Asset Values and Flow Benefits of Non-Traded Products and Ecosystems Services of Forest and Woodland Resources in South Africa.” *Environment, Development and Sustainability*. Volume 5, pages 403 – 418. 2003.
- Hultsman, Wendy Z., “The Influence of Others as a Barrier to Recreation Participation Among Early Adolescents.” *Journal of Leisure Research*. Volume 25, Number 2, pages 150-164. 1993.
- Jahn, Matthew, E., “A Revealed Preference Approach to Ranking City Quality of Life”, *Journal of Urban Economics* 38, 221-235 (1995), Columbia University, New York, NY, June 20, 1994.
- Kramer, Randall A. and Jonathan I. Eisen-Hecht, “Estimating the Economic Value of Water Quality Protection in the Catawba River Basin.” *Water Resources Research*, Volume 38, No. 9, 1182. doi: 10.1029/2001 WR000755. 2002.
- Loomis, John B., “Environmental Evaluation Techniques in Water Resource Decision Making.” *Journal of Water Resource Planning and management*. November/December 2000.
- Machlis, Gary E., Jean E. McKendry, Michele E. Correia, “A Social Science Plan for South Florida National Park Service Units”, National Park Service, USDI, October 1996.
- McCollum, Daniel W., George L. Peterson, J. Ross Arnold, Donald C. Markstrom, Daniel M. Hellerstein, “The Net Economic Value of Recreation on the National Forests: Twelve Types of Primary Activity Trips Across Nine Forest Service Regions”, USDA Forest Service Research Paper RM-289, Fort Collins, Colorado, February 1990.
- Mills, Derek, “Book Review: Recreational Fisheries, Ecological, Economic and social Evaluation –, Tony J. Pitcher and Charles Hollingworth (Editors), *Fisheries Research – Volume 63*, pages 295-298. 2003.
- Milon, Walter J., “The Economic Benefits of Artificial Reefs: An Analysis of the Dade County, Florida Reef System”, Food and Resource Economics Department , University of Florida, Gainesville, Florida, Report Number 90, April 1988.
- Navrud, S., “Economic Valuation of Inland Recreational Fisheries: Empirical Studies and Their Policy Use in Norway.” *Fisheries Management and Ecology*, Volume 8, pages 369-382. 2001.
- Olsen, Darryll, Jack Richards, R. Douglas Scott, “Existence and Sport Values for Doubling the Size of Columbia River Basin Salmon and Steelhead Runs”, *Rivers*, Vol. 2, No. 1, pp 44-56, S.E.L. and Associates, 1991.

Other Related References

Puget Sound Action Team, “What is the Puget Sound Water Quality Management Plan”, Office of the Governor, Olympia, Washington, August 2000.

Richards, Merton T., Thomas C. Brown, “Economic Value of Campground Visits in Arizona”, USDA Forest Service Research Paper RM-305, Fort Collins, Colorado, October 1992.

Strazzera, Elisabetta, Margarita Genius, Riccardo Scarpa, and George Hutchinson, “The Effect of Protest Votes on the Estimates of WTP for Use Values of Recreational Sites.” *Environmental and Resource Economics*. Volume 25. Pages 461-479. 2003.

Vukina, Tomislav, Fritz Roka, and Raymond B. Palmquist, “Swine Odor Nuisance: Voluntary Negotiation, Litigation, and Regulation: North Carolina’s Experience”, *Choices, First Quarter 1996*, pp. 26-29, 1996.

APPENDIX A

Biscayne Bay User Survey

Residents and Visitors

**BISCAYNE BAY USER INTERCEPT SURVEY
SCREENER/TALLY SHEET**

1. **Hand Respondent the White Card (Activities List).** Did you do any of these activities on Biscayne Bay in the past 12 months.

NO. Thank you. We are only interviewing people who use the Bay for recreation.*(Place a tic mark in column 4.)*

YES. 2. Will you participate in a 10-15 minute interview about your use of Biscayne Bay?

NO. Thank you. *(place tic mark in column 5)*

If language Barrier, *(place tic mark in column 6)*

YES. Are you a resident of Miami-Dade County?

YES. Use resident survey. *(place tic mark in column 7)*

NO. Use visitor survey. *(place tic mark in column 8)*

1	2	3	4	5	6	7	8
Site	Date	Time Period	Doesn't use Bay	Refusal	Language Barrier	Resident Interviewed	Visitor Interviewed

WHITE CARD – BISCAYNE BAY ACTIVITIES LIST

<u>Number</u>	<u>Activities on Biscayne Bay</u>
100	Fishing
101	Snorkeling
102	Scuba Diving
103	Swimming
200	Boating for Pleasure / Partying
300	Water-skiing
301	Parasailing
302	Windsurfing
303	Kite Sailing
400	Personal Watercraft Boating (jet skis, wave runners, etc.)
500	Sailing
501	Canoeing / Kayaking
600	Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)
700	Sunset Cruise
800	Glass bottom boat tour
900	Picnicking on Biscayne Bay

RESIDENTS - Biscayne Bay User Intercept Survey

BAY-RELATED EXPENDITURES IN MIAMI-DADE COUNTY

Q8. On the most recent day that you participated in Bay-related activities, about how much money did your party spend on the following items in Miami-Dade County?

(Survey Researcher Note: Please list expenditures under the predominant Bay-related activity that respondent participated in during that day. Fill table for all activities of respondent. The expenditures in each column must represent 1-day only and not multiple days. If respondent gave expenses for multiple days, be sure to ask for number of days represented (in last row of table). You may have respondent refer to Section 10 of the GREEN CARD for a list of itemized expenditures.)

Expenditures in Miami-Dade County on Most Recent Day You Participated In Biscayne Bay-Related Activities

Expenditure Item	Fishing From Motor Boat (100)	Fishing From Shore (100)	Diving/ Snorkeling From Motor Boat (101 & 102)	Diving/ Snorkeling from Shore (101 & 102)
Boat fuel	\$	\$	\$	\$
Tackle, bait, and/or ice	\$	\$	\$	\$
Boat rental	\$	\$	\$	\$
Equipment Rental	\$	\$	\$	\$
Ramp, Marina and Parking Fees	\$	\$	\$	\$
Park Entrance Fees	\$	\$	\$	\$
Lodging (per night)	\$	\$	\$	\$
Camping fees (per night)	\$	\$	\$	\$
Food and Beverages – Stores	\$	\$	\$	\$
Food and Beverages – Restaurants/Bars	\$	\$	\$	\$
Auto gas	\$	\$	\$	\$
Auto Rental, Taxi, Bus fares	\$	\$	\$	\$
Shopping and Sundries (gifts, sunscreen, etc.)	\$	\$	\$	\$
No. of people in party who spent or benefited from these purchases (overall)				
Days Represented by Expenditures				

RESIDENTS - Biscayne Bay User Intercept Survey

Expenditures in Miami-Dade County on Most Recent Day You Participated In Biscayne Bay-Related Activities

Expenditure Item	Swimming (103)	Boating for pleasure / partying (200)	Waterskiing / Parasailing / Windsurfing / Kite Sailing (300 to 303)	Personal Watercraft Boating (400)
Boat fuel	\$	\$	\$	\$
Tackle, bait, and/or ice	\$	\$	\$	\$
Boat rental	\$	\$	\$	\$
Equipment Rental	\$	\$	\$	\$
Ramp, Marina and Parking Fees	\$	\$	\$	\$
Park Entrance Fees	\$	\$	\$	\$
Lodging (per night)	\$	\$	\$	\$
Camping fees (per night)	\$	\$	\$	\$
Food and Beverages – Stores	\$	\$	\$	\$
Food and Beverages – Restaurants/Bars	\$	\$	\$	\$
Auto gas	\$	\$	\$	\$
Auto Rental, Taxi, Bus fares	\$	\$	\$	\$
Shopping and Sundries (gifts, sunscreen, etc.)	\$	\$	\$	\$
Number of people in party who spent or benefited from these purchases (overall)				
Days Represented by Expenditures				

RESIDENTS - Biscayne Bay User Intercept Survey

Expenditures in Miami-Dade County on Most Recent Day You Participated In Biscayne Bay-Related Activities

Expenditure Item	Non-Motorized Boating (Canoe/Kayak/ Sailing) (500 & 501)	Viewing the Bay From Shore /Picnicking (600 & 900)	Sunset Cruise (700)	Glass Bottom Boat Tour (800)
Boat fuel	\$	\$	\$	\$
Tackle, bait, and/or ice	\$	\$	\$	\$
Boat rental / cruise fee	\$	\$	\$	\$
Equipment Rental	\$	\$	\$	\$
Ramp, Marina and Parking Fees	\$	\$	\$	\$
Park Entrance Fees	\$	\$	\$	\$
Lodging (per night)	\$	\$	\$	\$
Camping fees (per night)	\$	\$	\$	\$
Food and Beverages – Stores	\$	\$	\$	\$
Food and Beverages – Restaurants/Bars	\$	\$	\$	\$
Auto gas	\$	\$	\$	\$
Auto Rental, Taxi, Bus fares	\$	\$	\$	\$
Shopping and Sundries (gifts, sunscreen, etc.)	\$	\$	\$	\$
Number of people in party who spent or benefited from these purchases (overall)				
Days Represented by Expenditures				

Q9. Over the past 12 months, did you purchase any goods or services in Florida that you needed to participate in Biscayne Bay-related activities (examples: boats, boat repairs, scuba / snorkeling equipment)?

- YES NO, Go to Q11.

Q10. What goods or services did you purchase, how much did you spend, what city or county did you purchase them in, and how many days per year, on average, did/will you use the purchased good or service?

Good or Service	Money Spent	County or Nearby City in Florida Where Purchased	Average Days per Year Good or Service Used

RESIDENTS - Biscayne Bay User Intercept Survey

Biscayne Bay Management Plans

Q11. Several different management alternatives are being considered for the future of Biscayne Bay. These alternatives would affect water quality, boating access, and shore-based recreation access in Biscayne Bay. **Please take a minute and read with me the information in Section 2 of the GREEN CARD.** It describes 3 management plans. Then I will ask you some questions about each one.

READ PLANS ALOUD

A. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay and restore wetlands and mangrove areas in South Biscayne Bay. The Bay now receives less fresh water than it did in the past and the Bay might receive less fresh water in the future without this Plan. More clean, fresh water would help to maintain and improve fish and wildlife habitat and the overall productivity of the Bay.

B. The *Recreational Boating Access Plan* would maintain and improve existing boat ramps and public marinas for recreational boaters around Biscayne Bay. The Plan would also develop new boat ramps and marinas in areas where these facilities do not currently exist. Any damage to seagrasses or other marine resources due to the development of these facilities would be mitigated by restoring other areas of the Bay. This Plan would also improve and maintain navigational aids such as channel markers and speed zones throughout the Bay.

C. The *Public Recreation Access Plan* would maintain and improve existing waterfront parks, beaches, fishing piers, picnic areas and other areas for public access to Biscayne Bay. This Plan would also develop new parks, greenways and other areas for public access to the Bay, especially in shoreline areas that have little public access. Some of these areas would also be developed to provide education centers to inform the public about the resources of Biscayne Bay.

The 3 plans would be managed by local government agencies with input from local citizens. These agencies want to know whether you support one, two or all of these plans and if you would be willing to pay more local taxes to fund these plans. Each plan must have the support of a majority of local residents. Public officials could use the results of this study as a guide for future Bay management and tax decisions.

Now let's go back to the first plan.

The *Water Quality Plan* would increase fresh water flows to Biscayne Bay and improve fish and wildlife habitat. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days during a 12 month period that you would participate in recreation activities on Biscayne Bay?

1. Increase in total days → (GO TO Q12)
2. Decrease in total days → (GO TO Q14)
3. No change in total days → (GO TO Q16)

RESIDENTS - Biscayne Bay User Intercept Survey

Q12. Please refer to Section 3 of the GREEN CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many **additional** days during a 12-month period would you participate in each activity listed in the table if the *Water Quality Plan* was implemented? (Skip the activity (leave blank) if the answer is 0.)

Q13. For activities 100 to 103, how many of *these additional days* would be spent on a boat?

Recreational Activity on Biscayne Bay	Q12. Total Additional Days	Q13. Additional Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Go to Question 16.

Q14. Please refer to Section 3 of the GREEN CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Water Quality Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q15. For activities 100 to 103, how many of the **decrease** in days would have been spent on a boat?

Recreational Activity on Biscayne Bay	Q14. Total Decrease in Number of Days	Q15. Decrease in Number of Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		

RESIDENTS - Biscayne Bay User Intercept Survey

Recreational Activity on Biscayne Bay	Q14. Total Decrease in Number of Days	Q15. Decrease in Number of Days on Boat
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Q16. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay but it is costly. Local taxpayers such as you would need to pay for this Plan. A trust fund would be established that will only be used to pay for this *Water Quality Plan*. A local government agency would collect a one-time property tax payment that will go into this trust fund. **Also, because Biscayne Bay is an important national resource, the federal government has already committed to pay _____% of the cost for this Plan.** If you could vote on this Plan in the next election and it was the only plan you could vote on, would you vote for or against it?

1. FOR (GO TO Q17)
2. AGAINST (GO TO Q18)
3. DON'T KNOW (GO TO Q19)

Q17. Using the amounts listed on the **BLUE PAYMENT CARD Number _____** (*Insert #. Rotate the 2 payment cards so that half of the surveys have each one.*), **please** indicate the maximum amount of money you would be willing to pay in a one time tax for the *Water Quality Plan*.
\$_____ (*RECORD DOLLAR AMOUNT INDICATED AND GO TO Q19. IF GREATER THAN \$350, if payment card no. 1, or GREATER THAN \$210, if payment card no. 2, ASK FOR ACTUAL AMOUNT.*) *RECORD 'DK' IF NO AMOUNT INDICATED AND GO TO Q19.*

Q18. Please refer to Section 4 of the GREEN CARD and indicate the number that best describes your reason for voting against this plan.

Circle one: 1 2 3 4 5 6, specify _____

OK, now let's talk about the second plan.

Q19. The *Recreational Boating Access Plan* would improve existing boat ramps and marinas and develop new boating facilities where they do not currently exist. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days during a 12 month period that you would participate in recreation activities on Biscayne Bay?

1. Increase in total days → (GO TO Q20)
2. Decrease in total days → (GO TO Q22)
3. No change in total days → (GO TO Q24)

RESIDENTS - Biscayne Bay User Intercept Survey

Q20. Please refer to Section 3 of the GREEN CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many **additional** days during a 12-month period would you participate in each activity listed in the table if the *Recreational Boating Access Plan* was implemented? (Skip the activity (leave blank) if the answer is 0.)

Q21. For activities 100 to 103, how many of *these additional days* would be spent on a boat?

Recreational Activity on Biscayne Bay	Q20. Total Additional Days	Q21. Additional Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Go to Question 24.

Q22. Please refer to Section 3 of the GREEN CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Recreational Boating Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q23. For activities 100 to 103, how many of the **decrease** in days would have been spent on a boat?

Recreational Activity on Biscayne Bay	Q22. Total Decrease in Number of Days	Q23. Decrease in Number of Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		

RESIDENTS - Biscayne Bay User Intercept Survey

Recreational Activity on Biscayne Bay	Q22. Total Decrease in Number of Days	Q23. Decrease in Number of Days on Boat
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Q24. The *Recreational Boating Access Plan* would improve boat ramps and marinas and develop new facilities but it is costly. Local taxpayers such as you would need to pay for this Plan. A trust fund would be established that will only be used to pay for this *Recreational Boating Access Plan*. A local government agency would collect a one-time tax payment that will go into this trust fund. If you could vote on this Plan in the next election and it was the only plan you could vote on, would you vote for or against it?

1. FOR (GO TO Q25)
2. AGAINST (GO TO Q26)
3. DON'T KNOW (GO TO Q27)

Q25. Using the amounts listed on the **BLUE PAYMENT CARD Number** _____ (*Insert #. Rotate the 2 payment cards so that half of the surveys have each one.*), **please** indicate the maximum amount of money you would be willing to pay in a one time tax for the *Recreational Boating Access Plan*.
\$ _____ (*RECORD DOLLAR AMOUNT INDICATED AND GO TO Q27. IF GREATER THAN \$350, if payment card no. 1, or GREATER THAN \$210, if payment card no. 2, ASK FOR ACTUAL AMOUNT.*) *RECORD 'DK' IF NO AMOUNT INDICATED AND GO TO Q27.*

Q26. Please refer to Section 5 of the GREEN CARD and indicate the number that best describes your reason for voting against this plan.

Circle one: 1 2 3 4 5 6, specify _____

OK, now let's talk about the third plan.

Q27. The *Public Recreation Access Plan* would improve existing waterfront parks and other areas for public access to Biscayne Bay and develop new parks and greenways. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days during a 12 month period that you would participate in recreation activities on Biscayne Bay?

1. Increase in total days → (GO TO Q28)
2. Decrease in total days → (GO TO Q30)
3. No change in total days → (GO TO Q32)

RESIDENTS - Biscayne Bay User Intercept Survey

Q28. Please refer to Section 3 of the GREEN CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many **additional** days during a 12-month period would you participate in each activity listed in the table if the *Public Recreation Access Plan* was implemented? (Skip the activity (leave blank) if the answer is 0.)

Q29. For activities 100 to 103, how many of *these additional days* would be spent on a boat?

Recreational Activity on Biscayne Bay	Q28. Total Additional Days	Q29. Additional Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Go to Question 32.

Q30. Please refer to Section 3 of the GREEN CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Public Recreation Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q31. For activities 100 to 103, how many of the **decrease** in days would have been spent on a boat?

Recreational Activity on Biscayne Bay	Q30. Total Decrease in Number of Days	Q31. Decrease in Number of Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		

RESIDENTS - Biscayne Bay User Intercept Survey

Recreational Activity on Biscayne Bay	Q30. Total Decrease in Number of Days	Q31. Decrease in Number of Days on Boat
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Q32. The *Public Recreation Access Plan* would improve existing waterfront parks and develop new parks and greenways for public access to Biscayne Bay but it is costly. Local taxpayers such as you would need to pay for this Plan. A trust fund would be established that will only be used to pay for this *Public Recreation Access Plan*. A local government agency would collect a one-time tax payment that will go into this trust fund. If you could vote on this Plan in the next election and it was the only plan you could vote on, would you vote for or against it?

1. FOR (GO TO Q33)
2. AGAINST (GO TO Q34)
3. DON'T KNOW (GO TO Q35)

Q33. Using the amounts listed on the **BLUE PAYMENT CARD Number** _____ (*Insert #. Rotate the 2 payment cards so that half of the surveys have each one.*), **please** indicate the maximum amount of money you would be willing to pay in a one time tax for the *Public Recreation Access Plan*.

\$ _____ (*RECORD DOLLAR AMOUNT INDICATED AND GO TO Q35. IF GREATER THAN \$350, if payment card no. 1, or GREATER THAN \$210, if payment card no. 2, ASK FOR ACTUAL AMOUNT.*)

RECORD 'DK' IF NO AMOUNT INDICATED AND GO TO Q35.

Q34. Please refer to Section 6 of the GREEN CARD and indicate the number that best describes your reason for voting against this plan.

Circle one: 1 2 3 4 5 6, specify _____

Q35. Finally, suppose that all three plans we have discussed were put together under one program that would be called the *Biscayne Bay Enhancement Program*. A trust fund would be established that would only be used to pay for the three plans included in the *Program*. As with the three plans I described earlier, a local government agency would collect a one-time tax payment that would go into this trust fund. If you could vote on this *Program* in the next election, would you vote for or against it?

1. FOR (GO TO Q36)
2. AGAINST (GO TO Q37)
3. DON'T KNOW (GO TO Q38)

RESIDENTS - Biscayne Bay User Intercept Survey

Q36. Using the amounts listed on the **BLUE PAYMENT CARD Number** _____ (*Insert #. Rotate the 2 payment cards so that half of the surveys have each one.*), **please** indicate the maximum amount of money you would be willing to pay in a one time tax for the *Biscayne Bay Enhancement Program*.

\$_____ (*RECORD DOLLAR AMOUNT INDICATED AND GO TO Q38. IF GREATER THAN \$350, if payment card no. 1, or GREATER THAN \$210, if payment card no. 2, ASK FOR ACTUAL AMOUNT.*)

RECORD 'DK' IF NO AMOUNT INDICATED AND GO TO Q38.

Q37. Please refer to Section 7 of the GREEN CARD and indicate the number that best describes your reason for voting against this plan.

Circle one: 1 2 3 4 5 6, specify _____

Finally, for statistical purposes, we need to know a few things about you.

Q38. What is your zip code? _____ (five digits)

Q39. How many years have you lived in Miami-Dade County? _____ # of years

Q40. Do you own your own boat? Yes No, Go to Q42

Q41. Is your boat registered in Miami-Dade County? Yes No

Q42. Are you a member of a fishing or diving club? YES NO

Q43. In what year were you born? 19 ____ ____

Q44. Sex: Male Female **(Observed, not asked)**

Q45. Please refer to Section 8 of the GREEN CARD and tell me which income category best describes your annual household income last year, before taxes. Please give me the letter on the card that corresponds to the category.

A B C D E F G H I J K L M N O
 Refused Don't know

Q46. Do you consider yourself to be Hispanic, Latino or of Spanish origin? Yes No

Q47. Please refer to Section 9 of the GREEN CARD and tell me which category best describes you.
Please read the letter of the category.

- | | |
|--------------------------------------|---|
| A = White | D = Asian |
| B = Black or African American | E = Native Hawaiian or Other Pacific Islander |
| C = American Indian or Alaska Native | F = Other, please specify _____ |

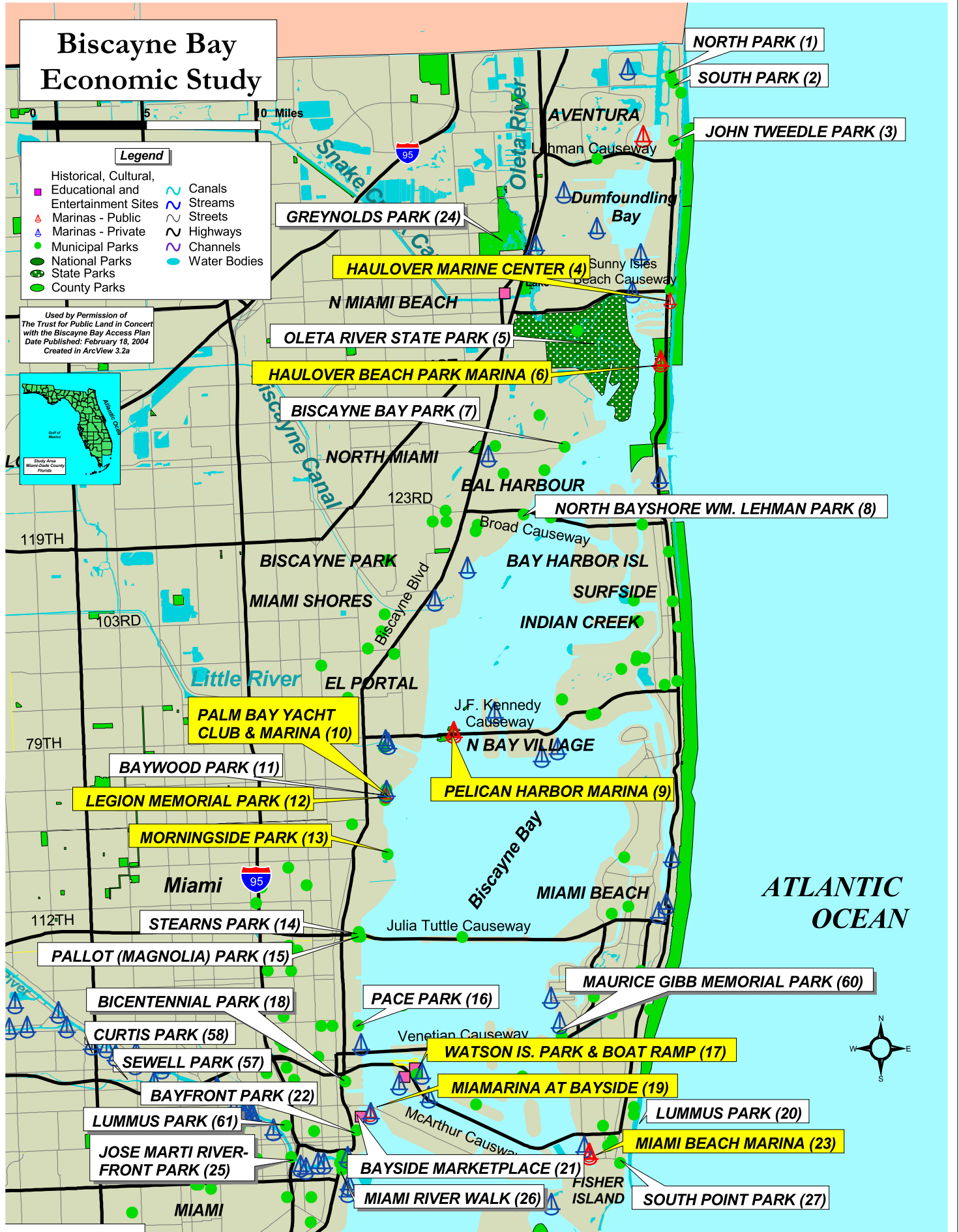
This concludes your interview. Thank you for your time.

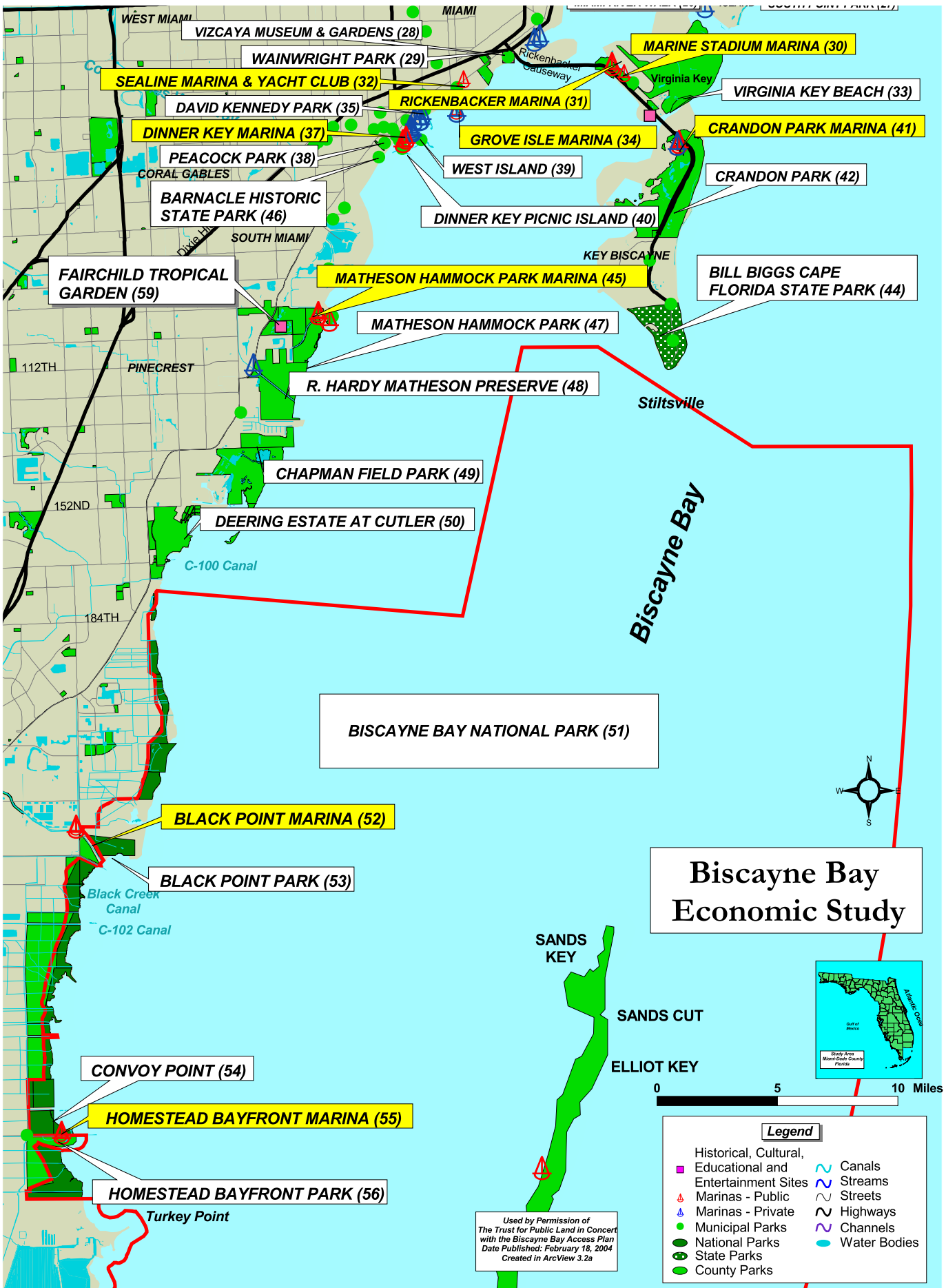
Biscayne Bay Economic Study

Legend

- Historical, Cultural, Educational and Entertainment Sites
- Marinas - Public
- Marinas - Private
- Municipal Parks
- National Parks
- State Parks
- County Parks
- Canals
- Streams
- Streets
- Highways
- Channels
- Water Bodies

Used by Permission of
The Trust for Public Land in Concert
with the Biscayne Bay Access Plan
Date Published: February 18, 2004
Created in ArcView 3.2a





- VIZCAYA MUSEUM & GARDENS (28)
- WAINWRIGHT PARK (29)
- SEALINE MARINA & YACHT CLUB (32)
- DAVID KENNEDY PARK (35)
- DINNER KEY MARINA (37)
- PEACOCK PARK (38)
- BARNACLE HISTORIC STATE PARK (46)
- FAIRCHILD TROPICAL GARDEN (59)
- MATHESON HAMMOCK PARK MARINA (45)
- MATHESON HAMMOCK PARK (47)
- R. HARDY MATHESON PRESERVE (48)
- CHAPMAN FIELD PARK (49)
- DEERING ESTATE AT CUTLER (50)
- BISLAYNE BAY NATIONAL PARK (51)
- BLACK POINT MARINA (52)
- BLACK POINT PARK (53)
- CONVOY POINT (54)
- HOMESTEAD BAYFRONT MARINA (55)
- HOMESTEAD BAYFRONT PARK (56)
- MARINE STADIUM MARINA (30)
- VIRGINIA KEY BEACH (33)
- CRANDON PARK MARINA (41)
- GROVE ISLE MARINA (34)
- WEST ISLAND (39)
- DINNER KEY PICNIC ISLAND (40)
- CRANDON PARK (42)
- BILL BIGGS CAPE FLORIDA STATE PARK (44)

Biscayne Bay Economic Study



Legend

- Historical, Cultural, Educational and Entertainment Sites
- Marinas - Public
- Marinas - Private
- Municipal Parks
- National Parks
- State Parks
- County Parks
- Canals
- Streams
- Streets
- Highways
- Channels
- Water Bodies

Used by Permission of
 The Trust for Public Land in Concert
 with the Biscayne Bay Access Plan
 Date Published: February 18, 2004
 Created in ArcView 3.2a

GREEN CARD – Resident – Biscayne Bay User Intercept Survey

Section 1. PRIVACY STATEMENT

Your participation is voluntary. Since each interviewed person will represent many others not interviewed, your cooperation is extremely important. Hazen & Sawyer and Rife Market Research are conducting this study for the South Florida Water Management District. Uses of the information include evaluation of current recreation uses and planning for future recreation visitation. This survey does not ask for any information that identifies you. All information from this survey will be available for distribution. The interview should take 10 to 15 minutes with an average of 12 minutes.

Section 2. Biscayne Bay Management Plans

A. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay and restore wetlands and mangrove areas in South Biscayne Bay. The Bay now receives less fresh water than it did in the past and the Bay might receive less fresh water in the future without this Plan. More clean, fresh water would help to maintain and improve fish and wildlife habitat and the overall productivity of the Bay.

B. The *Recreational Boating Access Plan* would maintain and improve existing boat ramps and public marinas for recreational boaters around Biscayne Bay. The Plan would also develop new boat ramps and marinas in areas where these facilities do not currently exist. Any damage to seagrasses or other marine resources due to the development of these facilities would be mitigated by restoring other areas of the Bay. This Plan would also improve and maintain navigational aids such as channel markers and speed zones throughout the Bay.

C. The *Public Recreation Access Plan* would maintain and improve existing waterfront parks, beaches, fishing piers, picnic areas and other areas for public access to Biscayne Bay. This Plan would also develop new parks, greenways and other areas for public access to the Bay, especially in shoreline areas that have little public access. Some of these areas would also be developed to provide education centers to inform the public about the resources of Biscayne Bay.

Section 3. Addition or reduction in number of days you would participate in recreation on Biscayne Bay if Management Plan implemented.

Recreational Activity on Biscayne Bay	Total Additional Days	Additional Days on Boat	Total Decrease in Number of Days	Decrease in Number of Days on Boat
100 Fishing				
101 Snorkeling				
102 Scuba Diving				
103 Swimming				
200 Boating for Pleasure / Partying				
300 Water-skiing				
301 Parasailing				
302 Windsurfing				
303 Kite Sailing				
400 Personal Watercraft Boating (jet skis, etc.)				
500 Sailing				
501 Canoeing / Kayaking				
600 Viewing the Bay from Shore (while dining, shopping, jogging,				
700 Sunset Cruise and strolling)				
800 Glass bottom boat tour				
900 Picnicking on Biscayne Bay				

Please give the number corresponding to the answer the best describes your reason.

Section 4. Water Quality Plan.	Section 5. Recreational Boating Access Plan.
1. I don't think this plan would really do any good.	1. I don't think this plan would really do any good.
2. I am not interested in water quality of Biscayne Bay.	2. I am not interested in recreational boating in Biscayne Bay.
3. I am opposed to any new taxes.	3. I am opposed to any new taxes.
4. I don't have enough information about the plan.	4. I don't have enough information about the plan.
5. I believe the money will be misused.	5. I believe the money will be misused.
6 Other, please specify _____	6 Other, please specify _____

Section 6. Public Recreation Access Plan.	Section 7. Biscayne Bay Enhancement Program.
1. I don't think this plan would really do any good.	1. There is nothing in this Program that would really do any good.
2. I am not interested in recreational access to Biscayne Bay.	2. I think there are parts of this Program that I am not interested in.
3. I am opposed to any new taxes.	3. I am opposed to any new taxes.
4. I don't have enough information about the plan.	4. I don't have enough information about the Program.
5. I believe the money will be misused.	5. I believe the money will be misused.
6 Other, please specify _____	6 Other, please specify _____

Section 8. Annual Household Income before Taxes

Please give only the letter of your income category.

- | | | |
|-------------------------|-------------------------|---------------------------|
| A. Less than \$5,000 | F. \$25,000 to \$29,999 | K. \$50,000 to \$59,999 |
| B. \$5,000 to \$9,999 | G. \$30,000 to \$34,999 | L. \$60,000 to \$74,999 |
| C. \$10,000 to \$14,999 | H. \$35,000 to \$39,999 | M. \$75,000 to \$99,999 |
| D. \$15,000 to \$19,999 | I. \$40,000 to \$44,999 | N. \$100,000 to \$149,999 |
| E. \$20,000 to \$24,999 | J. \$45,000 to \$49,999 | O. \$150,000 or more |

Section 9. Race/Ethnicity

A = White

B = Black or African American

C = American Indian or Alaska Native

D = Asian

E = Native Hawaiian or Other Pacific Islander

F = Other, please specify _____

Section 10. Itemized Expenditure List For Expenditures On Most Recent Day You Participated in Activity

Boat fuel

Tackle, bait, and/or ice

Boat rental

Equipment Rental

Ramp, Marina and Parking Fees

Park Entrance Fees

Lodging (per night)

Camping fees (per night)

Food and Beverages – Stores

Food and Beverages – Restaurants/Bars

Auto gas

Auto Rental, Taxi, Bus fares

Shopping and Sundries (gifts, sunscreen, etc.)

PAYMENT CARD NUMBER 1 – BLUE
For Resident Bay User Intercept Survey

PLEASE SELECT **ONE AMOUNT** FROM THE FOLLOWING LIST
THAT REFLECTS THE MAXIMUM AMOUNT YOU WOULD PAY.

\$0	\$5	\$10	\$15	\$20	\$25	\$30
\$35	\$40	\$45	\$50	\$55	\$60	\$65
\$70	\$75	\$80	\$85	\$90	\$95	\$100
\$105	\$110	\$115	\$120	\$125	\$130	\$135
\$140	\$145	\$150	\$155	\$160	\$165	\$170
\$175	\$180	\$185	\$190	\$195	\$200	\$205
\$210	\$215	\$220	\$225	\$230	\$235	\$240
\$245	\$250	\$255	\$260	\$265	\$270	\$275
\$280	\$285	\$290	\$295	\$300	\$305	\$310
\$315	\$320	\$325	\$330	\$335	\$340	\$345

MORE THAN \$350

PAYMENT CARD NUMBER 2 – BLUE
For Resident Bay User Intercept Survey

PLEASE SELECT **ONE AMOUNT** FROM THE FOLLOWING LIST
THAT REFLECTS THE MAXIMUM AMOUNT YOU WOULD PAY.

\$0	\$5	\$10	\$15	\$20	\$25	\$30
\$35	\$40	\$45	\$50	\$55	\$60	\$65
\$70	\$75	\$80	\$85	\$90	\$95	\$100
\$105	\$110	\$115	\$120	\$125	\$130	\$135
\$140	\$145	\$150	\$155	\$160	\$165	\$170
\$175	\$180	\$185	\$190	\$195	\$200	\$205
\$210	MORE THAN \$210					

VISITORS - Biscayne Bay User Intercept Survey

HAND RESPONDENT MAP AND WHITE CARD WITH BISCAYNE BAY ACTIVITIES LIST

Q12. Which Bay-related recreation activities did you participate in during the past 12 months? Please read me the number corresponding to each activity on the card.

(If the respondent did not participate in any of these activities, politely end the interview. We are only interviewing those who participated in at least one of these activities in the past 12 months.)

Q13. As I read each activity, would you tell me how many days you participated in the activity over the past 12 months?

(For multiple activities on the same day, answer question only for most prominent activity of the day. If day was spent equally on two activities count 1/2 day, not full day for each of the two activities.)

Ask Question 14 if respondent participated in Activity numbers 100 through 103.

Q14. For Activity Numbers 100 through 103, how many of those days did you use a boat to participate in that activity?

Ask Question 15 for all activities except 600 Viewing the Bay and 900 Picnicking on Bay.

Q15. Please refer to the map of Biscayne Bay. Please indicate the general location(s) of the Bay where you participated in each activity – north, central or south. The north Bay is the Bay area north of the Miami River and Government Cut. The central Bay is from the Miami River / Government Cut to and including the Black Point Park and Marina. The south Bay is the Bay area south of the Black Point Park and Marina.

BISCAYNE BAY-RELATED ACTIVITIES IN PAST 12 MONTHS

Q12 Activity	Q13 Respondent # of days	Q14 # of days Boat used	Q15 Bay Location(s) of Activities (north, central and/or south)
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____
_____	___	___	_____

VISITORS - Biscayne Bay User Intercept Survey

BAY-RELATED EXPENDITURES IN MIAMI-DADE COUNTY

Q16. On the most recent day that you participated in Bay-related activities, about how much money did your party spend on the following items in Miami-Dade County?

(Survey Researcher Note: Please list expenditures under the predominant Bay-related activity that respondent participated in during that day. Fill table for all activities of respondent. The expenditures in each column must represent 1-day only and not multiple days. If respondent gave expenses for multiple days, be sure to ask for number of days represented (in last row of table). You may have respondent refer to Section 7 of the GRAY CARD for a list of itemized expenditures.)

Expenditures in Miami-Dade County on Most Recent Day You Participated In Biscayne Bay-Related Activities

Expenditure Item	Fishing From Motor Boat (100)	Fishing From Shore (100)	Diving/ Snorkeling From Motor Boat (101 & 102)	Diving/ Snorkeling from Shore (101 & 102)
Boat fuel	\$	\$	\$	\$
Tackle, bait, and/or ice	\$	\$	\$	\$
Boat rental	\$	\$	\$	\$
Equipment Rental	\$	\$	\$	\$
Ramp, Marina and Parking Fees	\$	\$	\$	\$
Park Entrance Fees	\$	\$	\$	\$
Lodging (per night)	\$	\$	\$	\$
Camping fees (per night)	\$	\$	\$	\$
Food and Beverages – Stores	\$	\$	\$	\$
Food and Beverages – Restaurants/Bars	\$	\$	\$	\$
Auto gas	\$	\$	\$	\$
Auto Rental, Taxi, Bus fares	\$	\$	\$	\$
Shopping and Sundries (gifts, sunscreen, etc.)	\$	\$	\$	\$
No. of people in party who spent or benefited from these purchases (overall)				
Days Represented by Expenditures				

VISITORS - Biscayne Bay User Intercept Survey

Expenditures in Miami-Dade County on Most Recent Day You Participated In Biscayne Bay-Related Activities

Expenditure Item	Swimming (103)	Boating for pleasure / partying (200)	Waterskiing / Parasailing / Windsurfing / Kite Sailing (300 to 303)	Personal Watercraft Boating (400)
Boat fuel	\$	\$	\$	\$
Tackle, bait, and/or ice	\$	\$	\$	\$
Boat rental	\$	\$	\$	\$
Equipment Rental	\$	\$	\$	\$
Ramp, Marina and Parking Fees	\$	\$	\$	\$
Park Entrance Fees	\$	\$	\$	\$
Lodging (per night)	\$	\$	\$	\$
Camping fees (per night)	\$	\$	\$	\$
Food and Beverages – Stores	\$	\$	\$	\$
Food and Beverages – Restaurants/Bars	\$	\$	\$	\$
Auto gas	\$	\$	\$	\$
Auto Rental, Taxi, Bus fares	\$	\$	\$	\$
Shopping and Sundries (gifts, sunscreen, etc.)	\$	\$	\$	\$
Number of people in party who spent or benefited from these purchases (overall)				
Days Represented by Expenditures				

VISITORS - Biscayne Bay User Intercept Survey

**Expenditures in Miami-Dade County on Most Recent Day You Participated
In Biscayne Bay-Related Activities**

Expenditure Item	Non-Motorized Boating (Canoe/Kayak/ Sailing) (500 & 501)	Viewing the Bay From Shore/ Picnicking (600 & 900)	Sunset Cruise (700)	Glass Bottom Boat Tour (800)
Boat fuel	\$	\$	\$	\$
Tackle, bait, and/or ice	\$	\$	\$	\$
Boat rental / cruise fee	\$	\$	\$	\$
Equipment Rental	\$	\$	\$	\$
Ramp, Marina and Parking Fees	\$	\$	\$	\$
Park Entrance Fees	\$	\$	\$	\$
Lodging (per night)	\$	\$	\$	\$
Camping fees (per night)	\$	\$	\$	\$
Food and Beverages – Stores	\$	\$	\$	\$
Food and Beverages – Restaurants/Bars	\$	\$	\$	\$
Auto gas	\$	\$	\$	\$
Auto Rental, Taxi, Bus fares	\$	\$	\$	\$
Shopping and Sundries (gifts, sunscreen, etc.)	\$	\$	\$	\$
Number of people in party who spent or benefited from these purchases (overall)				
Days Represented by Expenditures				

Q17. Over the past 12 months, did you purchase any goods or services in Florida that you needed to participate in Biscayne Bay-related activities (examples: boats, boat repairs, scuba / snorkeling equipment)?

- YES NO, Go to Q19.

Q18. What goods or services did you purchase, how much did you spend, what city or county did you purchase them in, and how many days per year, on average, did/will you use the purchased good or service?

Good or Service	Money Spent	County or Nearby City in Florida Where Purchased	Average Days per Year Good or Service Used

VISITORS - Biscayne Bay User Intercept Survey

Biscayne Bay Management Plans

Q19. Several different management alternatives are being considered for the future of Biscayne Bay. These alternatives would affect water quality, boating access, and shore-based recreation access in Biscayne Bay. **Please take a minute and read with me the information in Section 3 of the GRAY CARD.** It describes 3 management plans. Then I will ask you some questions about each one.

(READ PLANS ALOUD)

A. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay and restore wetlands and mangrove areas in South Biscayne Bay. The Bay now receives less fresh water than it did in the past and the Bay might receive less fresh water in the future without this Plan. More clean, fresh water would help to maintain and improve fish and wildlife habitat and the overall productivity of the Bay.

B. The *Recreational Boating Access Plan* would maintain and improve existing boat ramps and public marinas for recreational boaters around Biscayne Bay. The Plan would also develop new boat ramps and marinas in areas where these facilities do not currently exist. Any damage to seagrasses or other marine resources due to the development of these facilities would be mitigated by restoring other areas of the Bay. This Plan would also improve and maintain navigational aids such as channel markers and speed zones throughout the Bay.

C. The *Public Recreation Access Plan* would maintain and improve existing waterfront parks, beaches, fishing piers, picnic areas and other areas for public access to Biscayne Bay. This Plan would also develop new parks, greenways and other areas for public access to the Bay, especially in shoreline areas that have little public access. Some of these areas would also be developed to provide education centers to inform the public about the resources of Biscayne Bay.

The 3 plans I just described would be managed by local government agencies with input from local citizens. These agencies want to know if these plans would cause you to change your participation in recreation activities on Biscayne Bay. Public officials could use the results of this study as a guide for future management decisions.

Now let's go back to the first plan.

The *Water Quality Plan* would increase fresh water flows to Biscayne Bay and improve fish and wildlife habitat. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days over a 12 month period that you would participate in recreation activities on Biscayne Bay?

1. Increase in total days → (GO TO Q20)
2. Decrease in total days → (GO TO Q22)
3. No change in total days → (GO TO Q24)

VISITORS - Biscayne Bay User Intercept Survey

Q20. Please refer to Section 4 of the GRAY CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many **additional** days during a 12-month period would you participate in each activity listed in the table if the *Water Quality Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q21. For activities 100 to 103, how many of **these additional days** would be spent on a boat?

Recreational Activity on Biscayne Bay	Q20. Total Additional Days	Q21. Additional Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Go to Question 24.

Q22. Please refer to Section 4 of the GRAY CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Water Quality Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q23. For activities 100 to 103, how many of the **decrease** in days would have been spent on a boat?

Recreational Activity on Biscayne Bay	Q22. Total Decrease in Number of Days	Q23. Decrease in Number of Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		

VISITORS - Biscayne Bay User Intercept Survey

Recreational Activity on Biscayne Bay	Q22. Total Decrease in Number of Days	Q23. Decrease in Number of Days on Boat
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

OK, now let's talk about the second plan.

Q24. The *Recreational Boating Access Plan* would improve existing boat ramps and marinas and develop new boating facilities where they do not currently exist. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days over a 12 month period that you would participate in recreation activities on Biscayne Bay?

1. Increase in total days → (GO TO Q25)
2. Decrease in total days → (GO TO Q27)
3. No change in total days → (GO TO Q29)

Q25. Please refer to Section 4 of the GRAY CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many **additional** days during a 12-month period would you participate in each activity listed in the table if the *Recreational Boating Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q26. For activities 100 to 103, how many of **these additional days** would be spent on a boat?

Recreational Activity on Biscayne Bay	Q25. Total Additional Days	Q26. Additional Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Go to Question 29.

VISITORS - Biscayne Bay User Intercept Survey

Q27. Please refer to Section 4 of the GRAY CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Recreational Boating Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q28. For activities 100 to 103, how many of the **decrease** in days would have been spent on a boat?

Recreational Activity on Biscayne Bay	Q27. Total Decrease in Number of Days	Q28. Decrease in Number of Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

OK, now let's talk about the third plan.

Q29. The *Public Recreation Access Plan* would improve existing waterfront parks and other areas for public access to Biscayne Bay and develop new parks and greenways. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days during a 12 month period that you would participate in recreation activities on Biscayne Bay?

1. Increase in total days → (GO TO Q30)
2. Decrease in total days → (GO TO Q32)
3. No change in total days → (GO TO Q34)

VISITORS - Biscayne Bay User Intercept Survey

Q30. Please refer to Section 4 of the GRAY CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many **additional** days during a 12-month period would you participate in each activity listed in the table if the *Public Recreation Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q31. For activities 100 to 103, how many of **these additional days** would be spent on a boat?

Recreational Activity on Biscayne Bay	Q30. Total Additional Days	Q31. Additional Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Go to Question 34.

Q32. Please refer to Section 4 of the GRAY CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Public Recreation Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q33. For activities 100 to 103, how many of the **decrease** in days would have been spent on a boat?

Recreational Activity on Biscayne Bay	Q32. Total Decrease in Number of Days	Q33. Decrease in Number of Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		

VISITORS - Biscayne Bay User Intercept Survey

Recreational Activity on Biscayne Bay	Q32. Total Decrease in Number of Days	Q33. Decrease in Number of Days on Boat
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Finally, for statistical purposes, we need to know a few things about you.

Q34. How many years have you been visiting Miami-Dade County? _____ # of years

Q35. Do you own your own boat? Yes No

Q36. Are you a member of a fishing or diving club? YES NO

Q37. In what year were you born? 19 ____

Q38. Sex: Male Female **(Observed, not asked)**

Q39. Please refer to Section 5 of the GRAY CARD and tell me which income category best describes your annual household income last year, before taxes. Please give me the letter on the card that corresponds to the category.

A B C D E F G H I J K L M N O
 Refused Don't know

Q40. During this trip to Miami-Dade County, were you giving up any income earning activities?
 YES NO

↓
 → Q41. How much income, before taxes, do you estimate you lost during this trip to Miami-Dade County? \$_____

Q42. Do you consider yourself to be Hispanic, Latino or of Spanish origin? Yes No

Q43. Please refer to Section 6 of the GRAY CARD and tell me which category best describes you. Please read the letter of the category.

A = White	D = Asian
B = Black or African American	E = Native Hawaiian or Other Pacific Islander
C = American Indian or Alaska Native	F = Other, please specify _____

This concludes your interview. Thank you for your time.

GRAY CARD – Visitor – Biscayne Bay User Intercept Survey

PRIVACY STATEMENT

Your participation is voluntary. Since each interviewed person will represent many others not interviewed, your cooperation is extremely important. Hazen & Sawyer and Rife Market Research are conducting this study for the South Florida Water Management District. Uses of the information include evaluation of current recreation uses and planning for future recreation visitation. This survey does not ask for any information that identifies you. All information from this survey will be available for distribution. The interview should take 10 to 15 minutes with an average of 12 minutes.

Section 1. Modes of Transportation

- A Automobile
- B Air – Miami
- C Air – Ft. Lauderdale / Hollywood

- D Air – other Florida city, City: _____
- E Cruise ship
- F Own boat
- G Other, Specify _____

Section 2 Primary Purpose of Trip

- A = Recreation or Vacation
- B = Visit family or friends

- C = Business trip
- D = Business and Pleasure
- E = Other, Specify _____

Section 3 Biscayne Bay Management Plans

- A. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay and restore wetlands and mangrove areas in South Biscayne Bay. The Bay now receives less fresh water than it did in the past and the Bay might receive less fresh water in the future without this Plan. More clean, fresh water would help to maintain and improve fish and wildlife habitat and the overall productivity of the Bay.
- B. The *Recreational Boating Access Plan* would maintain and improve existing boat ramps and public marinas for recreational boaters around Biscayne Bay. The Plan would also develop new boat ramps and marinas in areas where these facilities do not currently exist. Any damage to seagrasses or other marine resources due to the development of these facilities would be mitigated by restoring other areas of the Bay. This Plan would also improve and maintain navigational aids such as channel markers and speed zones throughout the Bay.
- C. The *Public Recreation Access Plan* would maintain and improve existing waterfront parks, beaches, fishing piers, picnic areas and other areas for public access to Biscayne Bay. This Plan would also develop new parks, greenways and other areas for public access to the Bay, especially in shoreline areas that have little public access. Some of these areas would also be developed to provide education centers to inform the public about the resources of Biscayne Bay.

Section 4 Addition or reduction in number of days you would participate in recreation on Biscayne Bay if Management Plan implemented.

Recreational Activity on Biscayne Bay	Total Additional Days	Additional Days on Boat	Total Decrease in Number of Days	Decrease in Number of Days on Boat
100 Fishing				
101 Snorkeling				
102 Scuba Diving				
103 Swimming				
200 Boating for Pleasure / Partying				
300 Water-skiing				
301 Parasailing				
302 Windsurfing				
303 Kite Sailing				
400 Personal Watercraft Boating (jet skis, etc.)				
500 Sailing				
501 Canoeing / Kayaking				
600 Viewing the Bay from Shore (while dining, shopping, jogging,				
700 Sunset Cruise and strolling)				
800 Glass bottom boat tour				
900 Picnicking on Biscayne Bay				

Section 5 Annual Household Income before Taxes

Please give only the letter of your income category.

- | | | |
|-------------------------|-------------------------|---------------------------|
| A. Less than \$5,000 | F. \$25,000 to \$29,999 | K. \$50,000 to \$59,999 |
| B. \$5,000 to \$9,999 | G. \$30,000 to \$34,999 | L. \$60,000 to \$74,999 |
| C. \$10,000 to \$14,999 | H. \$35,000 to \$39,999 | M. \$75,000 to \$99,999 |
| D. \$15,000 to \$19,999 | I. \$40,000 to \$44,999 | N. \$100,000 to \$149,999 |
| E. \$20,000 to \$24,999 | J. \$45,000 to \$49,999 | O. \$150,000 or more |

Section 6. Race/Ethnicity

A = White

B = Black or African American

C = American Indian or Alaska Native

D = Asian

E = Native Hawaiian or Other Pacific Islander

F = Other, please specify _____

Section 7. Itemized Expenditure List For Expenditures On Most Recent Day You Participated in Activity

Boat fuel

Tackle, bait, and/or ice

Boat rental

Equipment Rental

Ramp, Marina and Parking Fees

Park Entrance Fees

Lodging or Camping (per night)

Food and Beverages – Stores

Food and Beverages – Restaurants/Bars

Auto gas

Auto Rental, Taxi, Bus fares

Shopping and Sundries (gifts, sunscreen, etc.)

APPENDIX B

General Visitor Survey

**GENERAL VISITOR INTERCEPT SURVEY
SCREENER/TALLY SHEET**

1. Are you a permanent resident of Miami-Dade County?

YES. Thank you. We are only interviewing nonresidents of Miami-Dade County. (*place tic mark in column 4*)

NO. 2. Are you ending your visit to Miami-Dade County before noon tomorrow?

NO. Thank you. We are only interviewing people at the end of their visit. (*place tic mark in column 5*)

YES. 3. Will you participate in a 5-15 minute interview about your visit to Miami-Dade County?

NO. Thank you. (*place tic mark in column 6*)

If language Barrier, (*place tic mark in column 7*)

YES. Go to Questionnaire. (*place tic mark in column 8*)

1	2	3	4	5	6	7	8
Site	Date	Time Period	Permanent Resident	Non Exit Visitor	Refusal	Language Barrier	Interviewed

General Visitor Intercept Survey – Biscayne Bay

Q9. On this trip to Miami-Dade County, when did you first arrive in Miami-Dade County?

Month Day Time

Q10. When do you plan to leave Miami-Dade County?

Month Day Time

Q11. Including this trip, how many times have you visited Miami-Dade County in the last 12 months, that is since (date last year)?

of times

Q12. Including this trip, how many days have you spent in Miami-Dade County in the last 12 months?

of days

Q13. On this trip, how many nights will you have spent in Miami-Dade County?

of nights

If Question 13 is zero, then go to Question 16.

Q14. Please refer to the Section 2 of the YELLOW CARD and tell me the number corresponding to where you stayed on this trip to Miami-Dade County? (*circle ALL numbers that apply*)

- | | |
|---|--|
| 1 = Hotel/Motel/Guest House/Bed & Breakfast | 4 = Condominium, or second home (own), excluding time shares |
| 2 = Home of family/friends | 5 = Vacation Rental or Time Share |
| 3 = Campground | 6 = Other, please specify _____ |

If Questions 14 is 1, then ask Question 15. Otherwise go to Question 16.

Q15. How many guest rooms are you, and the people with you, renting on this trip? _____
of Rooms

Q16. Please refer to Section 3 on your YELLOW CARD and tell me which reason best describes the primary purpose of your trip to Miami-Dade County. Please read the corresponding letter from the YELLOW CARD.

- | | |
|-----------------------------|---------------------------|
| A = Recreation or vacation | D = Business and pleasure |
| B = Visit family or friends | E = Other, Specify, _____ |
| C = Business trip | |

**HAND RESPONDENT MAP AND WHITE CARD WITH BISCAYNE BAY
ACTIVITIES LIST**

Q20. In the past 12 months, have you participated in any of the Biscayne Bay-related activities listed on this card?

YES NO, *Go to Q.26*

Q21. In which of these Bay-related activities did you participate during the last 12 months? Please read me the number corresponding to each activity on the card.

Q22. As I read each activity, would you tell me how many days you participated in the activity over the past 12 months?

Q23. For Activity Numbers 100 through 103, how many of those days did you use a boat to participate in that activity?

BISCAYNE BAY-RELATED ACTIVITIES IN PAST 12 MONTHS

Q21 Activity Number	Q22 Respondent # of days	Q23 # of days Boat used
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Q24. Are these Bay-related activities the primary reason you visited Miami-Dade County?

YES NO

Q25. On a scale of 1 to 5, with 1 being least important and 5 being most important, how important is Biscayne Bay in terms of your decision to visit Miami-Dade County?

1 2 3 4 5

Go to Question 36.

General Visitor Intercept Survey – Biscayne Bay

**FOR RESPONDENTS WHO DID NOT PARTICIPATE IN BAY-RELATED ACTIVITIES
(Otherwise go to Question 36.)**

Q26. Please refer to Section 4 of the YELLOW CARD. Which were the most important reasons why you did not participate in Biscayne Bay related recreation activities in the past 12 months in order of their importance? (Indicate top three answers in order of importance.)

- a. Too busy to visit the Bay
- b. I never thought about/wasn't aware of it
- c. I don't like saltwater recreation
- d. I prefer the Atlantic Ocean
- e. Bay is too polluted
- f. Bay is too crowded
- g. Not enough fish to catch
- h. Bay is unattractive
- i. Not enough boat ramps/launching facilities
- j. Not enough parking
- k. Not enough dry dock storage
- l. Not enough parks, undeveloped areas
- m. Not enough beach areas
- n. Other reasons, please specify: _____

BISCAYNE BAY MANAGEMENT SCENARIOS

Several different management alternatives are being considered for the future of Biscayne Bay. These alternatives would affect water quality, boating access, and shore-based recreation access in Biscayne Bay. **Please take a minute and read with me the information in Section 5 of the YELLOW CARD.** It describes 3 management plans. Then I will ask you some questions about each one.

(READ PLANS ALOUD)

A. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay and restore wetlands and mangrove areas in South Biscayne Bay. The Bay now receives less fresh water than it did in the past and the Bay might receive less fresh water in the future without this Plan. More clean, fresh water would help to maintain and improve fish and wildlife habitat and the overall productivity of the Bay.

B. The *Recreational Boating Access Plan* would maintain and improve existing boat ramps and public marinas for recreational boaters around Biscayne Bay. The Plan would also develop new boat ramps and marinas in areas where these facilities do not currently exist. Any damage to seagrasses or other marine resources due to the development of these facilities would be mitigated by restoring other areas of the Bay. This Plan would also improve and maintain navigational aids such as channel markers and speed zones throughout the Bay.

C. The *Public Recreation Access Plan* would maintain and improve existing waterfront parks, beaches, fishing piers, picnic areas and other areas for public access to Biscayne Bay. This Plan would also develop new parks, greenways and other areas for public access to the Bay, especially in shoreline areas that have little public access. Some of these areas would also be developed to provide education centers to inform the public about the resources of Biscayne Bay.

General Visitor Intercept Survey – Biscayne Bay

The 3 plans I just described would be managed by local government agencies with input from local citizens. These agencies want to know if these plans would cause you to participate in recreation activities on Biscayne Bay. Public officials could use the results of this study as a guide for future management decisions.

Now let’s go back to the first plan.

Q27. The *Water Quality Plan* would increase fresh water flows to Biscayne Bay and improve fish and wildlife habitat. If this plan was implemented, do you think that you would participate in recreation activities on Biscayne Bay in the future?

- Yes → (GO TO Q28) No → (GO TO Q30)

Q28. Please refer to Section 6 of the YELLOW CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many additional days during a 12-month period would you participate in each activity listed in the table if the *Water Quality Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q29. For activities 100 to 103, how many of **these additional days** would be spent on a boat?

Recreational Activity	Q28. Days Over 12-month period	Q29. Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

OK, now let’s talk about the second plan.

Q30. The *Recreational Boating Access Plan* would improve existing boat ramps and marinas and develop new boating facilities where they do not currently exist. If this plan was implemented, do you think that you would participate in recreation activities on Biscayne Bay in the future?

- Yes → (GO TO Q31) No → (GO TO Q33)

General Visitor Intercept Survey – Biscayne Bay

Q31. Please refer to Section 6 of the YELLOW CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many additional days over a 12 month period would you participate in each activity listed in the table if the *Recreational Boating Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q32. For activities 100 to 103, how many of **these additional days** would be spent on a boat?

Recreational Activity	Q31. Days Over 12-month period	Q32. Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

OK, now let's talk about the third plan.

Q33. The *Public Recreation Access Plan* would improve existing waterfront parks and other public access areas to Biscayne Bay and develop new parks, beaches, and greenways. If this plan was implemented, do you think that you would participate in recreation activities on Biscayne Bay in the future?

- Yes → (GO TO Q34) No → (GO TO Q36)

Q34. Please refer to Section 6 of the YELLOW CARD. Consider the list of recreation activities on Biscayne Bay in the first column of the table. How many additional days over a 12 month period would you participate in each activity listed in the table if the *Public Recreation Access Plan* was implemented. (Skip the activity (leave blank) if the answer is 0.)

Q35. For activities 100 to 103, how many of **these additional days** would be spent on a boat?

Recreational Activity	Q34. Days Over 12-month period	Q35. Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		

General Visitor Intercept Survey – Biscayne Bay

Recreational Activity	Q34. Days Over 12-month period	Q35. Days on Boat
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Finally, for statistical purposes, we need to know a few things about you.

Q36. How many years have you been visiting Miami-Dade County? _____ # of years

Q37. In what year were you born? 19 ____ ____

Q38. Sex: Male Female **(Observed, not asked)**

Q39. Please refer to Section 7 of the YELLOW CARD and tell me which income category best describes your annual household income last year, before taxes. Please give me the letter on the card that corresponds to the category.

A B C D E F G H I J K L M N O
 Refused Don't know

Q40. Do you consider yourself to be Hispanic, Latino or of Spanish origin?

Yes No

Q41. Please refer to Section 8 of the YELLOW CARD and tell me which category best describes you. Please read the letter of the category.

A = White D = Asian
 B = Black or African E = Native Hawaiian or Other Pacific Islander
 C = American Indian or Alaska Native F = Other, please specify _____

This concludes your interview. Thank you for your time.

YELLOW CARD – General Visitor Intercept Survey

PRIVACY STATEMENT

Your participation is voluntary. Since each interviewed person will represent many others not interviewed, your cooperation is extremely important. Hazen & Sawyer and Rife Market Research are conducting this study for the South Florida Water Management District. Uses of the information include evaluation of current recreation uses and planning for future recreation visitation. This survey does not ask for any information that identifies you. All information from this survey will be available for distribution. The interview should take 5 to 15 minutes with an average of 10 minutes.

Section 1. Modes of Transportation

A = Automobile

B = Air – Miami

C = Air – Ft. Lauderdale / Hollywood

D = Air – other Florida city, City: _____

E = Cruise ship

F = Own boat

G = Other, Specify _____

Section 2. Overnight Accommodations

1 = Hotel / Motel / Guest House / Bed &
Breakfast

2 = Home of family/friends

3 = Campground

4 = Condominium or second home (own)

5 = Vacation rental or Time share

6 = Other, please Specify _____

Section 3. Primary Purpose of Trip

A = Recreation or Vacation

B = Visit family or friends

C = Business trip

D = Business and Pleasure

E = Other, please Specify _____

Section 4. Reasons for Not Participating in Biscayne Bay-Related Recreation Activities

___ a. Too busy to visit the Bay

___ h. Bay is unattractive

___ b. I never thought about/wasn't aware of it. Not enough boat ramps/launching facilities

___ c. I don't like saltwater-related recreation

___ j. Not enough parking

___ d. I prefer the Atlantic Ocean

___ k. Not enough dry dock storage

___ e. Bay is too polluted

___ l. Not enough parks, undeveloped areas

___ f. Bay is too crowded

___ m. Not enough beach areas

___ g. Not enough fish to catch

___ n. Other reasons, please specify: _____

Section 5. Biscayne Bay Management Plans.

A. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay and restore wetlands and mangrove areas in South Biscayne Bay. The Bay now receives less fresh water than it did in the past and the Bay might receive less fresh water in the future without this Plan. More clean, fresh water would help to maintain and improve fish and wildlife habitat and the overall productivity of the Bay.

B. The *Recreational Boating Access Plan* would maintain and improve existing boat ramps and public marinas for recreational boaters around Biscayne Bay. The Plan would also develop new boat ramps and marinas in areas where these facilities do not currently exist. Any damage to seagrasses or other marine resources due to the development of these facilities would be mitigated by restoring other areas of the Bay. This Plan would also improve and maintain navigational aids such as channel markers and speed zones throughout the Bay.

C. The *Public Recreation Access Plan* would maintain and improve existing waterfront parks, beaches, fishing piers, picnic areas and other areas for public access to Biscayne Bay. This Plan would also develop new parks, beaches, greenways and other areas for public access to the Bay, especially in shoreline areas that have little public access. Some of these areas would also be developed to provide education centers to inform the public about the resources of Biscayne Bay.

Section 6. Number of days you would participate in recreation on Biscayne Bay if Management Plan Implemented.

Recreational Activity	Days Over 12-month period	Days on Boat
100 Fishing		
101 Snorkeling		
102 Scuba Diving		
103 Swimming		
200 Boating for Pleasure / Partying		
300 Water-skiing		
301 Parasailing		
302 Windsurfing		
303 Kite Sailing		
400 Personal Watercraft Boating (jet skis, wave runners, etc.)		
500 Sailing		
501 Canoeing / Kayaking		
600 Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)		
700 Sunset Cruise		
800 Glass bottom boat tour		
900 Picnicking on Biscayne Bay		

Section 7. Annual Household Income before Taxes

Please give only the letter of your income category.

- | | | |
|-------------------------|-------------------------|---------------------------|
| A. Less than \$5,000 | F. \$25,000 to \$29,999 | K. \$50,000 to \$59,999 |
| B. \$5,000 to \$9,999 | G. \$30,000 to \$34,999 | L. \$60,000 to \$74,999 |
| C. \$10,000 to \$14,999 | H. \$35,000 to \$39,999 | M. \$75,000 to \$99,999 |
| D. \$15,000 to \$19,999 | I. \$40,000 to \$44,999 | N. \$100,000 to \$149,999 |
| E. \$20,000 to \$24,999 | J. \$45,000 to \$49,999 | O. \$150,000 or more |

Section 8. Race/Ethnicity

A = White

B = Black or African American

C = American Indian or Alaska Native

D = Asian

E = Native Hawaiian or Other Pacific Islander

F = Other, please specify _____

APPENDIX C

2000 Population of Miami-Dade County Residents by Zip Code

**Table C-1
Miami-Dade County Population and Proportion of Residents by Zip Code, 2000**

ZIP-CODE	2000 Population from US Census Bureau	% of County Population in Zip Code	ZIP-CODE	2000 Population from US Census Bureau	% of County Population in Zip Code
33010	45,353	4.14%	33146	13,210	1.21%
33012	74,948	6.85%	33147	50,500	4.61%
33013	33,365	3.05%	33149	10,513	0.96%
33014	38,667	3.53%	33150	26,355	2.41%
33015	49,279	4.50%	33154	13,359	1.22%
33016	43,347	3.96%	33155	44,142	4.03%
33018	37,725	3.45%	33156	31,450	2.87%
33030	27,304	2.50%	33157	61,288	5.60%
33031	5,514	0.50%	33158	6,457	0.59%
33032	20,716	1.89%	33160	33,533	3.06%
33033	31,394	2.87%	33161	53,248	4.87%
33034	15,402	1.41%	33162	45,224	4.13%
33035	2,762	0.25%	33165	57,079	5.22%
33054	28,177	2.57%	33166	22,563	2.06%
33055	45,105	4.12%	33167	18,203	1.66%
33056	33,223	3.04%	33168	25,151	2.30%
33109	467	0.04%	33169	36,115	3.30%
33122	0	0.00%	33170	8,460	0.77%
33125	48,598	4.44%	33172	38,515	3.52%
33126	43,814	4.00%	33173	33,640	3.07%
33127	27,796	2.54%	33174	30,281	2.77%
33128	7,002	0.64%	33175	52,581	4.81%
33129	11,100	1.01%	33176	52,081	4.76%
33130	20,541	1.88%	33177	45,482	4.16%
33131	4,723	0.43%	33178	15,272	1.40%
33132	5,322	0.49%	33179	37,380	3.42%
33133	29,929	2.74%	33180	20,799	1.90%
33134	34,045	3.11%	33181	17,694	1.62%
33135	35,712	3.26%	33182	16,887	1.54%
33136	13,119	1.20%	33183	35,422	3.24%
33137	17,638	1.61%	33184	19,855	1.81%
33138	29,522	2.70%	33185	9,868	0.90%
33139	38,441	3.51%	33186	59,935	5.48%
33140	20,240	1.85%	33187	14,014	1.28%

Table C-1
Miami-Dade County Population and Proportion of Residents by Zip Code, 2000

ZIP-CODE	2000 Population from US Census Bureau	% of County Population in Zip Code	ZIP-CODE	2000 Population from US Census Bureau	% of County Population in Zip Code
33141	36,545	3.34%	33189	20,280	1.85%
33142	53,398	4.88%	33190	4,820	0.44%
33143	29,788	2.72%	33193	42,469	3.88%
33144	25,332	2.31%	33196	34,661	3.17%
33145	28,921	2.64%	Total	1,094,274	100.00%

APPENDIX D

General Resident Survey

Spring 2004

Dear Miami-Dade County Resident:

Please find enclosed a survey to be completed. You have been randomly selected from the population of Miami-Dade County households to participate in this study. Please place the completed survey in the enclosed postage-paid business reply envelope and return it at your earliest convenience. We have enclosed an English and a Spanish version of the survey for you to choose from.

This study is very important to evaluate the uses and economic contribution of Biscayne Bay to the county and the State for use in developing management programs to protect the Bay while providing for the recreational needs of residents and visitors. Your completing and returning this survey is vital to this study. Your responses are strictly confidential and will be combined with over 500 other responses. Upon completion of the survey, all mailing lists will be destroyed.

This project is called the Biscayne Bay Economic Study being sponsored by the South Florida Water Management District. Biscayne Bay is an important component of the county's quality of life and economy. However, there is very little definitive understanding of the magnitude or extent of the Bay's economic contribution to the community.

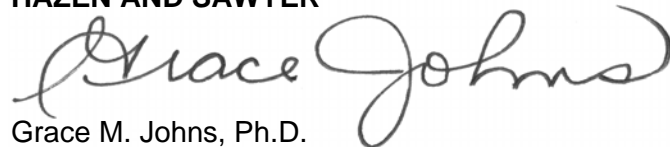
This study will quantify the economic contribution of Biscayne Bay to the economies of Miami-Dade County and surrounding areas in terms of the income and employment generated by the uses of the Bay. In addition, a model will be developed that simulates the economic contribution of the Bay as potential Bay management scenarios affect Bay-dependent business activities and uses.

Your help is vital to this study, even if you do not recreate on or near Biscayne Bay. The survey is not as long as it looks. The actual questions you need to answer will depend on your answers to the previous questions. The survey will direct you to the appropriate questions. We estimate that the survey will take about 15 minutes to complete. If you have any questions regarding how to fill out this survey, please call me or Dave Sayers at (305) 625-4101. Should you have any other questions or comments, please contact me or Trisha Stone at the South Florida Water Management District, (561) 682-6954.

Thank you very much for your participation.

Very truly yours,

HAZEN AND SAWYER



Grace M. Johns, Ph.D.
Senior Associate
Project Manager

enclosures

Biscayne Bay Resident Survey

Survey ID# _____

SECTION 1: Participation in Activities At or Near Biscayne Bay

1. How many people, including yourself, are in your household? _____
2. Please review the list of attractions in Column 1 of the table below and the enclosed map of Biscayne Bay. These attractions are located at or near Biscayne Bay. How many members of your household, including yourself, visited each attraction during the past 12 months? Please write your answer next to the attraction in Column 2 of the table below.
3. For those attractions that you or members of your household visited, how many total person-days did you and your household members spend at the attractions over the past 12 months? Please indicate the number of person-days next to the attraction in Column 3 of the table below.

A **person-day** is one person visiting the attraction for all or part of a day. For example, if you visited Biscayne National Park 2 days and 2 of your household members visited 3 days each, then the number of person-days would be 8 days (Your 2 days plus 3 days by one household member plus 3 days by another household member.)

Column 1	Column 2	Column 3
Site Number on Map / Attraction Name	Question 2: Number of Household Members, including Respondent, Who Visited Attraction in Past 12 Months	Question 3: Number of Person-Days Respondent and Household Members Visited Attraction In Past 12 Months
(1) North Park		
(2) South Park		
(3) John Tweedle Park		
(24) Greynolds Park		
(4) Haulover Marine Center		
(5) Oleta River State Park		
(6) Haulover Beach Park Marina		
(7) Biscayne Bay Park		
(8) North Bayshore Lehman Park		
(9) Pelican Harbor Marina		
(10) Palm Bay Yacht Club & Marina		
(11) Baywood Park		
(12) Legion Memorial Park		
(13) Morningside Park		
(14) Stearns Park		
(15) Pallot (Magnolia) Park		
(60) Maurice Gibb Memorial Park (formerly Island View Park)		

Biscayne Bay Resident Survey

Column 1	Column 2	Column 3
Site Number on Map / Attraction Name	Question 2: Number of Household Members, including Respondent, Who Visited Attraction in Past 12 Months	Question 3: Number of Person-Days Respondent and Household Members Visited Attraction In Past 12 Months
(16) Pace Park		
(17) Watson Island Park & Boat Ramp		
(18) Bicentennial Park		
(58) Curtis Park		
(57) Sewell Park		
(19) Miamarina at Bayside		
(20) Lummus Park (South Beach)		
(21) Bayside Marketplace		
(22) Bayfront Park		
(23) Miami Beach Marina		
(24) Lummus Park (Miami River)		
(25) Jose Marti Riverfront Park		
(26) Miami River Walk		
(27) South Point Park		
(28) Vizcaya Museum & Gardens		
(29) Wainwright Park		
(30) Marine Stadium Marina		
(31) Rickenbacker Marina		
(32) Sealine Marina & Yatch Club		
(33) Virginia Key Beach		
(34) Grove Isle Marina		
(35) David Kennedy Park		
(37) Dinner Key Marina		
(38) Peacock Park		
(39) West Island		
(40) Dinner Key Picnic Island		
(41) Crandon Park Marina		
(42) Crandon Park		
(44) Bill Baggs Cape Florida SRA		
(45) Matheson Hammock Park Marina		
(59) Fairchild Tropical Gardens		

Biscayne Bay Resident Survey

Column 1	Column 2	Column 3
Site Number on Map / Attraction Name	Question 2: Number of Household Members, including Respondent, Who Visited Attraction in Past 12 Months	Question 3: Number of Person-Days Respondent and Household Members Visited Attraction In Past 12 Months
(46) Barnacle Historic State Park		
(47) Matheson Hammock Park		
(48) R. Hardy Matheson Preserve		
(49) Chapman Field Park		
(50) Charles Deering Estate at Cutler		
(51) Biscayne National Park		
(52) Black Point Marina		
(53) Black Point Park		
(54) Convoy Point		
(55) Homestead Bayfront Marina		
(56) Homestead Bayfront Park		

4. Please examine and consider the activities listed in Column 1 of Table A on the next page. In the past 12 months, have you or other members of your household participated in any of the activities listed in Table A while on Biscayne Bay? These are activities conducted on or near Biscayne Bay, and not the Atlantic Ocean. Biscayne Bay is indicated on the enclosed map.

YES _____ (If YES, please continue to the next question, Question 5.)

NO _____ (If NO, please skip to Question 8 at the top of page 5.)

5. Please review the list of Biscayne Bay-related activities in Column 1 of Table A. How many members of your household, including yourself, participated in each activity during the past 12 months? Please write your answer next to the activity in Column 2 of the table.
6. For those activities that you or members of your household participated in, how many total person-days did you and your household members spend in these activities over the past 12 months? Please indicate the number of person-days next to the activity in Column 3 of Table A.

A **person-day** is one person participating in an activity for all or part of a day. For example, if you fished on the Bay 2 days and 2 of your household members did so 3 days each, then the number of person-days would be 8 days (Your 2 days plus 3 days by one household member plus 3 days by another household member.)

7. Of the person-days you wrote down in Column 3 for fishing, snorkeling, scuba diving and swimming, how many of these person-days did you or your household members use a boat? Please write the number of person-days that a boat was used in Column 4 of Table A .

Biscayne Bay Resident Survey

Table A
Household Participation in Biscayne Bay-Related Activities

Column 1	Column 2	Column 3	Column 4
Biscayne Bay-Related Activity	Question 5: Number of Household Members, including Respondent, Who Participated in Past 12 Months	Question 6: Number of Person-Days Respondent and Household Members Participated In Past 12 Months	Question 7: Number of These Person-Days that a Boat Was Used
Fishing			
Snorkeling			
Scuba Diving			
Swimming			
Boating for pleasure / partying			
Water-skiing			
Parasailing			
Windsurfing			
Kite Sailing			
Personal Watercraft Boating (jet ski's, wave runners, etc.)			
Sailing			
Canoeing / Kayaking			
Viewing the Bay from Shore (including while dining, picnicking, shopping, jogging, strolling)			
Sunset Cruises			
Glass bottom boat tour			
Picnicking on Biscayne Bay			

Please go to Section 2 on the next page.

Biscayne Bay Resident Survey

If you did not participate in any Biscayne Bay-Related Activities in the past 12 months, please answer Question 8. (Otherwise, please go to SECTION 2 below.)

8. Which were the most important reasons why you did not participate in Biscayne Bay related recreation activities in the past 12 months in order of their importance? Please place the numbers 1, 2 and 3 next to the reason to indicate the top three answers in order of importance (1 is most important, 2 is second most important, and 3 is third most important.)

- | | |
|--|--|
| <input type="checkbox"/> a. Too busy to visit the Bay | <input type="checkbox"/> h. Bay is unattractive |
| <input type="checkbox"/> b. I never thought about/wasn't aware of it | <input type="checkbox"/> i. Not enough boat ramps/launching facilities |
| <input type="checkbox"/> c. I don't like saltwater recreation | <input type="checkbox"/> j. Not enough parking |
| <input type="checkbox"/> d. I prefer the Atlantic Ocean | <input type="checkbox"/> k. Not enough dry dock storage |
| <input type="checkbox"/> e. Bay is too polluted | <input type="checkbox"/> l. Not enough parks, undeveloped areas |
| <input type="checkbox"/> f. Bay is too crowded | <input type="checkbox"/> m. Not enough beach areas |
| <input type="checkbox"/> g. Not enough fish to catch | |
| <input type="checkbox"/> n. Other reasons, please specify: _____ | |

Please go to Section 2.

SECTION 2: Biscayne Bay Management Plans

Several different management alternatives are being considered for the future of Biscayne Bay. These alternatives would affect water quality, boating access, and shore-based recreation access in Biscayne Bay. Please read the following three management plans and answer the questions regarding these plans.

A. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay and restore wetlands and mangrove areas in South Biscayne Bay. The Bay now receives less fresh water than it did in the past and the Bay might receive less fresh water in the future without this Plan. More clean, fresh water would help to maintain and improve fish and wildlife habitat and the overall productivity of the Bay.

B. The *Recreational Boating Access Plan* would maintain and improve existing boat ramps and public marinas for recreational boaters around Biscayne Bay. The Plan would also develop new boat ramps and marinas in areas where these facilities do not currently exist. Any damage to seagrasses or other marine resources due to the development of these facilities would be mitigated by restoring other areas of the Bay. This Plan would also improve and maintain navigational aids such as channel markers and speed zones throughout the Bay.

C. The *Public Recreation Access Plan* would maintain and improve existing waterfront parks, beaches, fishing piers, picnic areas and other areas for public access to Biscayne Bay. This Plan would also develop new parks, greenways and other areas for public access to the Bay, especially in shoreline areas that have little public access. Some of these areas would also be developed to provide education centers to inform the public about the resources of Biscayne Bay.

The 3 plans would be managed by local government agencies with input from local citizens. These agencies want to know whether you support one, two or all of these plans and if you would be willing to pay more local taxes to fund these plans. Each plan must have the support of a majority of local residents. Public officials could use the results of this study as a guide for future Bay management and tax decisions.

Biscayne Bay Resident Survey

9. The *Water Quality Plan* would increase fresh water flows to Biscayne Bay and improve fish and wildlife habitat. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days during a 12 month period that you would participate in recreation activities on Biscayne Bay? Please place an X in the box next to your answer.

- 1. Increase in total days → (PLEASE GO TO QUESTION 10)
- 2. Decrease in total days → (PLEASE GO TO GO TO QUESTION 12)
- 3. No change in total days → (PLEASE GO TO QUESTION 14)

10. Consider the list of recreation activities on Biscayne Bay in the first column of the table below. How many **additional** days during a 12-month period would you participate in each activity listed in the table if the *Water Quality Plan* was implemented. Place your answers in Column 2 of the Table. (If the answer is 0, skip the activity (leave blank).)

11. For fishing, snorkeling, scuba diving and swimming, how many of **these additional days** would be spent on a boat? Place your answers in Column 3 of the Table. Then go to Question 14.

12. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Water Quality Plan* was implemented. (If the answer is 0, skip the activity (leave blank).) Place your answers in Column 4 of the Table.

13. For fishing, snorkeling, scuba diving and swimming, how many of **the decrease in days** would be spent on a boat? Place your answers in Column 5 of the Table. Then go to Question 14.

Water Quality Plan

Column 1	Column 2	Column 3	Column 4	Column 5
Recreational Activity	Question 10. Total Additional Days Over 12- month period	Question 11. Number of Additional Days on Boat	Question 12. Total Decrease in Days Over 12- month period	Question 13. Decrease in Number of Days on Boat
Fishing				
Snorkeling				
Scuba Diving				
Swimming				
Boating for Pleasure / Partying				
Water-skiing				
Parasailing				
Windsurfing				
Kite Sailing				
Personal Watercraft Boating (jet skis, wave				
Sailing				
Canoeing / Kayaking				
Viewing the Bay from Shore (while dining, shopping, strolling)				
Sunset Cruise				
Glass bottom boat tour				
Picnicking on Biscayne Bay				

Biscayne Bay Resident Survey

14. The *Water Quality Plan* would increase the flow of clean, fresh water to Biscayne Bay but it is costly. Local taxpayers such as you would need to pay for this Plan. A trust fund would be established that will only be used to pay for this *Water Quality Plan*. A local government agency would collect a one-time property tax payment that will go into this trust fund. If you could vote on this Plan in the next election and it was the only plan you could vote on, would you vote for or against it? Please place an X in the box next to your answer.

- 1. FOR (PLEASE GO TO QUESTION 15)
- 2. AGAINST (PLEASE GO TO QUESTION 16)
- 3. DON'T KNOW (PLEASE GO TO QUESTION 17)

15. Using the amounts listed on the enclosed **BLUE PAYMENT CARD Number** _____, what is the maximum amount of money you would be willing to pay in a one time tax for the *Water Quality Plan*. Please write that amount in the space below. If your amount is greater than the highest amount on the BLUE PAYMENT CARD, please write your maximum amount in the space below. If you don't know, then write DK in the space below.

\$ _____, please go to Question 17.

16. Please circle the number that best describes your reason for voting against this plan.

1. I don't think this plan would really do any good.
2. I am not interested in water quality of Biscayne Bay.
3. I am opposed to any new taxes.
4. I don't have enough information about the plan.
5. I believe the money will be misused.
6. Other, please specify _____

Please go to the next question.

17. The *Recreational Boating Access Plan* would improve existing boat ramps and marinas and develop new boating facilities where they do not currently exist. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days during a 12 month period that you would participate in recreation activities on Biscayne Bay? Please place an X in the box next to your answer.

- 1. Increase in total days → (PLEASE GO TO QUESTION 18)
- 2. Decrease in total days → (PLEASE GO TO QUESTION 20)
- 3. No change in total days → (PLEASE GO TO QUESTION 22)

Biscayne Bay Resident Survey

18. Consider the list of recreation activities on Biscayne Bay in the first column of the table below. How many **additional days** over a 12 month period would you participate in each activity listed in the table if the *Recreational Boating Access Plan* was implemented. Place your answers in Column 2 of the Table. (If the answer is 0, skip the activity (leave blank).)

19. For fishing, snorkeling, scuba diving and swimming, how many of **these additional days** would be spent on a boat? Place your answers in Column 3 of the Table. Then go to Question 22.

20. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Recreational Boating Access Plan* was implemented. Place your answers in Column 4 of the Table. (If the answer is 0, skip the activity (leave blank).)

21. For fishing, snorkeling, scuba diving and swimming, how many of **the decrease in days** would be spent on a boat? Place your answers in Column 5 of the Table. Then go to Question 22.

Recreational Boating Access Plan

Column 1	Column 2	Column 3	Column 4	Column 5
Recreational Activity	Question 18. Total <u>Additional</u> Days Over 12- month period	Question 19. Additional Days on <u>Boat</u>	Question 20. Total <u>Decrease</u> in Days Over 12-month period	Question 21. Decrease in Number of Days on <u>Boat</u>
Fishing				
Snorkeling				
Scuba Diving				
Swimming				
Boating for Pleasure / Partying				
Water-skiing				
Parasailing				
Windsurfing				
Kite Sailing				
Personal Watercraft Boating (jet skis, wave				
Sailing				
Canoeing / Kayaking				
Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)				
Sunset Cruise				
Glass bottom boat tour				
Picnicking on Biscayne Bay				

Biscayne Bay Resident Survey

22. The *Recreational Boating Access Plan* would improve boat ramps and marinas and develop new facilities but it is costly. Local taxpayers such as you would need to pay for this Plan. A trust fund would be established that will only be used to pay for this *Recreational Boating Access Plan*. A local government agency would collect a one-time tax payment that will go into this trust fund. If you could vote on this Plan in the next election and it was the only plan you could vote on, would you vote for or against it? Please place an X in the box next to your answer.

- 1. FOR (PLEASE GO TO QUESTION 23)
- 2. AGAINST (PLEASE GO TO QUESTION 24)
- 3. DON'T KNOW (PLEASE GO TO QUESTION 25)

23. Using the amounts listed on the enclosed **BLUE PAYMENT CARD Number** _____, what is the maximum amount of money you would be willing to pay in a one time tax for the *Recreational Boating Access Plan*. Please write that amount in the space below. If your amount is greater than the highest amount on the BLUE PAYMENT CARD, please write your maximum amount in the space below. If you don't know, then write DK in the space below.

\$ _____, Please go to Question 25.

24. Please circle the number that best describes your reason for voting against this plan.

1. I don't think this plan would really do any good.
2. I am not interested in recreational boating in Biscayne Bay.
3. I am opposed to any new taxes.
4. I don't have enough information about the plan.
5. I believe the money will be misused.
6. Other, please specify -

Please go to next question.

25. The *Public Recreation Access Plan* would improve existing waterfront parks and other public access areas to Biscayne Bay and develop new parks, beaches, and greenways. If this plan was enacted over the next 3 years, do you think this plan would lead to an increase, a decrease, or no change in the total number of days during a 12 month period that you would participate in recreation activities on Biscayne Bay? Please place an X in the box next to your answer.

- 1. Increase in total days → (PLEASE GO TO QUESTION 26)
- 2. Decrease in total days → (PLEASE GO TO QUESTION 28)
- 3. No change in total days → (PLEASE GO TO QUESTION 30)

Biscayne Bay Resident Survey

26. Consider the list of recreation activities on Biscayne Bay in the first column of the table below. How many **additional** days over a 12 month period would you participate in each activity listed in the table if the *Public Recreation Access Plan* was implemented. Place your answers in Column 2 of the Table. (If the answer is 0, skip the activity (leave blank).)

27. For fishing, snorkeling, scuba diving and swimming, how many of **these additional days** would be spent on a boat? Place your answers in Column 3 of the Table. Then go to question 30.

28. Consider the list of recreation activities on Biscayne Bay in the first column of the table. Please indicate the total **decrease** in the number of days that you would participate in each activity listed in the table over a 12 month period if the *Public Recreation Access Plan* was implemented. Place your answers in Column 4 of the Table. (If the answer is 0, skip the activity (leave blank).)

29. For fishing, snorkeling, scuba diving and swimming, how many of **the decrease in days** would be spent on a boat? Place your answers in Column 5 of the Table. Then go to question 30.

Public Recreation Access Plan

Column 1	Column 2	Column 3	Column 4	Column 5
Recreational Activity	Question 26. Total <u>Additional</u> Days Over 12- month period	Question 27. Additional Days on Boat	Question 28. Total <u>Decrease</u> in Days Over 12-month period	Question 29. Decrease in Number of Days on Boat
Fishing				
Snorkeling				
Scuba Diving				
Swimming				
Boating for Pleasure / Partying				
Water-skiing				
Parasailing				
Windsurfing				
Kite Sailing				
Personal Watercraft Boating (jet skis, waver				
Sailing				
Canoeing / Kayaking				
Viewing the Bay from Shore (including while dining, shopping, jogging, and strolling)				
Sunset Cruise				
Glass bottom boat tour				
Picnicking on Biscayne Bay				

Biscayne Bay Resident Survey

30. The *Public Recreation Access Plan* would improve existing waterfront parks and develop new parks and greenways for public access to Biscayne Bay but it is costly. Local taxpayers such as you would need to pay for this Plan. A trust fund would be established that will only be used to pay for this *Public Recreation Access Plan*. A local government agency would collect a one-time tax payment that will go into this trust fund. If you could vote on this Plan in the next election and it was the only plan you could vote on, would you vote for or against it? Please place an X in the box next to your answer.

- 1. FOR (PLEASE GO TO QUESTION 31)
- 2. AGAINST (PLEASE GO TO QUESTION 32)
- 3. DON'T KNOW (PLEASE GO TO QUESTION 33)

31. Using the amounts listed on the enclosed **BLUE PAYMENT CARD Number** _____, what is the maximum amount of money you would be willing to pay in a one time tax for the *Public Recreation Access Plan*. Please write that amount in the space below. If your amount is greater than the highest amount on the BLUE PAYMENT CARD, please write your maximum amount in the space. If you don't know, then write DK in the space below.

\$ _____, Please go to Question 33.

32. Please circle the number that best describes your reason for voting against this plan.

1. I don't think this plan would really do any good.
2. I am not interested in recreational access to Biscayne Bay.
3. I am opposed to any new taxes.
4. I don't have enough information about the plan.
5. I believe the money will be misused.
6. Other, please specify _____

Please go to the next question.

33. Finally, suppose that all three plans we have discussed were put together under one program that would be called the *Biscayne Bay Enhancement Program*. A trust fund would be established that would only be used to pay for the three plans included in the *Program*. As with the three plans described previously, a local government agency would collect a one-time tax payment that would go into this trust fund. If you could vote on this *Program* in the next election, would you vote for or against it? Please place an X in the box next to your answer.

- 1. FOR (PLEASE GO TO QUESTION 34)
- 2. AGAINST (PLEASE GO TO QUESTION 35)
- 3. DON'T KNOW (PLEASE GO TO QUESTION 36)

34. Using the amounts listed on the enclosed **BLUE PAYMENT CARD Number** _____, what is the maximum amount of money you would be willing to pay in a one time tax for the *Biscayne Bay Enhancement Program*. Please write that amount in the space below. If your amount is greater than the highest amount on the BLUE PAYMENT CARD, please write your maximum amount in the space below. If you don't know, then write DK in the space below.

\$ _____, Please go to Question 36.

Biscayne Bay Resident Survey

35. Please circle the number that best describes your reason for voting against this plan.

1. There is nothing in this Program that would really do any good.
2. I think there are parts of this Program that I am not interested in.
3. I am opposed to any new taxes.
4. I don't have enough information about the Program.
5. I believe the money will be misused.
6. Other, please specify _____

Please go to the next question.

SECTION 3: Respondent Characteristics

36. What is your zip code? _____ (5 digits)
37. How many years have you lived in Miami-Dade County? _____
38. Do you own your own boat? YES ____, Go to Question 39. NO ____, Go to Question 41.
39. Is your boat registered in Miami-Dade County? YES ____ NO ____
40. What is the length of your boat? _____
41. Are you a member of a fishing or diving club? YES ____ NO ____
42. In what year were you born? 19 ____ ____
43. Are you: Male? Female?
44. Please circle the letter that corresponds to your estimated annual household income before taxes.
- | | | |
|-------------------------|-------------------------|---------------------------|
| A. Less than \$5,000 | F. \$25,000 to \$29,999 | K. \$50,000 to \$59,999 |
| B. \$5,000 to \$9,999 | G. \$30,000 to \$34,999 | L. \$60,000 to \$74,999 |
| C. \$10,000 to \$14,999 | H. \$35,000 to \$39,999 | M. \$75,000 to \$99,999 |
| D. \$15,000 to \$19,999 | I. \$40,000 to \$44,999 | N. \$100,000 to \$149,999 |
| E. \$20,000 to \$24,999 | J. \$45,000 to \$49,999 | O. \$150,000 or more |
45. Please circle the ethnic category that best describes you.
- | | |
|--|--------------------------------|
| A. Non- Hispanic white | D. Haitian |
| B. Hispanic, Latino or of Spanish origin | E. Other, please specify _____ |
| C. African American | |

This completes the survey. Thank you!

APPENDIX E

2004 Resident and Visitor Expenditures Related to Biscayne Bay Recreation

And

Economic Contribution of Biscayne Bay-Related Expenditures to Southeast Florida and Florida, Itemized by Industry, 2004

**Table E-1 (Residents and Visitors)
Total Itemized Biscayne Bay Related Expenditures in Miami-Dade County – 2004**

Item	Fish From Motor Boat	Fish From Shore	Dive/ Snorkel From Motor Boat	Dive/Snorkel from Shore
Number of Person Days:	8,679,402	3,853,516	3,062,709	899,471
Expenditures:				
Boat fuel	\$98,770,468	\$0	\$34,322,195	\$0
Tackle, bait, and/or ice	\$46,857,717	\$20,489,575	\$218,424	\$172,544
Boat Rental	\$49,039,716	\$0	\$16,759,787	\$0
Equipment Rental	\$17,093,621	\$38,054	\$8,286,636	\$86,272
Ramp, Marina, Parking Fees	\$20,880,862	\$734,414	\$9,648,661	\$505,592
Park Entrance Fees	\$3,473,042	\$3,907,845	\$357,421	\$692,859
Lodging (per night)	\$23,974,614	\$2,935,342	\$10,879,243	\$32,242
Camping fees (per night)	\$130,406	\$904,013	\$148,925	\$0
Food & Beverages – Stores	\$107,722,648	\$30,962,894	\$27,226,767	\$5,824,599
Food & Beverages – Restaurants/Bars	\$47,099,131	\$3,761,796	\$14,957,433	\$3,464,499
Auto gas	\$2,410,945	\$1,070,421	\$850,753	\$249,853
Auto Rental, Taxi, Bus fares	\$11,167,197	\$2,014,522	\$2,153,510	\$77,380
Shopping and Sundries	\$46,009,953	\$6,284,761	\$7,696,062	\$1,667,206
Total	\$474,630,321	\$73,103,637	\$133,505,816	\$12,773,048
Item	Swimming	Boating for pleasure / partying	Waterski / Parasail / Windsurf/ Kite Sail	Personal Watercraft Boating
Number of Person Days:	14,706,774	4,818,500	635,874	362,615
Expenditures:				
Boat fuel	\$18,276,552	\$42,331,803	\$3,989,090	\$754,818
Tackle, bait, and/or ice	\$1,179,094	\$5,220,843	\$0	\$0
Boat Rental	\$0	\$29,858,049	\$2,601,475	\$3,587,710
Equipment Rental	\$43,959	\$331,897	\$2,118,005	\$2,714,101
Ramp, Marina, Parking Fees	\$6,796,052	\$16,114,145	\$1,068,286	\$283,361
Park Entrance Fees	\$13,832,491	\$731,714	\$117,902	\$26,253
Lodging (per night)	\$51,553,018	\$33,176,519	\$382,102	\$4,719,219
Camping fees (per night)	\$522,720	\$87,713	\$0	\$38,292
Food & Beverages – Stores	\$109,063,258	\$48,693,078	\$3,928,029	\$1,456,841
Food & Beverages – Restaurants/Bars	\$66,411,739	\$73,351,487	\$3,579,668	\$5,489,730
Auto gas	\$4,085,215	\$1,338,472	\$176,632	\$100,726
Auto Rental, Taxi, Bus fares	\$31,232,691	\$8,588,978	\$76,420	\$1,364,594
Shopping and Sundries	\$27,224,695	\$30,807,875	\$877,547	\$1,614,274
Total	\$330,221,486	\$290,632,571	\$18,915,155	\$22,149,921

**Table E-1, continued (Residents and Visitors)
Total Itemized Biscayne Bay Related Expenditures in Miami-Dade County – 2004**

Item	Canoe/Kayak/ Sailing (500 & 501)	Picnicking (900)	Viewing the Bay From Shore (600)	Sunset Cruise (700)
Number of Person Days:	7,004,499	5,105,152	15,855,358	475,535
Expenditures:				
Boat fuel	\$7,155,287	\$102,703	\$260,006	\$2,824,364
Tackle, bait, and/or ice	\$993,972	\$334,716	\$1,166,973	\$0
Boat Rental	\$10,659,830	\$19,299	\$80,233	\$4,664,171
Equipment Rental	\$20,101,944	\$111,932	\$465,352	\$39,916
Ramp, Marina, Parking Fees	\$26,087,268	\$2,764,539	\$9,036,442	\$888,233
Park Entrance Fees	\$1,796,364	\$4,242,721	\$13,901,969	\$216,061
Lodging (per night)	\$70,035,582	\$26,618,932	\$110,646,071	\$9,283,031
Camping fees (per night)	\$200,694	\$102,511	\$210,999	\$0
Food & Beverages – Stores	\$75,398,104	\$32,651,273	\$95,328,682	\$4,444,850
Food & Beverages – Restaurants/Bars	\$65,466,002	\$67,366,385	\$232,932,915	\$6,642,422
Auto gas	\$1,945,694	\$1,418,098	\$4,404,266	\$132,093
Auto Rental, Taxi, Bus fares	\$29,086,704	\$11,230,183	\$46,475,653	\$1,513,538
Shopping and Sundries	\$20,593,948	\$55,820,000	\$220,514,113	\$2,490,713
Total	\$329,521,392	\$202,783,290	\$735,423,674	\$33,139,391
Item	Glass Bottom Boat Tour (800)	Total Over All Activities		
Number of Person Days:	5,000	65,464,406		
Expenditures:				
Boat fuel	\$0	\$208,787,285		
Tackle, bait, and/or ice	\$0	\$76,633,858		
Boat Rental	\$104,167	\$117,374,436		
Equipment Rental	\$0	\$51,431,689		
Ramp, Marina, Parking Fees	\$0	\$94,807,856		
Park Entrance Fees	\$1,806	\$43,298,447		
Lodging (per night)	\$126,389	\$344,362,305		
Camping fees (per night)	\$0	\$2,346,274		
Food & Beverages – Stores	\$15,278	\$542,716,300		
Food & Beverages – Restaurants/Bars	\$133,611	\$590,656,818		
Auto gas	\$1,389	\$18,184,557		
Auto Rental, Taxi, Bus fares	\$43,750	\$145,025,120		
Shopping and Sundries	\$36,111	\$421,637,259		
Total	\$462,500	\$2,657,262,205		

**Table E-2 (Residents and Visitors)
Purchases of Goods and Services in Florida Needed to Participate in Biscayne Bay-
Related Activities Other Than Purchases Made the Day of Bay Use**

Expense Item	Total Purchases of Participants in Biscayne Bay-Related Recreation Pro-Rated Over Use on Bay, 2004		
	Florida	Southeast Florida	Miami-Dade County
(1)	(2)	(3)	(4)
Boat Purchase	\$22,435,630	\$22,435,630	\$21,495,459
Boat Maintenance	\$73,833,169	\$73,236,235	\$72,992,487
Boat Repair	\$24,602,130	\$23,088,530	\$22,572,052
Boat Maintenance and Repair	\$119,739,698	\$113,471,891	\$113,471,891
Replace Boat Parts	\$2,923,819	\$2,923,819	\$2,819,355
Equipment (snorkeling, diving, fishing, skiing, sailing)	\$6,580,306	\$5,462,363	\$5,462,363
Boat Towing	\$110,638	\$110,638	\$110,638
Total	\$250,225,389	\$240,729,106	\$238,924,246

Table E-3 (Southeast Florida)
Economic Contribution to Southeast Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$3,100,000	\$6,480,000	\$9,580,000
Commercial Fishing	\$0	\$210,000	\$30,000	\$240,000
Mining	\$0	\$200,000	\$430,000	\$630,000
Construction	\$0	\$13,640,000	\$194,730,000	\$208,370,000
Manufacturing: Food Products	\$0	\$18,170,000	\$15,880,000	\$34,050,000
Textiles	\$0	\$190,000	\$720,000	\$910,000
Apparel and Fabric Products	\$0	\$1,400,000	\$7,020,000	\$8,420,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$950,000	\$12,120,000	\$13,070,000
Printing, Publishing and Allied Products	\$0	\$14,690,000	\$7,440,000	\$22,130,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,040,000	\$12,410,000	\$13,450,000
Ship Building and Repairing	\$0	\$10,000	\$10,000	\$20,000
Boat Building and Repairing	\$26,150,000	\$140,000	\$60,000	\$26,350,000
All other products	\$0	\$5,580,000	\$48,280,000	\$53,860,000
Transportation: Water Transportation	\$171,930,000	\$14,570,000	\$3,750,000	\$190,250,000
All Other Transportation	\$0	\$25,400,000	\$31,040,000	\$56,440,000
Communications, Electric, Gas and Sanitary Services	\$0	\$37,540,000	\$54,890,000	\$92,430,000
Wholesale Trade	\$0	\$37,960,000	\$78,920,000	\$116,880,000
Retail Trade: Food Stores	\$144,660,000	\$200,000	\$23,020,000	\$167,880,000
Automotive Dealers and Service Stations	\$259,970,000	\$1,510,000	\$33,100,000	\$294,580,000
Eating and Drinking Establishments	\$592,360,000	\$5,220,000	\$50,490,000	\$648,070,000
All Other Retail Stores	\$135,640,000	\$1,440,000	\$78,490,000	\$215,570,000
Finance, Insurance and Real Estate	\$0	\$83,920,000	\$264,750,000	\$348,670,000
Services: Hotels and Lodging Places	\$347,410,000	\$6,770,000	\$15,310,000	\$369,490,000
Automobile Rental and Leasing	\$145,120,000	\$5,720,000	\$5,830,000	\$156,670,000
Amusement and Recreation Services, n.e.c.	\$213,810,000	\$50,000	\$8,530,000	\$222,390,000
All Other Service Industries	\$0	\$146,460,000	\$351,570,000	\$498,030,000
Government - State, Local, Federal	\$1,650,000	\$11,020,000	\$210,750,000	\$223,420,000
Total	\$2,038,700,000	\$437,100,000	\$1,516,050,000	\$3,991,850,000

Table E-3, continued (Southeast Florida)
Economic Contribution to Southeast Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$1,070,000	\$2,380,000	\$3,450,000
Commercial Fishing	\$0	\$120,000	\$20,000	\$140,000
Mining	\$0	\$20,000	\$50,000	\$70,000
Construction	\$0	\$8,490,000	\$57,170,000	\$65,660,000
Manufacturing: Food Products	\$0	\$3,500,000	\$2,280,000	\$5,780,000
Textiles	\$0	\$40,000	\$170,000	\$210,000
Apparel and Fabric Products	\$0	\$460,000	\$1,780,000	\$2,240,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$110,000	\$3,310,000	\$3,420,000
Printing, Publishing and Allied Products	\$0	\$5,220,000	\$2,550,000	\$7,770,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$150,000	\$2,820,000	\$2,970,000
Ship Building and Repairing	\$0	\$10,000	\$10,000	\$20,000
Boat Building and Repairing	\$9,220,000	\$50,000	\$20,000	\$9,290,000
All other products	\$0	\$1,470,000	\$12,340,000	\$13,810,000
Transportation: Water Transportation	\$30,430,000	\$2,590,000	\$670,000	\$33,690,000
All Other Transportation	\$0	\$11,150,000	\$12,270,000	\$23,420,000
Communications, Electric, Gas and Sanitary Services	\$0	\$10,340,000	\$13,100,000	\$23,440,000
Wholesale Trade	\$0	\$15,910,000	\$33,070,000	\$48,980,000
Retail Trade: Food Stores	\$85,580,000	\$120,000	\$13,690,000	\$99,390,000
Automotive Dealers and Service Stations	\$115,240,000	\$670,000	\$14,770,000	\$130,680,000
Eating and Drinking Establishments	\$239,100,000	\$2,060,000	\$20,420,000	\$261,580,000
All Other Retail Stores	\$64,900,000	\$690,000	\$37,380,000	\$102,970,000
Finance, Insurance and Real Estate	\$0	\$21,450,000	\$46,120,000	\$67,570,000
Services: Hotels and Lodging Places	\$142,610,000	\$2,760,000	\$6,280,000	\$151,650,000
Automobile Rental and Leasing	\$44,250,000	\$1,740,000	\$1,780,000	\$47,770,000
Amusement and Recreation Services, n.e.c.	\$91,950,000	\$20,000	\$3,680,000	\$95,650,000
All Other Service Industries	\$0	\$76,540,000	\$196,380,000	\$272,920,000
Government - State, Local, Federal	\$390,000	\$5,200,000	\$166,430,000	\$172,020,000
Total	\$823,670,000	\$171,950,000	\$650,940,000	\$1,646,560,000

Table E-3, continued (Southeast Florida)
Economic Contribution to Southeast Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$530,000	\$1,130,000	\$1,660,000
Commercial Fishing	\$0	\$60,000	\$10,000	\$70,000
Mining	\$0	\$20,000	\$50,000	\$70,000
Construction	\$0	\$730,000	\$6,960,000	\$7,690,000
Manufacturing: Food Products	\$0	\$2,600,000	\$1,620,000	\$4,220,000
Textiles	\$0	\$10,000	\$40,000	\$50,000
Apparel and Fabric Products	\$0	\$160,000	\$440,000	\$600,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$30,000	\$810,000	\$840,000
Printing, Publishing and Allied Products	\$0	\$1,760,000	\$870,000	\$2,630,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$130,000	\$2,750,000	\$2,880,000
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$1,320,000	\$10,000	\$0	\$1,330,000
All other products	\$0	\$520,000	\$4,600,000	\$5,120,000
Transportation: Water Transportation	\$11,470,000	\$980,000	\$250,000	\$12,700,000
All Other Transportation	\$0	\$3,040,000	\$3,250,000	\$6,290,000
Communications, Electric, Gas and Sanitary Services	\$0	\$9,330,000	\$17,520,000	\$26,850,000
Wholesale Trade	\$0	\$4,920,000	\$10,230,000	\$15,150,000
Retail Trade: Food Stores	\$22,330,000	\$30,000	\$3,570,000	\$25,930,000
Automotive Dealers and Service Stations	\$38,780,000	\$230,000	\$4,970,000	\$43,980,000
Eating and Drinking Establishments	\$57,370,000	\$490,000	\$4,900,000	\$62,760,000
All Other Retail Stores	\$20,080,000	\$220,000	\$11,930,000	\$32,230,000
Finance, Insurance and Real Estate	\$0	\$29,880,000	\$115,050,000	\$144,930,000
Services: Hotels and Lodging Places	\$54,110,000	\$1,050,000	\$2,380,000	\$57,540,000
Automobile Rental and Leasing	\$40,470,000	\$1,600,000	\$1,620,000	\$43,690,000
Amusement and Recreation Services, n.e.c.	\$33,440,000	\$10,000	\$1,340,000	\$34,790,000
All Other Service Industries	\$0	\$9,460,000	\$20,450,000	\$29,910,000
Government - State, Local, Federal	\$250,000	\$500,000	\$31,650,000	\$32,400,000
Total	\$279,620,000	\$68,300,000	\$248,390,000	\$596,310,000

Table E-3, continued (Southeast Florida)
Economic Contribution to Southeast Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$70,000	\$130,000	\$200,000
Commercial Fishing	\$0	\$10,000	\$0	\$10,000
Mining	\$0	\$0	\$10,000	\$10,000
Construction	\$0	\$60,000	\$1,240,000	\$1,300,000
Manufacturing: Food Products	\$0	\$150,000	\$890,000	\$1,040,000
Textiles	\$0	\$0	\$10,000	\$10,000
Apparel and Fabric Products	\$0	\$10,000	\$40,000	\$50,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$0	\$80,000	\$80,000
Printing, Publishing and Allied Products	\$0	\$170,000	\$90,000	\$260,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$30,000	\$140,000	\$170,000
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$230,000	\$0	\$0	\$230,000
All other products	\$0	\$50,000	\$440,000	\$490,000
Transportation: Water Transportation	\$3,730,000	\$320,000	\$80,000	\$4,130,000
All Other Transportation	\$0	\$610,000	\$930,000	\$1,540,000
Communications, Electric, Gas and Sanitary Services	\$0	\$2,530,000	\$4,290,000	\$6,820,000
Wholesale Trade	\$0	\$5,420,000	\$11,260,000	\$16,680,000
Retail Trade: Food Stores	\$22,990,000	\$30,000	\$3,680,000	\$26,700,000
Automotive Dealers and Service Stations	\$39,930,000	\$230,000	\$5,120,000	\$45,280,000
Eating and Drinking Establishments	\$41,370,000	\$360,000	\$3,530,000	\$45,260,000
All Other Retail Stores	\$20,670,000	\$220,000	\$12,280,000	\$33,170,000
Finance, Insurance and Real Estate	\$0	\$5,810,000	\$22,900,000	\$28,710,000
Services: Hotels and Lodging Places	\$25,310,000	\$490,000	\$1,120,000	\$26,920,000
Automobile Rental and Leasing	\$11,460,000	\$450,000	\$460,000	\$12,370,000
Amusement and Recreation Services, n.e.c.	\$12,140,000	\$0	\$490,000	\$12,630,000
All Other Service Industries	\$0	\$2,470,000	\$4,950,000	\$7,420,000
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$177,830,000	\$19,490,000	\$74,160,000	\$271,480,000

Table E-3, continued (Southeast Florida)
Economic Contribution to Southeast Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Employment, Full and Part time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	0	62	129	192
Commercial Fishing	0	9	1	11
Mining	0	2	3	5
Construction	0	186	1,358	1,544
Manufacturing: Food Products	0	71	51	122
Textiles	0	2	6	7
Apparel and Fabric Products	0	10	55	65
Lumber, Wood Products, Furniture, Paper and Allied Products	0	7	96	103
Printing, Publishing and Allied Products	0	103	51	154
Chemicals, Petroleum, Rubber and Leather Products	0	4	59	64
Ship Building and Repairing	0	0	0	0.14
Boat Building and Repairing	186	1	0	187
All other products	0	28	176	204
Transportation: Water Transportation	696	59	15	770
All Other Transportation	0	282	301	583
Communications, Electric, Gas and Sanitary Services	0	130	167	298
Wholesale Trade	0	303	631	934
Retail Trade: Food Stores	3,901	6	610	4,517
Automotive Dealers and Service Stations	2,842	17	312	3,170
Eating and Drinking Establishments	13,888	120	1,089	15,097
All Other Retail Stores	3,151	32	1,625	4,808
Finance, Insurance and Real Estate	0	508	931	1,439
Services: Hotels and Lodging Places	4,646	90	194	4,929
Automobile Rental and Leasing	1,025	39	39	1,104
Amusement and Recreation Services, n.e.c.	7,741	1	210	7,953
All Other Service Industries	0	2,370	4,941	7,310
Government - State, Local, Federal	7	74	3,151	3,232
Total	38,083	4,514	16,203	58,799

Table E-4 (Florida)
Economic Contribution to Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Output, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$4,840,000	\$11,580,000	\$16,420,000
Commercial Fishing	\$0	\$310,000	\$50,000	\$360,000
Mining	\$0	\$700,000	\$2,000,000	\$2,700,000
Construction	\$0	\$17,110,000	\$222,090,000	\$239,200,000
Manufacturing: Food Products	\$0	\$15,220,000	\$17,350,000	\$32,570,000
Textiles	\$0	\$80,000	\$430,000	\$510,000
Apparel and Fabric Products	\$0	\$1,170,000	\$5,910,000	\$7,080,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$2,680,000	\$11,100,000	\$13,780,000
Printing, Publishing and Allied Products	\$0	\$18,860,000	\$11,750,000	\$30,610,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$1,920,000	\$11,750,000	\$13,670,000
Ship Building and Repairing	\$0	\$40,000	\$60,000	\$100,000
Boat Building and Repairing	\$29,870,000	\$310,000	\$150,000	\$30,330,000
All other products	\$0	\$7,550,000	\$51,560,000	\$59,110,000
Transportation: Water Transportation	\$187,060,000	\$15,690,000	\$4,350,000	\$207,100,000
All Other Transportation	\$0	\$28,940,000	\$37,560,000	\$66,500,000
Communications, Electric, Gas and Sanitary Services	\$0	\$43,730,000	\$70,050,000	\$113,780,000
Wholesale Trade	\$0	\$42,270,000	\$93,460,000	\$135,730,000
Retail Trade: Food Stores	\$154,800,000	\$230,000	\$27,200,000	\$182,230,000
Automotive Dealers and Service Stations	\$285,470,000	\$1,920,000	\$38,770,000	\$326,160,000
Eating and Drinking Establishments	\$646,300,000	\$5,740,000	\$59,460,000	\$711,500,000
All Other Retail Stores	\$145,910,000	\$1,770,000	\$96,340,000	\$244,020,000
Finance, Insurance and Real Estate	\$0	\$97,150,000	\$317,170,000	\$414,320,000
Services: Hotels and Lodging Places	\$400,620,000	\$7,540,000	\$17,880,000	\$426,040,000
Automobile Rental and Leasing	\$161,850,000	\$4,640,000	\$5,720,000	\$172,210,000
Amusement and Recreation Services, n.e.c.	\$235,100,000	\$60,000	\$10,420,000	\$245,580,000
All Other Service Industries	\$0	\$170,860,000	\$427,000,000	\$597,860,000
Government - State, Local, Federal	\$2,210,000	\$14,100,000	\$261,910,000	\$278,220,000
Total	\$2,249,190,000	\$505,430,000	\$1,813,070,000	\$4,567,690,000

Table E-4, continued (Florida)
Economic Contribution to Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Labor Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$2,000,000	\$4,690,000	\$6,690,000
Commercial Fishing	\$0	\$180,000	\$30,000	\$210,000
Mining	\$0	\$80,000	\$270,000	\$350,000
Construction	\$0	\$10,480,000	\$63,580,000	\$74,060,000
Manufacturing: Food Products	\$0	\$3,500,000	\$2,480,000	\$5,980,000
Textiles	\$0	\$40,000	\$170,000	\$210,000
Apparel and Fabric Products	\$0	\$460,000	\$1,780,000	\$2,240,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$580,000	\$3,310,000	\$3,890,000
Printing, Publishing and Allied Products	\$0	\$6,520,000	\$3,890,000	\$10,410,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$310,000	\$2,820,000	\$3,130,000
Ship Building and Repairing	\$0	\$20,000	\$30,000	\$50,000
Boat Building and Repairing	\$9,720,000	\$100,000	\$50,000	\$9,870,000
All other products	\$0	\$1,960,000	\$12,670,000	\$14,630,000
Transportation: Water Transportation	\$33,270,000	\$2,790,000	\$770,000	\$36,830,000
All Other Transportation	\$0	\$12,150,000	\$14,040,000	\$26,190,000
Communications, Electric, Gas and Sanitary Services	\$0	\$11,300,000	\$16,120,000	\$27,420,000
Wholesale Trade	\$0	\$17,700,000	\$39,130,000	\$56,830,000
Retail Trade: Food Stores	\$92,050,000	\$140,000	\$16,170,000	\$108,360,000
Automotive Dealers and Service Stations	\$127,390,000	\$860,000	\$17,300,000	\$145,550,000
Eating and Drinking Establishments	\$256,140,000	\$2,280,000	\$23,570,000	\$281,990,000
All Other Retail Stores	\$69,910,000	\$860,000	\$46,100,000	\$116,870,000
Finance, Insurance and Real Estate	\$0	\$24,620,000	\$56,410,000	\$81,030,000
Services: Hotels and Lodging Places	\$161,110,000	\$3,030,000	\$7,190,000	\$171,330,000
Automobile Rental and Leasing	\$49,350,000	\$1,740,000	\$1,780,000	\$52,870,000
Amusement and Recreation Services, n.e.c.	\$103,490,000	\$30,000	\$4,590,000	\$108,110,000
All Other Service Industries	\$0	\$92,600,000	\$235,060,000	\$327,660,000
Government - State, Local, Federal	\$450,000	\$5,740,000	\$197,540,000	\$203,730,000
Total	\$902,880,000	\$202,070,000	\$771,540,000	\$1,876,490,000

Table E-4, continued (Florida)
Economic Contribution to Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Other Property Type Income, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$790,000	\$1,840,000	\$2,630,000
Commercial Fishing	\$0	\$90,000	\$20,000	\$110,000
Mining	\$0	\$120,000	\$460,000	\$580,000
Construction	\$0	\$900,000	\$7,630,000	\$8,530,000
Manufacturing: Food Products	\$0	\$2,600,000	\$1,690,000	\$4,290,000
Textiles	\$0	\$10,000	\$40,000	\$50,000
Apparel and Fabric Products	\$0	\$160,000	\$440,000	\$600,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$150,000	\$810,000	\$960,000
Printing, Publishing and Allied Products	\$0	\$1,960,000	\$1,240,000	\$3,200,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$300,000	\$2,750,000	\$3,050,000
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$1,380,000	\$10,000	\$10,000	\$1,400,000
All other products	\$0	\$710,000	\$4,600,000	\$5,310,000
Transportation: Water Transportation	\$12,540,000	\$1,050,000	\$290,000	\$13,880,000
All Other Transportation	\$0	\$3,370,000	\$3,800,000	\$7,170,000
Communications, Electric, Gas and Sanitary Services	\$0	\$11,310,000	\$22,600,000	\$33,910,000
Wholesale Trade	\$0	\$5,480,000	\$12,110,000	\$17,590,000
Retail Trade: Food Stores	\$24,020,000	\$40,000	\$4,220,000	\$28,280,000
Automotive Dealers and Service Stations	\$42,870,000	\$290,000	\$5,820,000	\$48,980,000
Eating and Drinking Establishments	\$61,470,000	\$550,000	\$5,660,000	\$67,680,000
All Other Retail Stores	\$21,630,000	\$270,000	\$14,690,000	\$36,590,000
Finance, Insurance and Real Estate	\$0	\$33,180,000	\$135,220,000	\$168,400,000
Services: Hotels and Lodging Places	\$61,140,000	\$1,150,000	\$2,730,000	\$65,020,000
Automobile Rental and Leasing	\$45,140,000	\$1,600,000	\$1,620,000	\$48,360,000
Amusement and Recreation Services, n.e.c.	\$37,640,000	\$10,000	\$1,670,000	\$39,320,000
All Other Service Industries	\$0	\$11,530,000	\$24,140,000	\$35,670,000
Government - State, Local, Federal	\$140,000	\$1,170,000	\$45,710,000	\$47,020,000
Total	\$307,970,000	\$78,800,000	\$301,810,000	\$688,580,000

Table E-4, continued (Florida)
Economic Contribution to Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation, 2004

Industry	Indirect Business Taxes, 2004 Dollars			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	\$0	\$100,000	\$240,000	\$340,000
Commercial Fishing	\$0	\$10,000	\$0	\$10,000
Mining	\$0	\$20,000	\$60,000	\$80,000
Construction	\$0	\$80,000	\$1,320,000	\$1,400,000
Manufacturing: Food Products	\$0	\$150,000	\$590,000	\$740,000
Textiles	\$0	\$0	\$10,000	\$10,000
Apparel and Fabric Products	\$0	\$10,000	\$40,000	\$50,000
Lumber, Wood Products, Furniture, Paper, Allied Products	\$0	\$30,000	\$80,000	\$110,000
Printing, Publishing and Allied Products	\$0	\$210,000	\$130,000	\$340,000
Chemicals, Petroleum, Rubber and Leather Products	\$0	\$30,000	\$140,000	\$170,000
Ship Building and Repairing	\$0	\$0	\$0	\$0
Boat Building and Repairing	\$240,000	\$0	\$0	\$240,000
All other products	\$0	\$60,000	\$430,000	\$490,000
Transportation: Water Transportation	\$4,070,000	\$340,000	\$90,000	\$4,500,000
All Other Transportation	\$0	\$680,000	\$1,070,000	\$1,750,000
Communications, Electric, Gas and Sanitary Services	\$0	\$3,180,000	\$5,650,000	\$8,830,000
Wholesale Trade	\$0	\$6,030,000	\$13,320,000	\$19,350,000
Retail Trade: Food Stores	\$24,730,000	\$40,000	\$4,340,000	\$29,110,000
Automotive Dealers and Service Stations	\$44,140,000	\$300,000	\$5,990,000	\$50,430,000
Eating and Drinking Establishments	\$44,320,000	\$390,000	\$4,080,000	\$48,790,000
All Other Retail Stores	\$22,270,000	\$280,000	\$15,120,000	\$37,670,000
Finance, Insurance and Real Estate	\$0	\$6,630,000	\$26,870,000	\$33,500,000
Services: Hotels and Lodging Places	\$28,600,000	\$540,000	\$1,280,000	\$30,420,000
Automobile Rental and Leasing	\$12,790,000	\$450,000	\$460,000	\$13,700,000
Amusement and Recreation Services, n.e.c.	\$13,670,000	\$0	\$610,000	\$14,280,000
All Other Service Industries	\$0	\$2,870,000	\$5,940,000	\$8,810,000
Government - State, Local, Federal	\$0	\$0	\$0	\$0
Total	\$194,830,000	\$22,430,000	\$87,860,000	\$305,120,000

Table E-4, continued (Florida)
Economic Contribution to Florida of Visitor and Resident Expenditures for Biscayne Bay Related Recreation,
2004

Industry	Employment, Full and Part time Jobs			
	Direct	Indirect	Induced	Total
Agriculture, Forestry, Agricultural Services	0	97	229	327
Commercial Fishing	0	14	2	17
Mining	0	5	11	16
Construction	0	253	1,642	1,896
Manufacturing: Food Products	0	71	64	135
Textiles	0	2	6	7
Apparel and Fabric Products	0	10	55	65
Lumber, Wood Products, Furniture, Pape, Allied Products	0	13	96	109
Printing, Publishing and Allied Products	0	147	87	234
Chemicals, Petroleum, Rubber and Leather Products	0	5	59	64
Ship Building and Repairing	0	0	0.53	0.86
Boat Building and Repairing	233	2	1.15	236
All other products	0	43	225	268
Transportation: Water Transportation	761	64	18	842
All Other Transportation	0	338	384	723
Communications, Electric, Gas and Sanitary Services	0	160	224	385
Wholesale Trade	0	347	766	1,113
Retail Trade: Food Stores	4,220	6	741	4,968
Automotive Dealers and Service Stations	3,124	21	424	3,570
Eating and Drinking Establishments	14,610	130	1,344	16,084
All Other Retail Stores	3,392	38	2,139	5,569
Finance, Insurance and Real Estate	0	658	1,275	1,934
Services: Hotels and Lodging Places	5,635	106	252	5,993
Automobile Rental and Leasing	1,418	39	39	1,497
Amusement and Recreation Services, n.e.c.	5,831	1.27	212	6,044
All Other Service Industries	0	2,584	6,429	9,013
Government - State, Local, Federal	12	88	4,049	4,149
Total	39,236	5,244	20,776	65,256

APPENDIX F

Landings and Value by Species

And

**Itemized Economic Contribution of
Biscayne Bay-Related Commercial
Fishing—Direct, Indirect and Induced**

Table F-1
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1986 to 1996 (a)

SPECIES	1986			1987		
	Pounds	Value per Pound	Value	Pounds	Value per Pound	Value
Fish:						
Red Grouper			\$0			\$0
Nassau Grouper			\$0	14	\$2.75	\$39
Goliath			\$0	708	\$1.55	\$1,097
Black Grouper	1,003	\$1.37	\$1,374	1,048	\$1.90	\$1,991
Gag Grouper			\$0	618	\$2.60	\$1,608
Grouper, Other	7	\$1.75	\$12	510	\$1.75	\$893
Gray Snapper	105	\$1.40	\$147	4	\$1.50	\$6
Mutton Snapper		\$1.84	\$0	91	\$2.03	\$185
Yellowtail Snapper	2,698	\$2.13	\$5,740	3,269	\$2.00	\$6,538
Snapper, Other	31	\$1.45	\$45	17,548	\$1.45	\$25,445
Hogfish		\$1.63	\$0	18	\$1.97	\$35
Grunt Spp.	67	\$0.34	\$23	3,757	\$0.50	\$1,879
Blue Runner	18	\$0.19	\$3		\$0.25	\$0
Crevalle Jack		\$0.18	\$0			\$0
Jack, Other	32	\$1.43	\$46			\$0
Pompano spp.		\$3.92	\$0			\$0
King Mackerel			\$0	55	\$1.20	\$66
Spanish Mackerel	8	\$0.30	\$2		\$0.34	\$0
Cero			\$0			\$0
Flyingfish spp.			\$0			\$0
Cobia			\$0	87	\$1.20	\$105
Great Barracuda			\$0			\$0
Shark spp.			\$0	99	\$0.55	\$54
White Marlin	1,094	\$0.75	\$816		\$1.36	\$0
Triggerfish spp.			\$0	21	\$0.35	\$7
Porgy spp.			\$0			\$0
Spotted Seatrout	50	\$1.20	\$60	2,301	\$1.20	\$2,761
Seatrout, Other	25	\$1.80	\$45	15	\$1.80	\$27
Spot			\$0			\$0
Mullet spp.	21,544	\$0.26	\$5,537	20,965	\$0.28	\$5,885
Mullet Roe	530	\$0.99	\$526	23	\$0.99	\$23
Sardine spp. [STRIPED]			\$0			\$0
Baitfish (herrings, ballyhoo)	1,895	\$0.62	\$1,170	4,548	\$0.62	\$2,832
Misc. Fishes	7,193	\$1.25	\$8,991	10,609	\$1.25	\$13,261
Macroinvertebrates:			\$0			\$0
Blue Crabs	278	\$2.50	\$695	3	\$2.93	\$7
Stone Crabs		\$1.98	\$0	6	\$2.38	\$14
Spiny Lobster	1,536	\$2.69	\$4,131	3,645	\$3.69	\$13,467
Pink Shrimp	1,474	\$3.19	\$4,699	1,257	\$3.19	\$4,007
Misc. Invertebrates			\$0			\$0
Sponges (number of):			\$0			\$0
Grass Sponge			\$0			\$0
Sheepswool Sponge			\$0			\$0
Yellow Sponge			\$0			\$0
Total	39,588		\$34,062	71,219		\$82,232

(a) Source: Ault, Jerald S., et al., October 2001.

Table F-1, continued
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1986 to 1996 (a)

SPECIES	1988			1989		
	Pounds	Value per Pound	Value	Pounds	Value per Pound	Value
Fish:						
Red Grouper			\$0			\$0
Nassau Grouper			\$0			\$0
Goliath			\$0			\$0
Black Grouper	42	\$1.37	\$58		\$1.37	\$0
Gag Grouper	36	\$2.60	\$94	9	\$2.60	\$23
Grouper, Other			\$0			\$0
Gray Snapper	2,197	\$1.65	\$3,622	1,186	\$1.45	\$1,722
Mutton Snapper	22	\$1.99	\$44			\$0
Yellowtail Snapper	1,147	\$2.50	\$2,868	1,433	\$1.85	\$2,657
Snapper, Other	10	\$1.45	\$15			\$0
Hogfish	16	\$1.92	\$31			\$0
Grunt Spp.	866	\$0.38	\$333	59	\$0.58	\$34
Blue Runner	37	\$0.27	\$10		\$0.24	\$0
Crevalle Jack			\$0	5	\$0.23	\$1
Jack, Other	10	\$1.43	\$14	16	\$0.35	\$6
Pompano spp.			\$0			\$0
King Mackerel			\$0			\$0
Spanish Mackerel		\$0.40	\$0		\$0.37	\$0
Cero			\$0			\$0
Flyingfish spp.			\$0			\$0
Cobia			\$0			\$0
Great Barracuda			\$0			\$0
Shark spp.			\$0			\$0
White Marlin			\$0			\$0
Triggerfish spp.			\$0			\$0
Porgy spp.			\$0			\$0
Spotted Seatrout	395	\$1.20	\$474	58	\$1.00	\$58
Seatrout, Other			\$0			\$0
Spot			\$0			\$0
Mullet spp.	26,961	\$0.26	\$6,930	11,555	\$0.31	\$3,629
Mullet Roe			\$0			\$0
Sardine spp. [STRIPED]			\$0			\$0
Baitfish (herrings, ballyhoo)	1,739	\$0.52	\$907			\$0
Misc. Fishes	12,906	\$0.63	\$8,077	11,273	\$0.63	\$7,055
Macroinvertebrates:			\$0			\$0
Blue Crabs			\$0			\$0
Stone Crabs	3	\$2.50	\$8	326	\$2.45	\$798
Spiny Lobster	2,068	\$2.89	\$5,986	2,029	\$3.23	\$6,549
Pink Shrimp	2,286	\$3.19	\$7,288	8,499	\$3.19	\$27,093
Misc. Invertebrates			\$0			\$0
Sponges (number of):			\$0			\$0
Grass Sponge			\$0	11,950	\$0.73	\$8,746
Sheepswool Sponge			\$0	51,813	\$1.23	\$63,972
Yellow Sponge			\$0	12,866	\$1.01	\$12,969
Total	50,741		\$36,756	113,077		\$135,312

(a) Source: Ault, Jerald S., et.al., October 2001.

Table F-1, continued
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1986 to 1996 (a)

SPECIES	1990			1991		
	Pounds	Value per Pound	Value	Pounds	Value per Pound	Value
Fish:						
Red Grouper			\$0			\$0
Nassau Grouper			\$0			\$0
Goliath			\$0			\$0
Black Grouper	32	\$1.37	\$44	15	\$1.37	\$21
Gag Grouper			\$0	17	\$2.58	\$44
Grouper, Other			\$0			\$0
Gray Snapper			\$0	22	\$1.62	\$36
Mutton Snapper	4	\$1.62	\$6			\$0
Yellowtail Snapper	1,859	\$2.17	\$4,041	1,824	\$1.75	\$3,197
Snapper, Other	405	\$1.25	\$506			\$0
Hogfish	152	\$2.01	\$305			\$0
Grunt Spp.	77	\$0.87	\$67			\$0
Blue Runner		\$0.31	\$0		\$0.37	\$0
Crevalle Jack			\$0			\$0
Jack, Other	205	\$1.43	\$292			\$0
Pompano spp.			\$0	2	\$2.96	\$6
King Mackerel			\$0			\$0
Spanish Mackerel		\$0.38	\$0	128	\$0.41	\$53
Cero			\$0			\$0
Flyingfish spp.			\$0	72	\$0.12	\$9
Cobia			\$0			\$0
Great Barracuda			\$0	6	\$0.47	\$3
Shark spp.			\$0			\$0
White Marlin			\$0			\$0
Triggerfish spp.			\$0			\$0
Porgy spp.	6	\$1.50	\$9	108	\$1.32	\$143
Spotted Seatrout			\$0			\$0
Seatrout, Other			\$0			\$0
Spot			\$0			\$0
Mullet spp.	11,765	\$0.29	\$3,424	16,625	\$0.22	\$3,621
Mullet Roe			\$0			\$0
Sardine spp. [STRIPED]			\$0			\$0
Baitfish (herrings, ballyhoo)			\$0	194	\$0.41	\$79
Misc. Fishes	7,358	\$0.63	\$4,605	592	\$0.50	\$296
Macroinvertebrates:			\$0			\$0
Blue Crabs	72	\$2.52	\$181	1,051	\$3.35	\$3,525
Stone Crabs	895	\$2.57	\$2,299	108	\$2.23	\$241
Spiny Lobster	4,572	\$3.49	\$15,955	8,615	\$3.98	\$34,296
Pink Shrimp	17,773	\$3.50	\$62,206	29,458	\$4.00	\$117,832
Misc. Invertebrates			\$0			\$0
Sponges (number of):			\$0			\$0
Grass Sponge	6,190	\$0.73	\$4,530	2,435	\$0.73	\$1,782
Sheepswool Sponge	42,531	\$1.23	\$52,512	20,241	\$1.23	\$24,991
Yellow Sponge	4,295	\$1.01	\$4,329	1,802	\$1.01	\$1,816
Total	98,191		\$155,311	83,315		\$191,990

(a) Source: Ault, Jerald S., et.al., October 2001.

Table F-1, continued
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1986 to 1996 (a)

SPECIES	1992			1993		
	Pounds	Value per Pound	Value	Pounds	Value per Pound	Value
Fish:						
Red Grouper	5	\$1.71	\$9			\$0
Nassau Grouper			\$0			\$0
Goliath			\$0			\$0
Black Grouper		\$1.37	\$0		\$1.37	\$0
Gag Grouper			\$0			\$0
Grouper, Other			\$0			\$0
Gray Snapper	131	\$1.55	\$203	3	\$2.04	\$6
Mutton Snapper			\$0			\$0
Yellowtail Snapper	2,507	\$2.52	\$6,316	2,214	\$2.37	\$5,242
Snapper, Other	167	\$1.25	\$209			\$0
Hogfish			\$0			\$0
Grunt Spp.	100	\$0.60	\$60	11	\$0.73	\$8
Blue Runner		\$0.35	\$0		\$0.41	\$0
Crevalle Jack	200	\$0.31	\$62			\$0
Jack, Other			\$0			\$0
Pompano spp.	71	\$2.98	\$211			\$0
King Mackerel			\$0			\$0
Spanish Mackerel		\$0.40	\$0	95	\$0.40	\$38
Cero	521	\$1.45	\$756			\$0
Flyingfish spp.	924	\$0.12	\$111	155	\$0.12	\$19
Cobia			\$0			\$0
Great Barracuda			\$0	322	\$1.00	\$322
Shark spp.			\$0			\$0
White Marlin			\$0			\$0
Triggerfish spp.			\$0			\$0
Porgy spp.			\$0			\$0
Spotted Seatrout			\$0			\$0
Seatrout, Other			\$0			\$0
Spot			\$0			\$0
Mullet spp.	11,375	\$0.58	\$6,636	15,445	\$0.57	\$8,761
Mullet Roe			\$0	1,683	\$0.99	\$1,669
Sardine spp. [STRIPED]			\$0			\$0
Baitfish (herrings, ballyhoo)			\$0	460	\$0.47	\$215
Misc. Fishes	3,443	\$0.50	\$1,722	344	\$0.54	\$185
Macroinvertebrates:			\$0			\$0
Blue Crabs	9,725	\$5.47	\$53,173	36,041	\$4.68	\$168,633
Stone Crabs	167	\$2.74	\$458	419	\$1.54	\$645
Spiny Lobster	7,379	\$3.98	\$29,376	3,716	\$3.62	\$13,468
Pink Shrimp	37,045	\$1.00	\$37,045	33,655	\$1.00	\$33,655
Misc. Invertebrates			\$0			\$0
Sponges (number of):			\$0			\$0
Grass Sponge	59	\$0.73	\$43		\$0.73	\$0
Sheepswool Sponge	279	\$1.23	\$344		\$1.23	\$0
Yellow Sponge	47	\$1.01	\$47		\$1.01	\$0
Total	74,145		\$136,780	94,563		\$232,866

(a) Source: Ault, Jerald S., et al., October 2001.

Table F-1, continued
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1986 to 1996 (a)

SPECIES	1994			1995		
	Pounds	Value per Pound	Value	Pounds	Value per Pound	Value
Fish:						
Red Grouper			\$0			\$0
Nassau Grouper			\$0			\$0
Goliath			\$0			\$0
Black Grouper		\$1.37	\$0		\$1.37	\$0
Gag Grouper			\$0			\$0
Grouper, Other			\$0			\$0
Gray Snapper	30	\$2.11	\$63			\$0
Mutton Snapper			\$0	255	\$2.44	\$621
Yellowtail Snapper	571	\$2.41	\$1,377	479	\$2.41	\$1,153
Snapper, Other			\$0			\$0
Hogfish			\$0			\$0
Grunt Spp.	7	\$0.72	\$5	176	\$0.71	\$125
Blue Runner		\$0.42	\$0	1,364	\$0.66	\$897
Crevalle Jack			\$0	1,195	\$0.80	\$955
Jack, Other			\$0			\$0
Pompano spp.	84	\$3.51	\$295	270	\$3.65	\$986
King Mackerel			\$0			\$0
Spanish Mackerel		\$0.45	\$0	602	\$0.47	\$284
Cero			\$0	2	\$1.50	\$3
Flyingfish spp.	22	\$0.12	\$3			\$0
Cobia			\$0			\$0
Great Barracuda			\$0			\$0
Shark spp.			\$0			\$0
White Marlin			\$0			\$0
Triggerfish spp.			\$0			\$0
Porgy spp.			\$0			\$0
Spotted Seatrout			\$0			\$0
Seatrout, Other			\$0			\$0
Spot			\$0			\$0
Mullet spp.	1,419	\$0.68	\$969	5,460	\$0.87	\$4,729
Mullet Roe	923	\$1.14	\$1,048	886	\$1.25	\$1,108
Sardine spp. [STRIPED]	1,642	\$0.16	\$261			\$0
Baitfish (herrings, ballyhoo)	3,648	\$0.79	\$2,884	312	\$0.32	\$99
Misc. Fishes	2,430	\$0.76	\$1,851	186	\$0.55	\$103
Macroinvertebrates:			\$0			\$0
Blue Crabs	23,777	\$2.47	\$58,782	41,352	\$3.13	\$129,634
Stone Crabs	1,889	\$2.00	\$3,776	1,778	\$3.17	\$5,634
Spiny Lobster	1,946	\$4.38	\$8,523	20,192	\$4.52	\$91,234
Pink Shrimp	58,525	\$1.60	\$93,395	72,849	\$2.03	\$147,698
Misc. Invertebrates			\$0	150	\$0.55	\$83
Sponges (number of):			\$0			\$0
Grass Sponge			\$0			\$0
Sheepswool Sponge			\$0			\$0
Yellow Sponge			\$0			\$0
Total	96,913		\$173,230	147,508		\$385,346

(a) Source: Ault, Jerald S., et.al., October 2001.

Table F-1, continued
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1986 to 1996 (a)

SPECIES	1996		
	Pounds	Value per Pound	Value
Fish:			
Red Grouper			\$0
Nassau Grouper			\$0
Goliath			\$0
Black Grouper	30	\$1.37	\$41
Gag Grouper			\$0
Grouper, Other			\$0
Gray Snapper	1,123	\$2.03	\$2,274
Mutton Snapper	407	\$2.29	\$930
Yellowtail Snapper	2,190	\$2.37	\$5,189
Snapper, Other			\$0
Hogfish			\$0
Grunt Spp.	327	\$0.80	\$263
Blue Runner	530	\$0.79	\$416
Crevalle Jack	6	\$0.97	\$6
Jack, Other			\$0
Pompano spp.	129	\$3.76	\$485
King Mackerel			\$0
Spanish Mackerel	100	\$0.51	\$51
Cero	16	\$1.40	\$22
Flyingfish spp.			\$0
Cobia	10	\$2.11	\$21
Great Barracuda			\$0
Shark spp.			\$0
White Marlin			\$0
Triggerfish spp.			\$0
Porgy spp.			\$0
Spotted Seatrout			\$0
Seatrout, Other			\$0
Spot	1,687	\$0.64	\$1,080
Mullet spp.	19,081	\$0.83	\$15,884
Mullet Roe	1,193	\$1.10	\$1,312
Sardine spp. [STRIPED]	4,563	\$0.18	\$802
Baitfish (herrings, ballyhoo)	5,002	\$0.33	\$1,671
Misc. Fishes			\$0
Macroinvertebrates:			\$0
Blue Crabs	73,836	\$5.90	\$435,598
Stone Crabs	5,881	\$3.53	\$20,733
Spiny Lobster	18,150	\$3.92	\$71,123
Pink Shrimp	135,028	\$3.87	\$522,867
Misc. Invertebrates			\$0
Sponges (number of):			\$0
Grass Sponge			\$0
Sheepswool Sponge			\$0
Yellow Sponge			\$0
Total	269,289		\$1,080,769

(a) Source: Ault, Jerald S., et.al., October 2001.

Table F-2
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1997 to 2002 (a)

Species	1997		1998		1999	
	Landings	Value	Landings	Value	Landings	Value
Groupers, Snappers, Grunts						
Red Grouper	31	\$65				
Black Grouper	118	\$200				
Gag Grouper	45	\$95				
Rock Hind			83	\$25		
Gray Snapper	101	\$209	4	\$9	65	\$135
Mutton Snapper	306	\$558				
Yellowtail Snapper	116	\$250	895	\$1,681	28	\$63
Grunt spp.	2,169	\$1,951	501	\$422	217	\$251
Other Fishes						
Blue Runner	1,435	\$1,132	2,598	\$2,838	33	\$28
Crevalle Jack	18	\$18	70	\$70		
King and Cero Mackerel					437	\$672
Spanish Mackerel			491	\$636		
Flyingfish spp.			1,036	\$134		
Great Barracuda			208	\$416		
Shark spp.			104	\$75		
Parrotfish spp.	30	\$45				
Pinfish	113	\$776	212	\$1,647	145	\$1,155
Sheepshead	36	\$45				
Spotted Seatrout	30	\$60				
Seatrout, Other			200	\$140		
Flounder spp.	15	\$9				
Spot	821	\$698				
Mullet spp.	24,830	\$20,754	20,120	\$19,643	26,118	\$27,241
Sardine spp.	3,673	\$2,401	220	\$165		
Misc. Fishes	410	\$185	3,156	\$1,988	4,674	\$3,734
Macroinvertebrates						
Blue Crabs	89,135	\$123,414	77,451	\$105,690	117,858	\$147,393
Stone Crabs	28,382	\$45,245	19,244	\$75,499	12,628	\$55,422
Spiny Lobster	14,953	\$69,031	4,107	\$18,329	4,465	\$19,307
Pink Shrimp	412,775	\$1,225,735	412,265	\$1,135,457	612,489	\$1,343,564
Sponges (b)						
Grass Sponge			93,274	\$68,266	87,056	\$60,550
Sheepswool Sponge			7,828	\$9,665	3,036	\$6,603
Yellow Sponge			16,532	\$16,664	18,267	\$15,262
TOTALS	579,542	\$1,492,876	660,599	\$1,459,459	887,516	\$1,681,380

(a) Source: Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute, Marine Fisheries Trip Ticket System obtained from Doug Harper, Fisheries Biologist, NOAA, Southeast Fisheries Science Center, Miami.

(b) Landings for Sponges are reported in numbers (not pounds).

Table F-2, continued
Commercial Landings (lbs) and Value (nominal \$) by Species Reported for the Area
Encompassing Biscayne Bay, Card Sound, and Barnes Sound for 1997 to 2002 (a)

Species	2000		2001		2002	
	Landings	Value	Landings	Value	Landings	Value
Groupers, Snappers, Grunts						
Red Grouper			64	\$135	10	\$21
Black Grouper	9,148	\$11,076	83	\$210		
Gag Grouper						
Rock Hind						
Gray Snapper	12	\$20	432	\$812		
Mutton Snapper			28	\$65		
Yellowtail Snapper	160	\$346	1,060	\$2,291	1,031	\$1,732
Grunt spp.	234	\$196	115	\$108	111	\$104
Other Fishes						
Blue Runner	655	\$936	354	\$305	606	\$849
Crevalle Jack			226	\$220		
King and Cero Mackerel	87	\$84				
Spanish Mackerel			96	\$96		
Flyingfish spp.						
Great Barracuda						
Shark spp.						
Parrotfish spp.						
Pinfish	137	\$1,688	116	\$1,173	6	\$28
Sheepshead						
Spotted Seatrout						
Seatrout, Other						
Flounder spp.	464	\$572	264	\$264		
Spot						
Mullet spp.	23,078	\$17,793	13,542	\$13,481	7,675	\$7,604
Sardine spp.	3,355	\$4,888	490	\$2,626	135	\$358
Misc. Fishes	11,696	\$24,161	8,466	\$36,057	7,060	\$30,560
Macroinvertebrates						
Blue Crabs	190,500	\$232,235	127,756	\$174,439	73,777	\$105,637
Stone Crabs	21,407	\$110,243	11,092	\$42,253	16,251	\$68,784
Spiny Lobster	12,773	\$65,347	14,348	\$75,011	32,931	\$160,592
Pink Shrimp	761,682	\$1,689,353	557,577	\$1,498,964	611,935	\$1,596,015
Sponges (b)						
Grass Sponge	88,011	\$60,076	49,082	\$36,700	6,338	\$5,459
Sheepswool Sponge	7,571	\$13,525	2,159	\$4,055	1,065	\$2,168
Yellow Sponge	23,615	\$22,135	9,336	\$10,060	3,066	\$3,588
TOTALS	1,154,585	\$2,254,674	796,686	\$1,899,325	761,997	\$1,983,499

(a) Source: Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute, Marine Fisheries Trip Ticket System obtained from Doug Harper, Fisheries Biologist, NOAA, Southeast Fisheries Science Center, Miami.

(b) Landings for Sponges are reported in numbers (not pounds).

Table F-3
Units and Exvessel Value of Species Dependent on Biscayne Bay and Landed
in Miami-Dade County, 2002
(Units are in pounds unless indicated, Values are in nominal \$)

SPECIES	UNITS	VALUE
BALLYHOO	300	\$75
BALLYHOO (NUMBER)	1,034,685	\$109,029
BARRACUDA	1,504	\$1,007
GOGGLE-EYE (BIGEYE SCAD, NUMBERS)	9,212	\$33,787
GROUPE, BLACK (CARBERITA)	7,520	\$20,046
GROUPE, GAG	1,684	\$4,947
GROUPE, MIXED	70	\$209
GROUPE, RED	8,050	\$20,336
GRUNTS	19,826	\$18,108
HOG SNAPPER (HOGFISH)	2,189	\$6,055
JACK, ALMACO	3,673	\$3,816
JACK, CREVALLE (LARGE)	7,443	\$14,729
JACK, MIXED	1,952	\$2,490
JACK, OTHER	818	\$750
JACK, YELLOW	475	\$496
MULLET, BLACK (LISA)	1,117	\$1,223
MULLET, FINGERLING (NUMBERS)	1,452	\$713
MULLET, SILVER	8,105	\$6,806
PARROTFISH	3,902	\$7,805
SNAPPER, BLACKFIN (HAMBONE)	44	\$111
SNAPPER, CUBERA	31	\$61
SNAPPER, DOG	16	\$19
SNAPPER, LANE	2,447	\$5,851
SNAPPER, MANGROVE (GREY)	21,101	\$45,056
SNAPPER, MIXED	103	\$287
SNAPPER, MUTTON	13,780	\$36,043
SNAPPER, OTHER	72	\$94
SNAPPER, QUEEN (BALLBAT)	171	\$402
SNAPPER, RED	988	\$2,155
SNAPPER, SCHOOLMASTER	5	\$17
SNAPPER, SILK (YELLOWWEYE)	4,786	\$13,207
SNAPPER, VERMILLION (B-LINER)	586	\$1,454
SNAPPER, YELLOWTAIL	72,540	\$173,216
WHITE SNAPPER (PORGY)	326	\$522
LOBSTER, SPINY (TAILS)	657	\$9,231
LOBSTER, SPINY (WHOLE)	239,388	\$1,120,407
Marine Life (number of unless indicated):		
LIVE ROCK, ALGAE (POUNDS)	3	\$30
ANGEL, BLACK	606	\$5,653
ANGEL, BLUE	639	\$5,770
ANGEL, FRENCH	475	\$8,942
ANGEL, PYGMY	372	\$1,775
ANGEL, QUEEN	340	\$6,322

Table F-3
Units and Exvessel Value of Species Dependent on Biscayne Bay and Landed
in Miami-Dade County, 2002
(Units are in pounds unless indicated, Values are in nominal \$)

SPECIES	UNITS	VALUE
ANGEL, ROCK BEAUTY	2,248	\$9,883
BASS, CHALK	90	\$215
BASS, HARLEQUIN	90	\$141
BASS, LANTERN	26	\$63
BASS, OTHER	35	\$515
BASS, SWISSGUARD	1	\$25
BASS, TOBACCO	76	\$247
BATFISH, OTHER	2	\$6
BLENNY, OTHER	78	\$89
BLENNY, SADDLED	19	\$29
BLENNY, SAILFIN	577	\$1,445
BUTTERFLY, BANDED	10	\$27
BUTTERFLY, FOUREYE	166	\$545
BUTTERFLY, LONGNOSE	49	\$367
BUTTERFLY, REEF	78	\$194
BUTTERFLY, SPOTFIN	12	\$33
CARDINAL, FLAME	326	\$601
CLINGFISH	12	\$18
COWFISH, HONEYCOMB	28	\$80
DAMSEL, BEAU GREGORY	600	\$1,532
DAMSEL, BICOLOR	12	\$11
DAMSEL, BLUE REEF	791	\$1,176
DAMSEL, JEWEL	30	\$110
DAMSEL, ORANGE	1	\$2
DAMSEL, OTHER	8	\$4
DAMSEL, PURPLE REEF	237	\$350
DAMSEL, SERGEANT MAJOR	55	\$62
DAMSEL, SUNSHINE	102	\$155
DRUM, HIGH HAT	540	\$775
DRUM, JACKKNIFE	11	\$42
DRUM, SPOTTED	1	\$5
EEL, GOLDTAIL MORAY	16	\$240
EEL, GREEN MORAY	2	\$65
EEL, MORAY, OTHER	2	\$45
EEL, SPOTTED MORAY	14	\$93
FILEFISH, GREEN	17	\$52
FILEFISH, WHITESPOT	36	\$433
FLOUNDER	1	\$2
GOATFISH, OTHER	27	\$90
GOBY, NEON	573	\$1,010
GOBY, OTHER	16	\$27
GOBY, YELLOWLINE	20	\$30
GROUPEL, CONEY	59	\$318
GRUNT, COTTONWICK	3	\$5

Table F-3
Units and Exvessel Value of Species Dependent on Biscayne Bay and Landed
in Miami-Dade County, 2002
(Units are in pounds unless indicated, Values are in nominal \$)

SPECIES	UNITS	VALUE
GRUNT, FRENCH	7	\$7
GRUNT, OTHER	11	\$17
GRUNT, PORKFISH	739	\$1,587
HAMLET, BLACK	25	\$89
HAMLET, BLUE	393	\$1,197
HAMLET, BUTTER	144	\$306
HAMLET, INDIGO	6	\$30
HAMLET, SHY	18	\$145
HAWKFISH, RED SPOTTED	4	\$4
HOG, CUBAN	549	\$5,695
HOG, ROOSTER	878	\$6,196
JAWFISH, DUSKY	4	\$11
JAWFISH, YELLOWHEAD	1,310	\$3,109
NON-NATIVE SPECIES (CULTURED)	1,990	\$12,625
PARROT, BLUE	21	\$130
PARROT, OTHER	83	\$447
PARROT, PAINTED	68	\$501
PORCUPINE FISH	24	\$99
PUFFER, SHARPNOSE	226	\$403
PUFFER, SPINY BOX	2	\$5
RAY, OTHER	64	\$321
REMORA, OTHER	6	\$36
SCORPION FISH, OTHER	1	\$5
SCORPION FISH, REEF	12	\$29
SEAHORSE, DWARF	9,600	\$14,288
SEAHORSE, PIPEFISH	367	\$1,285
SHARK, NURSE	1	\$15
SHARK, OTHER	9	\$55
SKATE	32	\$160
SOLDIERFISH, BLACKBAR	9	\$41
SQUIRRELFISH, COMMON	89	\$667
SQUIRRELFISH, GLASSEYE	1	\$5
STINGRAY, OTHER	2	\$11
STINGRAY, YELLOW	130	\$1,838
TANG, BLUE	837	\$4,011
TANG, DOCTOR FISH	44	\$155
TANG, SURGEON	74	\$204
TILEFISH, SAND	13	\$102
TRIGGER, BLACK	3	\$45
TRIGGER, OTHER	9	\$9
TRIGGER, QUEEN	6	\$87
TRIPLETAIL	1	\$5
WRASSE, BLUEHEAD	3,057	\$5,602
WRASSE, CREOLE	632	\$955

Table F-3
Units and Exvessel Value of Species Dependent on Biscayne Bay and Landed
in Miami-Dade County, 2002
(Units are in pounds unless indicated, Values are in nominal \$)

SPECIES	UNITS	VALUE
WRASSE, NEON	133	\$327
WRASSE, OTHER	220	\$1,041
WRASSE, PUDDINGWIFE	28	\$81
ANEMONE, CARPET	4	\$6
ANEMONE, CURLIQUE	6,044	\$3,660
ANEMONE, GIANT CARIBBEAN	12,184	\$9,043
ANEMONE, OTHER	660	\$702
ANEMONE, ROCK	5,322	\$3,759
CORAL, MUSHROOM (CORALLAMORPHS)	3,245	\$3,396
CRAB, ARROW	312	\$202
CRAB, BLUE-LEGGED HERMIT	210,120	\$20,422
CRAB, CALICO	25	\$48
CRAB, CORAL SPIDER	1,558	\$779
CRAB, DECORATOR	979	\$545
CRAB, GREEN REEF (EMERALD; CLINGING)	18,068	\$9,022
CRAB, HERMIT	9,176	\$3,606
CRAB, HORSESHOE	6,276	\$5,254
CRAB, LIGHTFOOT	216	\$248
CRAB, OTHER	13,132	\$4,048
CRAB, PORCELAIN	110	\$76
CRAB, REDLEG HERMIT	3,119	\$553
GORGONIAN, OTHER	2,507	\$2,896
GORGONIAN, PURPLE	858	\$1,918
GORGONIAN, RED	402	\$805
LOBSTER, ROCK	4	\$10
LOBSTER, SHOVELNOSE	10	\$31
NUDIBRANCH, FANCY	211	\$220
NUDIBRANCH, FL REGAL DORIS	50	\$25
NUDIBRANCH, OTHER	3,854	\$1,947
OCTOPUS, COMMON	78	\$383
OCTOPUS, WHITE-SPOTTED	10	\$50
OTHER INVERTEBRATES	29	\$41
OYSTER, SPINY	49	\$239
SCALLOP, FLAME	4,492	\$2,613
SCALLOP, WHITE	6	\$3
SEA BISCUIT	17	\$9
SEA CUCUMBER	4,394	\$2,030
SEA CUCUMBER, OTHER	30	\$14
SEA MAT	1,485	\$2,228
SEA STAR, OTHER	16	\$40
SHRIMP, ANEMONE	65	\$195
SHRIMP, BANDED CORAL	103	\$146
SHRIMP, MANTIS	3	\$3
SHRIMP, OTHER	30	\$60

Table F-3
Units and Exvessel Value of Species Dependent on Biscayne Bay and Landed
in Miami-Dade County, 2002
(Units are in pounds unless indicated, Values are in nominal \$)

SPECIES	UNITS	VALUE
SHRIMP, PEPPERMINT	10,200	\$10,110
SHRIMP, PISTOL	17	\$17
SHRIMP, SCARLET CLEANER	2	\$8
SNAIL, COWRIE	262	\$162
SNAIL, FLAMINGO	54	\$32
SNAIL, HORSE CONCH	124	\$149
SNAIL, MUREX	17	\$9
SNAIL, OTHER	7,302	\$1,143
SNAIL, TOP	13,585	\$2,237
SNAIL, TULIP	2,093	\$295
SNAIL, TURBONELLA	180,219	\$24,253
SPONGE, OTHER	198	\$358
SPONGE, RED BALL	962	\$1,607
SPONGE, RED TREE	2,124	\$4,554
STARFISH, BASKET	86	\$195
STARFISH, BRITTLE	3,618	\$1,808
STARFISH, COMMON	444	\$253
STARFISH, RED SERPENT	20	\$56
STARFISH, SERPENT	2,621	\$1,468
TUNICATES, SEA SQUIRTS	8	\$8
URCHIN, PENCIL	486	\$234
URCHIN, PINCUSHION	2,338	\$1,179
URCHIN, ROCK	2,216	\$1,079
PLANT, BRUSH	1,092	\$248
PLANT, CAULERPA	117	\$1,263
PLANT, HALIMEDA	93	\$14
PLANT, OTHER	1,673	\$626
Shrimp:		
SHRIMP, BAIT (NUMBER)	33,266,802	\$1,304,457
SHRIMP, BAIT (POUNDS)	64,660	\$76,981
SHRIMP, OTHER (HEADS ON)	23,983	\$22,858
SHRIMP, PINK (HEADS OFF)	353	\$406
SHRIMP, PINK (HEADS ON)	271,288	\$282,978
SHRIMP, WHITE (HEADS ON)	166	\$498
TOTAL VALUE		\$3,596,992

Source: Rick Beaver, Fisheries and Wildlife Biologist, Florida Marine Research Institute, Florida Fish and Wildlife Conservation Commission, December 2003. Exvessel value data for Monroe County from National Marine Fisheries Service website.

Table F-4
Economic Contribution to Miami-Dade County of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Labor Income			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$3,328,000	\$738,000	\$2,796,000	\$6,862,000
1986	\$11,578,847	\$4,918,000	\$1,091,000	\$4,131,000	\$10,140,000
1987	\$17,467,080	\$7,419,000	\$1,646,000	\$6,232,000	\$15,297,000
1988	\$15,499,672	\$6,583,000	\$1,460,000	\$5,530,000	\$13,573,000
1989	\$12,324,815	\$5,235,000	\$1,161,000	\$4,398,000	\$10,794,000
1990	\$14,811,627	\$6,291,000	\$1,396,000	\$5,285,000	\$12,972,000
1991	\$20,270,381	\$8,610,000	\$1,910,000	\$7,233,000	\$17,753,000
1992	\$15,623,264	\$6,636,000	\$1,472,000	\$5,575,000	\$13,683,000
1993	\$29,159,117	\$12,385,000	\$2,747,000	\$10,404,000	\$25,536,000
1994	\$19,718,713	\$8,375,000	\$1,858,000	\$7,036,000	\$17,269,000
1995	\$18,207,195	\$7,733,000	\$1,715,000	\$6,497,000	\$15,945,000
1996	\$16,780,711	\$7,127,000	\$1,581,000	\$5,988,000	\$14,696,000
1997	\$16,477,893	\$6,999,000	\$1,553,000	\$5,879,000	\$14,431,000
1998	\$15,737,655	\$7,434,000	\$1,084,000	\$6,636,000	\$15,154,000
1999	\$17,626,231	\$8,326,000	\$1,214,000	\$7,432,000	\$16,972,000
2000	\$16,500,362	\$7,794,000	\$1,136,000	\$6,957,000	\$15,887,000
2001	\$13,243,376	\$6,256,000	\$912,000	\$5,584,000	\$12,752,000
2002	\$13,168,260	\$6,220,000	\$907,000	\$5,552,000	\$12,679,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-4
Economic Contribution to Miami-Dade County of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Other Property Type Income			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$978,000	\$330,000	\$1,095,000	\$2,403,000
1986	\$11,578,847	\$1,445,000	\$487,000	\$1,619,000	\$3,551,000
1987	\$17,467,080	\$2,180,000	\$735,000	\$2,442,000	\$5,357,000
1988	\$15,499,672	\$1,935,000	\$652,000	\$2,167,000	\$4,754,000
1989	\$12,324,815	\$1,538,000	\$518,000	\$1,723,000	\$3,779,000
1990	\$14,811,627	\$1,849,000	\$623,000	\$2,070,000	\$4,542,000
1991	\$20,270,381	\$2,530,000	\$852,000	\$2,834,000	\$6,216,000
1992	\$15,623,264	\$1,950,000	\$657,000	\$2,184,000	\$4,791,000
1993	\$29,159,117	\$3,640,000	\$1,226,000	\$4,076,000	\$8,942,000
1994	\$19,718,713	\$2,461,000	\$829,000	\$2,756,000	\$6,046,000
1995	\$18,207,195	\$2,273,000	\$766,000	\$2,545,000	\$5,584,000
1996	\$16,780,711	\$2,095,000	\$706,000	\$2,346,000	\$5,147,000
1997	\$16,477,893	\$2,057,000	\$693,000	\$2,303,000	\$5,053,000
1998	\$15,737,655	\$2,731,000	\$424,000	\$2,493,000	\$5,648,000
1999	\$17,626,231	\$3,058,000	\$474,000	\$2,792,000	\$6,324,000
2000	\$16,500,362	\$2,863,000	\$444,000	\$2,613,000	\$5,920,000
2001	\$13,243,376	\$2,298,000	\$356,000	\$2,098,000	\$4,752,000
2002	\$13,168,260	\$2,285,000	\$354,000	\$2,086,000	\$4,725,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-4
Economic Contribution to Miami-Dade County of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Indirect Business Taxes			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$630,000	\$126,000	\$373,000	\$1,129,000
1986	\$11,578,847	\$931,000	\$186,000	\$551,000	\$1,668,000
1987	\$17,467,080	\$1,404,000	\$280,000	\$831,000	\$2,515,000
1988	\$15,499,672	\$1,246,000	\$249,000	\$737,000	\$2,232,000
1989	\$12,324,815	\$991,000	\$198,000	\$586,000	\$1,775,000
1990	\$14,811,627	\$1,191,000	\$238,000	\$705,000	\$2,134,000
1991	\$20,270,381	\$1,630,000	\$325,000	\$964,000	\$2,919,000
1992	\$15,623,264	\$1,256,000	\$251,000	\$743,000	\$2,250,000
1993	\$29,159,117	\$2,344,000	\$468,000	\$1,387,000	\$4,199,000
1994	\$19,718,713	\$1,585,000	\$317,000	\$938,000	\$2,840,000
1995	\$18,207,195	\$1,464,000	\$292,000	\$866,000	\$2,622,000
1996	\$16,780,711	\$1,349,000	\$269,000	\$798,000	\$2,416,000
1997	\$16,477,893	\$1,325,000	\$265,000	\$784,000	\$2,374,000
1998	\$15,737,655	\$1,342,000	\$128,000	\$726,000	\$2,196,000
1999	\$17,626,231	\$1,503,000	\$143,000	\$813,000	\$2,459,000
2000	\$16,500,362	\$1,407,000	\$134,000	\$761,000	\$2,302,000
2001	\$13,243,376	\$1,130,000	\$107,000	\$611,000	\$1,848,000
2002	\$13,168,260	\$1,123,000	\$107,000	\$607,000	\$1,837,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-4
Economic Contribution to Miami-Dade County of Biscayne Bay-Related
Commercial Fishing by Type of Contribution

Year	Total Sales Value	Employment			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	177.7	19.6	76.4	273.8
1986	\$11,578,847	262.6	29.0	112.9	404.5
1987	\$17,467,080	396.2	43.8	170.3	610.3
1988	\$15,499,672	351.6	38.8	151.1	541.5
1989	\$12,324,815	279.6	30.9	120.1	430.6
1990	\$14,811,627	336.0	37.1	144.4	517.5
1991	\$20,270,381	459.8	50.8	197.6	708.2
1992	\$15,623,264	354.4	39.2	152.3	545.8
1993	\$29,159,117	661.4	73.1	284.2	1018.8
1994	\$19,718,713	447.3	49.4	192.2	688.9
1995	\$18,207,195	413.0	45.6	177.5	636.1
1996	\$16,780,711	380.6	42.1	163.6	586.3
1997	\$16,477,893	373.8	41.3	160.6	575.7
1998	\$15,737,655	357.5	27.7	175.1	560.3
1999	\$17,626,231	400.4	31.1	196.1	627.5
2000	\$16,500,362	374.8	29.1	183.6	587.4
2001	\$13,243,376	300.8	23.3	147.3	471.5
2002	\$13,168,260	299.1	23.2	146.5	468.8

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-4
Economic Contribution to Miami-Dade County of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Output			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$7,836,000	\$2,076,000	\$6,510,000	\$16,422,000
1986	\$11,578,847	\$11,579,000	\$3,067,000	\$9,620,000	\$24,266,000
1987	\$17,467,080	\$17,467,000	\$4,627,000	\$14,512,000	\$36,606,000
1988	\$15,499,672	\$15,500,000	\$4,106,000	\$12,878,000	\$32,484,000
1989	\$12,324,815	\$12,325,000	\$3,265,000	\$10,240,000	\$25,830,000
1990	\$14,811,627	\$14,812,000	\$3,924,000	\$12,306,000	\$31,042,000
1991	\$20,270,381	\$20,270,000	\$5,370,000	\$16,841,000	\$42,481,000
1992	\$15,623,264	\$15,623,000	\$4,139,000	\$12,980,000	\$32,742,000
1993	\$29,159,117	\$29,159,000	\$7,725,000	\$24,226,000	\$61,110,000
1994	\$19,718,713	\$19,719,000	\$5,224,000	\$16,383,000	\$41,326,000
1995	\$18,207,195	\$18,207,000	\$4,823,000	\$15,127,000	\$38,157,000
1996	\$16,780,711	\$16,781,000	\$4,445,000	\$13,942,000	\$35,168,000
1997	\$16,477,893	\$16,478,000	\$4,365,000	\$13,690,000	\$34,533,000
1998	\$15,737,655	\$15,741,000	\$2,786,000	\$15,338,000	\$33,865,000
1999	\$17,626,231	\$17,630,000	\$3,120,000	\$17,179,000	\$37,929,000
2000	\$16,500,362	\$16,504,000	\$2,921,000	\$16,082,000	\$35,507,000
2001	\$13,243,376	\$13,246,000	\$2,344,000	\$12,907,000	\$28,497,000
2002	\$13,168,260	\$13,171,000	\$2,331,000	\$12,834,000	\$28,336,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-5
Economic Contribution to Southeast Florida of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Labor Income			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$3,328,000	\$793,000	\$3,039,000	\$7,160,000
1986	\$11,578,847	\$4,918,000	\$1,172,000	\$4,490,000	\$10,580,000
1987	\$17,467,080	\$7,419,000	\$1,768,000	\$6,773,000	\$15,960,000
1988	\$15,499,672	\$6,583,000	\$1,569,000	\$6,011,000	\$14,163,000
1989	\$12,324,815	\$5,235,000	\$1,247,000	\$4,779,000	\$11,261,000
1990	\$14,811,627	\$6,291,000	\$1,499,000	\$5,744,000	\$13,534,000
1991	\$20,270,381	\$8,610,000	\$2,052,000	\$7,861,000	\$18,523,000
1992	\$15,623,264	\$6,636,000	\$1,581,000	\$6,058,000	\$14,275,000
1993	\$29,159,117	\$12,385,000	\$2,951,000	\$11,307,000	\$26,643,000
1994	\$19,718,713	\$8,375,000	\$1,996,000	\$7,647,000	\$18,018,000
1995	\$18,207,195	\$7,733,000	\$1,843,000	\$7,060,000	\$16,636,000
1996	\$16,780,711	\$7,127,000	\$1,698,000	\$6,507,000	\$15,332,000
1997	\$16,477,893	\$6,999,000	\$1,668,000	\$6,390,000	\$15,057,000
1998	\$15,737,655	\$7,434,000	\$1,183,000	\$7,204,000	\$15,821,000
1999	\$17,626,231	\$8,326,000	\$1,325,000	\$8,068,000	\$17,719,000
2000	\$16,500,362	\$7,794,000	\$1,240,000	\$7,553,000	\$16,587,000
2001	\$13,243,376	\$6,256,000	\$995,000	\$6,062,000	\$13,313,000
2002	\$13,168,260	\$6,220,000	\$990,000	\$6,027,000	\$13,237,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-5
Economic Contribution to Southeast Florida of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Other Property Type Income			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$978,000	\$339,000	\$1,230,000	\$2,547,000
1986	\$11,578,847	\$1,445,000	\$501,000	\$1,817,000	\$3,763,000
1987	\$17,467,080	\$2,180,000	\$755,000	\$2,741,000	\$5,676,000
1988	\$15,499,672	\$1,935,000	\$670,000	\$2,433,000	\$5,038,000
1989	\$12,324,815	\$1,538,000	\$533,000	\$1,934,000	\$4,005,000
1990	\$14,811,627	\$1,849,000	\$641,000	\$2,325,000	\$4,815,000
1991	\$20,270,381	\$2,530,000	\$877,000	\$3,181,000	\$6,588,000
1992	\$15,623,264	\$1,950,000	\$676,000	\$2,452,000	\$5,078,000
1993	\$29,159,117	\$3,640,000	\$1,261,000	\$4,576,000	\$9,477,000
1994	\$19,718,713	\$2,461,000	\$853,000	\$3,095,000	\$6,409,000
1995	\$18,207,195	\$2,273,000	\$787,000	\$2,858,000	\$5,918,000
1996	\$16,780,711	\$2,095,000	\$726,000	\$2,634,000	\$5,455,000
1997	\$16,477,893	\$2,057,000	\$713,000	\$2,586,000	\$5,356,000
1998	\$15,737,655	\$2,731,000	\$451,000	\$2,790,000	\$5,972,000
1999	\$17,626,231	\$3,058,000	\$505,000	\$3,125,000	\$6,688,000
2000	\$16,500,362	\$2,863,000	\$473,000	\$2,925,000	\$6,261,000
2001	\$13,243,376	\$2,298,000	\$379,000	\$2,348,000	\$5,025,000
2002	\$13,168,260	\$2,285,000	\$377,000	\$2,335,000	\$4,997,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-5
Economic Contribution to Southeast Florida of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Indirect Business Taxes			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$630,000	\$126,000	\$413,000	\$1,169,000
1986	\$11,578,847	\$931,000	\$187,000	\$611,000	\$1,729,000
1987	\$17,467,080	\$1,404,000	\$282,000	\$922,000	\$2,608,000
1988	\$15,499,672	\$1,246,000	\$250,000	\$818,000	\$2,314,000
1989	\$12,324,815	\$991,000	\$199,000	\$650,000	\$1,840,000
1990	\$14,811,627	\$1,191,000	\$239,000	\$782,000	\$2,212,000
1991	\$20,270,381	\$1,630,000	\$327,000	\$1,070,000	\$3,027,000
1992	\$15,623,264	\$1,256,000	\$252,000	\$824,000	\$2,332,000
1993	\$29,159,117	\$2,344,000	\$471,000	\$1,539,000	\$4,354,000
1994	\$19,718,713	\$1,585,000	\$318,000	\$1,040,000	\$2,943,000
1995	\$18,207,195	\$1,464,000	\$294,000	\$961,000	\$2,719,000
1996	\$16,780,711	\$1,349,000	\$271,000	\$885,000	\$2,505,000
1997	\$16,477,893	\$1,325,000	\$266,000	\$869,000	\$2,460,000
1998	\$15,737,655	\$1,342,000	\$139,000	\$854,000	\$2,335,000
1999	\$17,626,231	\$1,503,000	\$155,000	\$957,000	\$2,615,000
2000	\$16,500,362	\$1,407,000	\$145,000	\$895,000	\$2,447,000
2001	\$13,243,376	\$1,130,000	\$117,000	\$719,000	\$1,966,000
2002	\$13,168,260	\$1,123,000	\$116,000	\$715,000	\$1,954,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-5
Economic Contribution to Southeast Florida of Biscayne Bay-Related
Commercial Fishing by Type of Contribution

Year	Total Sales Value	Employment			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	178	21	84	283
1986	\$11,578,847	263	31	125	418
1987	\$17,467,080	396	46	188	631
1988	\$15,499,672	352	41	167	560
1989	\$12,324,815	280	33	133	445
1990	\$14,811,627	336	39	159	535
1991	\$20,270,381	460	54	218	732
1992	\$15,623,264	354	42	168	564
1993	\$29,159,117	661	78	314	1,053
1994	\$19,718,713	447	52	212	712
1995	\$18,207,195	413	48	196	657
1996	\$16,780,711	381	45	181	606
1997	\$16,477,893	374	44	177	595
1998	\$15,737,655	357	28	180	565
1999	\$17,626,231	400	31	202	633
2000	\$16,500,362	375	29	189	593
2001	\$13,243,376	301	23	152	476
2002	\$13,168,260	299	23	151	473

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-5
Economic Contribution to Southeast Florida of Biscayne Bay-Related
Commercial Fishing by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Output			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$7,836,000	\$2,192,000	\$7,162,000	\$17,190,000
1986	\$11,578,847	\$11,579,000	\$3,238,000	\$10,583,000	\$25,400,000
1987	\$17,467,080	\$17,467,000	\$4,885,000	\$15,964,000	\$38,316,000
1988	\$15,499,672	\$15,500,000	\$4,335,000	\$14,166,000	\$34,001,000
1989	\$12,324,815	\$12,325,000	\$3,447,000	\$11,264,000	\$27,036,000
1990	\$14,811,627	\$14,812,000	\$4,143,000	\$13,537,000	\$32,492,000
1991	\$20,270,381	\$20,270,000	\$5,669,000	\$18,526,000	\$44,465,000
1992	\$15,623,264	\$15,623,000	\$4,370,000	\$14,279,000	\$34,272,000
1993	\$29,159,117	\$29,159,000	\$8,155,000	\$26,650,000	\$63,964,000
1994	\$19,718,713	\$19,719,000	\$5,515,000	\$18,022,000	\$43,256,000
1995	\$18,207,195	\$18,207,000	\$5,092,000	\$16,641,000	\$39,940,000
1996	\$16,780,711	\$16,781,000	\$4,693,000	\$15,337,000	\$36,811,000
1997	\$16,477,893	\$16,478,000	\$4,609,000	\$15,060,000	\$36,147,000
1998	\$15,737,655	\$15,741,000	\$2,950,000	\$16,995,000	\$35,686,000
1999	\$17,626,231	\$17,630,000	\$3,304,000	\$19,034,000	\$39,968,000
2000	\$16,500,362	\$16,504,000	\$3,093,000	\$17,818,000	\$37,415,000
2001	\$13,243,376	\$13,246,000	\$2,482,000	\$14,301,000	\$30,029,000
2002	\$13,168,260	\$13,171,000	\$2,468,000	\$14,220,000	\$29,859,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-6
Economic Contribution to Florida of Biscayne Bay-Related Commercial Fishing
by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Labor Income			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$3,328,000	\$824,000	\$3,168,000	\$7,320,000
1986	\$11,578,847	\$4,918,000	\$1,218,000	\$4,681,000	\$10,817,000
1987	\$17,467,080	\$7,419,000	\$1,837,000	\$7,062,000	\$16,318,000
1988	\$15,499,672	\$6,583,000	\$1,630,000	\$6,267,000	\$14,480,000
1989	\$12,324,815	\$5,235,000	\$1,296,000	\$4,983,000	\$11,514,000
1990	\$14,811,627	\$6,291,000	\$1,558,000	\$5,989,000	\$13,838,000
1991	\$20,270,381	\$8,610,000	\$2,132,000	\$8,196,000	\$18,938,000
1992	\$15,623,264	\$6,636,000	\$1,643,000	\$6,317,000	\$14,596,000
1993	\$29,159,117	\$12,385,000	\$3,067,000	\$11,789,000	\$27,241,000
1994	\$19,718,713	\$8,375,000	\$2,074,000	\$7,973,000	\$18,422,000
1995	\$18,207,195	\$7,733,000	\$1,915,000	\$7,361,000	\$17,009,000
1996	\$16,780,711	\$7,127,000	\$1,765,000	\$6,785,000	\$15,677,000
1997	\$16,477,893	\$6,999,000	\$1,733,000	\$6,662,000	\$15,394,000
1998	\$15,737,655	\$7,434,000	\$1,223,000	\$7,755,000	\$16,412,000
1999	\$17,626,231	\$8,326,000	\$1,369,000	\$8,686,000	\$18,381,000
2000	\$16,500,362	\$7,794,000	\$1,282,000	\$8,131,000	\$17,207,000
2001	\$13,243,376	\$6,256,000	\$1,029,000	\$6,526,000	\$13,811,000
2002	\$13,168,260	\$6,220,000	\$1,023,000	\$6,489,000	\$13,732,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-6
Economic Contribution to Florida of Biscayne Bay-Related Commercial Fishing
by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Other Property Type Income			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$978,000	\$355,000	\$1,241,000	\$2,574,000
1986	\$11,578,847	\$1,445,000	\$524,000	\$1,833,000	\$3,802,000
1987	\$17,467,080	\$2,180,000	\$790,000	\$2,765,000	\$5,735,000
1988	\$15,499,672	\$1,935,000	\$701,000	\$2,454,000	\$5,090,000
1989	\$12,324,815	\$1,538,000	\$558,000	\$1,951,000	\$4,047,000
1990	\$14,811,627	\$1,849,000	\$670,000	\$2,345,000	\$4,864,000
1991	\$20,270,381	\$2,530,000	\$917,000	\$3,209,000	\$6,656,000
1992	\$15,623,264	\$1,950,000	\$707,000	\$2,473,000	\$5,130,000
1993	\$29,159,117	\$3,640,000	\$1,319,000	\$4,616,000	\$9,575,000
1994	\$19,718,713	\$2,461,000	\$892,000	\$3,122,000	\$6,475,000
1995	\$18,207,195	\$2,273,000	\$824,000	\$2,883,000	\$5,980,000
1996	\$16,780,711	\$2,095,000	\$759,000	\$2,657,000	\$5,511,000
1997	\$16,477,893	\$2,057,000	\$745,000	\$2,609,000	\$5,411,000
1998	\$15,737,655	\$2,731,000	\$472,000	\$3,043,000	\$6,246,000
1999	\$17,626,231	\$3,058,000	\$529,000	\$3,408,000	\$6,995,000
2000	\$16,500,362	\$2,863,000	\$495,000	\$3,190,000	\$6,548,000
2001	\$13,243,376	\$2,298,000	\$397,000	\$2,560,000	\$5,255,000
2002	\$13,168,260	\$2,285,000	\$395,000	\$2,546,000	\$5,226,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-6
Economic Contribution to Florida of Biscayne Bay-Related Commercial Fishing
by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Indirect Business Taxes			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$630,000	\$138,000	\$432,000	\$1,200,000
1986	\$11,578,847	\$931,000	\$204,000	\$638,000	\$1,773,000
1987	\$17,467,080	\$1,404,000	\$308,000	\$962,000	\$2,674,000
1988	\$15,499,672	\$1,246,000	\$273,000	\$854,000	\$2,373,000
1989	\$12,324,815	\$991,000	\$217,000	\$679,000	\$1,887,000
1990	\$14,811,627	\$1,191,000	\$261,000	\$816,000	\$2,268,000
1991	\$20,270,381	\$1,630,000	\$357,000	\$1,117,000	\$3,104,000
1992	\$15,623,264	\$1,256,000	\$276,000	\$861,000	\$2,393,000
1993	\$29,159,117	\$2,344,000	\$514,000	\$1,607,000	\$4,465,000
1994	\$19,718,713	\$1,585,000	\$348,000	\$1,086,000	\$3,019,000
1995	\$18,207,195	\$1,464,000	\$321,000	\$1,003,000	\$2,788,000
1996	\$16,780,711	\$1,349,000	\$296,000	\$925,000	\$2,570,000
1997	\$16,477,893	\$1,325,000	\$291,000	\$908,000	\$2,524,000
1998	\$15,737,655	\$1,342,000	\$145,000	\$892,000	\$2,379,000
1999	\$17,626,231	\$1,503,000	\$162,000	\$999,000	\$2,664,000
2000	\$16,500,362	\$1,407,000	\$152,000	\$935,000	\$2,494,000
2001	\$13,243,376	\$1,130,000	\$122,000	\$751,000	\$2,003,000
2002	\$13,168,260	\$1,123,000	\$121,000	\$747,000	\$1,991,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-6
Economic Contribution to Florida of Biscayne Bay-Related Commercial Fishing
by Type of Contribution

Year	Total Sales Value	Employment			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	178	23	94	294
1986	\$11,578,847	263	34	138	435
1987	\$17,467,080	396	51	209	656
1988	\$15,499,672	352	46	185	582
1989	\$12,324,815	280	36	147	463
1990	\$14,811,627	336	44	177	557
1991	\$20,270,381	460	60	242	762
1992	\$15,623,264	354	46	187	587
1993	\$29,159,117	661	86	348	1,096
1994	\$19,718,713	447	58	236	741
1995	\$18,207,195	413	54	217	684
1996	\$16,780,711	381	49	200	630
1997	\$16,477,893	374	49	197	619
1998	\$15,737,655	358	30	209	597
1999	\$17,626,231	400	34	234	669
2000	\$16,500,362	375	32	219	626
2001	\$13,243,376	301	26	176	503
2002	\$13,168,260	299	26	175	500

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

Table F-6
Economic Contribution to Florida of Biscayne Bay-Related Commercial Fishing
by Type of Contribution, 2004 Dollars

Year	Total Sales Value	Output			
		Direct	Indirect	Induced	Total
1985	\$7,835,902	\$7,836,000	\$2,366,000	\$7,409,000	\$17,611,000
1986	\$11,578,847	\$11,579,000	\$3,496,000	\$10,948,000	\$26,023,000
1987	\$17,467,080	\$17,467,000	\$5,273,000	\$16,515,000	\$39,255,000
1988	\$15,499,672	\$15,500,000	\$4,679,000	\$14,655,000	\$34,834,000
1989	\$12,324,815	\$12,325,000	\$3,721,000	\$11,653,000	\$27,699,000
1990	\$14,811,627	\$14,812,000	\$4,472,000	\$14,004,000	\$33,288,000
1991	\$20,270,381	\$20,270,000	\$6,120,000	\$19,165,000	\$45,555,000
1992	\$15,623,264	\$15,623,000	\$4,717,000	\$14,772,000	\$35,112,000
1993	\$29,159,117	\$29,159,000	\$8,803,000	\$27,569,000	\$65,531,000
1994	\$19,718,713	\$19,719,000	\$5,953,000	\$18,644,000	\$44,316,000
1995	\$18,207,195	\$18,207,000	\$5,497,000	\$17,215,000	\$40,919,000
1996	\$16,780,711	\$16,781,000	\$5,066,000	\$15,866,000	\$37,713,000
1997	\$16,477,893	\$16,478,000	\$4,975,000	\$15,580,000	\$37,033,000
1998	\$15,737,655	\$15,741,000	\$3,129,000	\$18,320,000	\$37,190,000
1999	\$17,626,231	\$17,630,000	\$3,504,000	\$20,519,000	\$41,653,000
2000	\$16,500,362	\$16,504,000	\$3,280,000	\$19,208,000	\$38,992,000
2001	\$13,243,376	\$13,246,000	\$2,633,000	\$15,417,000	\$31,296,000
2002	\$13,168,260	\$13,171,000	\$2,618,000	\$15,329,000	\$31,118,000

(a) All values are in 2004 dollars except for employment which is no. of full and part time jobs.

