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Economic Impact of Florida's Commercial Fisheries and Aquaculture Industries¹

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Introduction

Florida's commercial fisheries and aquaculture operations focus on the production of a variety of aquatic species, including shrimp, grouper, mullet, spiny lobster, and hard clams. The fisheries and aquaculture sectors are part of a complex and integrated network of natural resource enterprises associated with the production, transportation, and processing of aquatic products. As these products progress through different market channels, value is added from labor, capital, and management, which significantly impacts the economy. Rapid urbanization in Florida has left consumers and political leaders with a limited understanding of the seafood and aquatic products industries and the issues surrounding fisheries management. This document is intended to facilitate a better understanding of these industries by reviewing their historical economic trends and evaluating the economic impacts associated with these industries. The sector will be divided into the commercial fisheries and aquaculture industries because the latter has increased in economic importance in Florida.

Industries impact an economy in three primary ways. First, as direct effects, industries generate output and value-added and provide employment and wages to employees. Second, as indirect effects, the purchase of goods and services such as inputs from other industries supports additional economic activity in these industries. Third, as induced effects, earnings by indirect and direct industry employees boost the local economy through their personal consumption expenditures. The total economic impact is the sum of the direct, indirect, and induced effects. Since exported goods introduce new money to the region (defined in this report as the state of Florida), commodity sales outside Florida are associated with greater economic impacts than

sales to Florida customers. Also, inputs obtained from Florida firms rather than imported from outside the state are associated with greater economic impacts because money is retained and circulated within Florida.

Methodology

Economic impacts of the fisheries industries in Florida were estimated with economic multipliers developed using the *IMPLAN PROTM* (*IMPLAN*) software and associated databases for Florida (MIG, Inc., Stillwater, MN). The *IMPLAN* system enables construction of regional input-output models for any county, group of counties, or state(s) in the United States based on a combination of county-level and national economic data. Industries are classified as 528 sectors corresponding to the US Department of Commerce's four-digit Standard Industrial Classification (SIC) System. Multipliers are available from *IMPLAN* for the economic indicators of output, value added, employment, employee compensation, labor income, other proprietary income, and indirect business taxes. Furthermore multipliers are provided for direct, indirect, and induced effects. Multipliers for employment, output, value added, and labor income are computed in this document to estimate the economic impacts of Florida's commercial fisheries and aquaculture industries. Multipliers for output, value-added, and labor income represent dollars-per-dollar of sales to final demand, and the employment multiplier represents jobs-per-million- dollars of sales to final demand.

Total economic impacts were computed by applying the economic multipliers as follows:

Total impact =

$$Y * M_{D(\text{Output, VA, Emp, Labor Income})}$$

$$+ E * M_{I(\text{Output, VA, Emp, Labor Income})}$$

$$+ E * M_{IN(\text{Output, VA, Emp, Labor Income})}$$

where

E is export sales (all sales outside of Florida)

Y is value of output

$$M_{D(\text{Output, VA, Emp, Labor Income})}$$

is the direct effects multiplier for employment, output, value added, and labor income

$$M_{I(\text{Output, VA, Emp, Labor Income})}$$

is the indirect effects multiplier for employment, output, value added, and labor income

$$M_{IN(\text{Output, VA, Emp, Labor Income})}$$

is the induced effects multiplier for employment, output, value added, and labor income.

The base information on output and exports for each industry and the multipliers were provided by the *IMPLAN* system for 1998 (most recent available).

In addition to supplying information on the economic impacts on Florida, this document also reviews historical economic information on the value and volume of seafood products and number of vessel registrations. Statistics were obtained from the US Department of Agriculture, Marine Research Institute, and Florida Agricultural Statistics Service. [Any data discrepancies between the IMPLAN database and other secondary data sources featured in this document are primarily due to differences in industry classifications and accounting measures.]

Commercial Seafood Products

The warm waters of the Atlantic Ocean and Gulf of Mexico host productive fisheries for a wide variety of shellfish and finfish. The value of Florida commercial fisheries landings was about \$215 million in 1999. Commercial value grew rapidly during the mid-1980s and early 1990s, but has leveled off in recent years ([Figure 1](#)). The volume of fishery catch in Florida declined by one-third during this time, to 120.9 million pounds in 1999. This decline in landings is largely attributed to more stringent regulatory action targeting commercial fishing activities in Florida. As an indication of the commercial fishing fleet capacity, Florida had about 8,500 craft registered in 1999. The number of commercial craft peaked during the mid-1990s and has since declined.

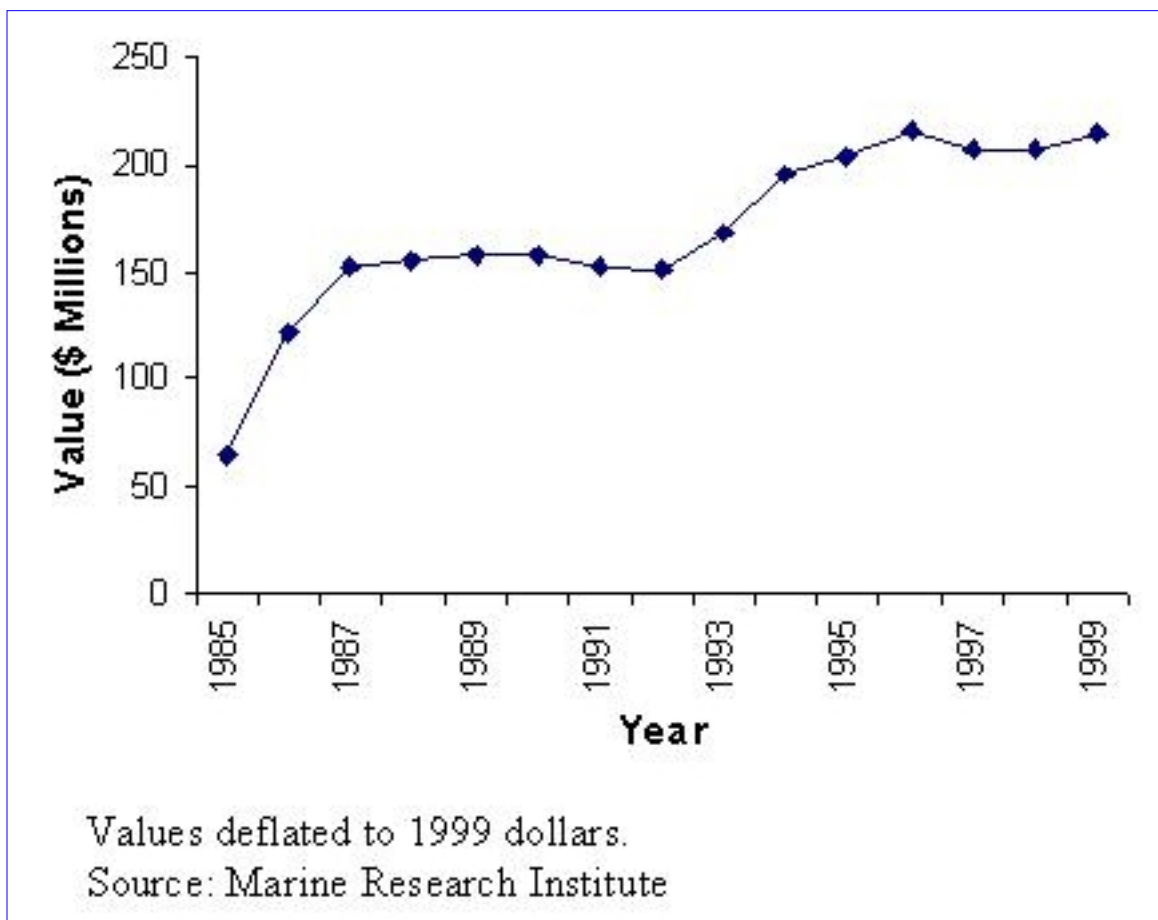


Figure 1. Value of Florida commercial fisheries landings, 1985-99.

Aquaculture

Aquaculture is a rapidly developing industry in Florida. As demand exceeds what commercial fisheries can produce, it is expected that cultured seafood products will become more important. Florida aquaculture products include tropical fish, alligators, oysters and clams, catfish, and aquatic plants. The value of Florida aquaculture products reached \$86 million in 1999 ([Figure 2](#)). Tropical fish were the highest valued aquaculture commodity, accounting for over half of total sales. Clams were the second highest valued aquaculture product (18.6 percent), followed by aquatic plants (15.9 percent) and other shellfish (7.5 percent). The latter products more than doubled in value during 1989-97. Oysters and clams also demonstrated impressive value gains, growing at an average bi-annual rate of 70 percent. Employment in the Florida aquaculture industry increased nearly four-fold between 1987 and 1999, to over 1,700 employees.

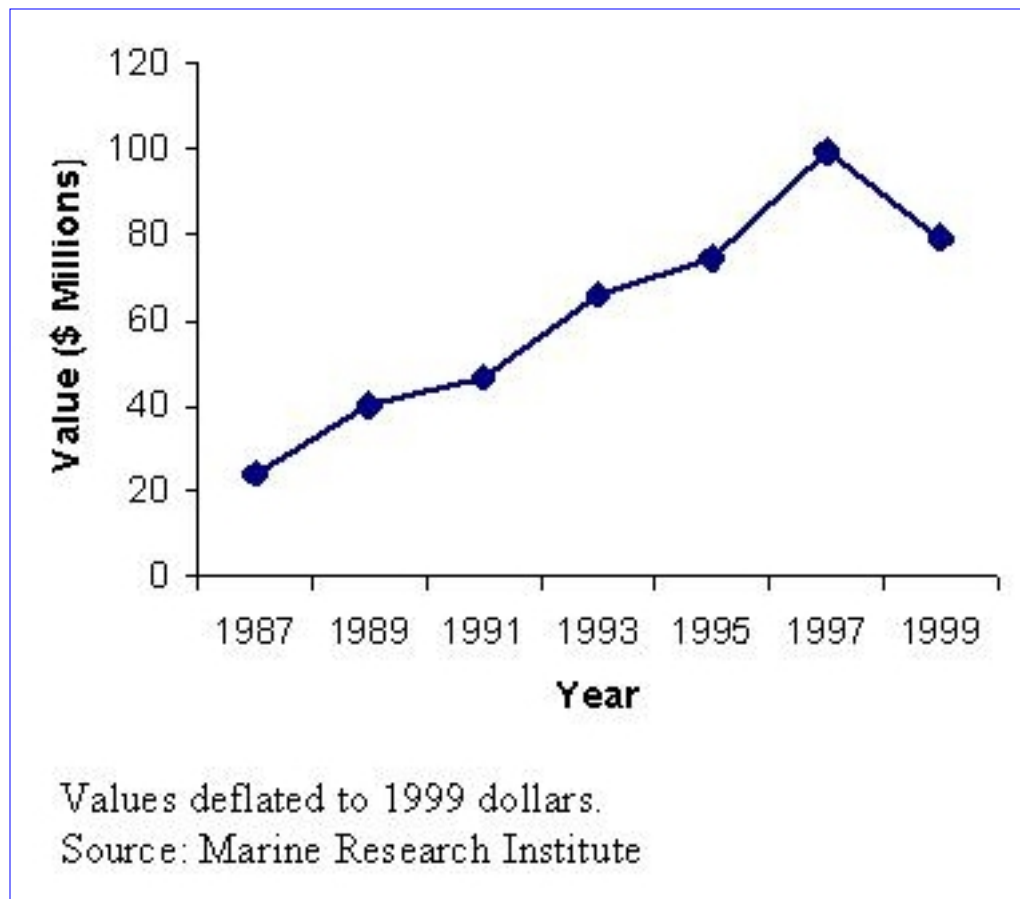


Figure 2. Value of Florida aquaculture products, 1987-99.

The seafood processing industry employed 2,329 persons and shipped \$523 million worth of processed seafood products in 1999 (Annual Survey of Manufactures). International exports of fish from Florida ports generally increased in value during 1994-98, to \$41 million. Europe is the top export destination of fish products from Florida (32 percent), followed by the Caribbean (21 percent) and Asia (15 percent) (Bureau of the Census, US Exports History).

The total economic impacts of the Florida seafood products industry included \$1.2 billion in output, \$664 million in value added, 17,857 jobs, and \$393 million in labor income, as summarized in [Table 1](#).

Tables

Table 1. Economic impacts of Florida's seafood products industry, 1998.

	Direct Impacts*				Total Impacts*			
	<i>Employment</i> (jobs)	<i>Industry Output</i> (m\$)	<i>Value Added</i> (m\$)	<i>Labor Income</i> (m\$)	<i>Employment</i> (jobs)	<i>Industry Output</i> (m\$)	<i>Value Added</i> (m\$)	<i>Labor Income</i> (m\$)
Commercial Fishing	7,780	278.9	253.1	86.4	9,495	440.0	342.0	173.2
Canned and Cured Seafoods	245	29.2	10.8	9.1	632	55.3	29.4	20.6
Prepared Fresh or Frozen Fish or Seafood	2,634	401.8	86.7	71.6	7,730	709.2	292.2	199.4
Total	10,659	709.9	350.6	167.0	17,857	1,204.5	663.6	393.3
*Impacts estimated using economic multipliers for direct, indirect, and induced effects.								
Source: Minnesota IMPLAN Group, 2001.								

Footnotes

1. This is EDIS document FE 280, a publication of the Department of Food and Resource Economics, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. Published June 2001. [This is an excerpt of "Economic Impacts of Florida's Agricultural and Natural Resource Industries." Economic Information Report EI-00-4, Department of Food and Resource Economics, University of Florida, 2000, [www.fred.ifas.ufl.edu/impact.](http://www.fred.ifas.ufl.edu/impact/)] Please visit the EDIS website at <http://edis.ifas.ufl.edu>.

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