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The Economic Contribution of the Sport Fishing, Commercial Fishing, and Seafood Industries to New York State

New York has a diverse economy with concentrations of employment in many industries including the sport fishing, commercial fishing, and seafood industries. This report presents the results of a study to estimate the contribution of these three industries to the state's economy, an estimate that had previously been unknown. The study was sponsored by New York Sea Grant and conducted in consultation with an Advisory Committee of stakeholders from industry and government.

Economic contribution is expressed in terms of dollar value (in 1999 dollars) and employment. Employment contributions have two parts – jobs in the industries themselves and full-time equivalent jobs created as an impact of the economic activity within the three industries. The two employment impacts are not additive because one is measured in jobs and the other in full-time equivalent jobs (i.e., a job for each 2000 hours of employment regardless of how many people work those hours). The dollar value of economic contribution is also expressed in two ways—first, the value of activity in the industry itself, and then the impact of this activity on total output (i.e., the sales of goods and services by New York businesses).

The economic contribution of the sport fishing, commercial fishing, and seafood industries are presented below. First, the overall contribution of the three industries combined is presented and then each individual industry.

It is useful to note that, although the three industries are presented collectively here, comparisons across these three industries are difficult. Sport fishing is an industry with customers who are final consumers of these recreational services and goods. As a result, the impacts made by anglers are the final contribution to the economy. By contrast, commercial fishing, like farming, is the beginning of a chain of value-added events each of which contribute to the economy. Almost all fish landed by commercial fishers are sold to seafood industry establishments which process, distribute, prepare, or sell at retail the fish or seafood harvested by commercial fishers. The seafood industry is a mix of establishments, all buying fish and seafood from other businesses. Some seafood industry establishments like restaurants and retail markets sell directly to final consumers, but many others sell their products to other seafood industry establishments. Each time one seafood establishment sells its products to another seafood establishment (rather than a final consumer), there is another opportunity to add value and to increase the industry's overall contribution to the economy.

Given the close ties between the commercial fishing and seafood industries, these industries can be seen as one integrated industry. In response to the original charge for this study, this report presents them as separate industries.

The estimates of economic contribution were made using an econometric model. Basic expenditures for each industry were the drivers for these estimates, which were made using inputs from the IMPLAN input/output model.

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Summary



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Overall Economic Contribution of the Sport Fishing, Commercial Fishing, and Seafood Industries to New York State

The overall economic contribution of the sport fishing, commercial fishing, and seafood industries to New York State is estimated at \$11.5 billion. The contribution of the activity within the three industries themselves is estimated at \$5.7 billion. This activity in turn creates an economic impact on sales of goods and services by New York businesses worth \$5.9 billion. The overall contribution of the three industries by dollar value of activity is summarized below.

Contribution of the Fishing and Seafood Industries to New York Economy, Dollar Value of Activity (millions of 1999 dollars)

	Expenditures, Revenues, Value Added in Sector <i>(millions of 1999 dollars)</i>	Impacts on Sales of Goods and Services <i>(millions of 1999 dollars)</i>	Total Economic Contribution <i>(million of 1999 dollars)</i>
Sport Fishing	\$1,912.6	\$1,688.9	\$3,601.5
Commercial Fishing	77.9	73.6	149.6
Seafood Industry	3,672.0	4,117.9	7,789.9
Total Contribution of the Fishing and Seafood Industries	\$5,662.5	\$5,880.4	\$11,541.0

Sources: U.S. Fish and Wildlife Service, 1997; NMFS, 2000c; Great Lakes Fishery Commission, 2000; USDA, 2000; Appendix C; and estimates by TechLaw.

The employment contribution of the three industries includes 113,300 jobs in the industries themselves and an additional 64,600 full-time equivalent jobs created as an impact of the economic activity within the three industries. As noted above, these two estimates are not directly comparable as the 113,300 industry jobs include a mix of full-time, part-time, and seasonal jobs while each of the 64,600 full-time equivalent jobs is equal to one full-time, year round job. This contribution is summarized in the following table:

Contribution of Fishing and Seafood Industries to New York Economy, Employment

Industry	Employment in Sector <i>(thousands of jobs)</i>	Total Employment Impacts <i>(thousands of FTE jobs)</i>
Sport Fishing	17.1	19.0
Commercial Fishing	10.5	0.8
Seafood Industry	85.7	44.8
Total Fishing and Seafood Industries	113.3	64.6

FTE – full-time equivalent

Sources: U.S. DOC, BOC, 2000b; NYS DEC, 2000a; Gall, 1999; analysis of loan applications to the New York State Department of Economic Development, Long Island Fisheries Assistance Program; Weinberg, 2001; Sasanow, 2001; and estimates by TechLaw.

Overall Economic Contribution of the SPORT FISHING INDUSTRY to New York State

The overall economic contribution of the sport fishing industry to New York State is estimated at \$3.6 billion in 1996, the latest year for which comprehensive data are available. The contribution of the activity within the industry is estimated at \$1.9 billion. This activity in turn creates an economic impact on sales of goods and services by New York businesses worth \$1.7 billion. The overall contribution of the sport fishing industry by dollar value of activity is summarized below first by geographic area (i.e., either marine¹ or freshwater²) and then by type of expenditure.

Contribution of Sport Fishing Industry to NY Economy, Dollar Value of Activity (millions of 1999 dollars)

Sport Fishing Segment	Value of Expenditures	Impact on Sales of Goods and Services	Total Contribution
Sport Fishing by Area			
Marine	\$708.7	\$625.8	\$1,334.5
Freshwater	1,203.9	1,063.1	2,267.0
• Total Sport Fishing	\$1,912.6	\$1,688.9	\$3,601.5
Sport Fishing by Type of Expenditure			
Sport Fishing Expenditures	\$541.1	\$452.5	\$993.6
Head and Charter Boat Fees	56.0	57.3	113.3
Marina Fees	52.5	90.9	143.3
Bait	42.5	28.6	71.1
Fishing Rods, Reels, Tackle	239.7	221.0	460.6
Boats, Motors, Trailers	150.4	54.7	205.1
Ancillary Fishing Expenditures	1,371.5	1,236.4	2,607.9
Other Trip Expenses	493.0	525.1	1,018.2
Auxiliary Equipment	20.4	18.4	38.8
Special Equipment	302.0	135.1	437.0
Miscellaneous Expenses	37.5	54.5	92.0
Owned, Leased Property	518.7	503.2	1,021.9
• Total Sport Fishing	\$1,912.6	\$1,688.9	\$3,601.5

Sources: U.S. Fish and Wildlife Service, 1997; and estimates by TechLaw.

The employment contribution of the sport fishing industry includes 17,100 jobs in the industry and an additional 19,000 full-time equivalent jobs created as an impact of the economic within the industry. The overall employment contribution by geographic area and type of expenditure is summarized in the following table:

¹ Marine – includes the waters of the Atlantic Ocean, Long Island Sound, various estuaries and embayments of the Atlantic and the Sound, and the tidal portion of the Hudson River.

² Freshwater – includes Lake Ontario, Lake Erie, their tributaries, the Niagara River and embayments, the St. Lawrence River south of the bridge at Cornwall, Lake Champlain, the Finger Lakes, other New York Lakes, and the non-tidal portions of New York's rivers.

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Contribution of the Sport Fishing Industry to New York Economy, Employment

	Employment in Sport Fishing Industry <i>(thousands of jobs)</i>	Total Employment Impacts <i>(thousands of FTE jobs)</i>
Sport Fishing by Area		
Marine	6.3	7.1
Freshwater	10.8	11.9
• Total Sport Fishing	17.1	19.0
	Employment in Sector <i>(thousands of jobs)</i>	Total Employment Impacts <i>(thousands of FTE jobs)</i>
Sport Fishing by Type of Expenditure		
Sport Fishing Expenditures	4.8	6.1
Head and Charter Boat Fees	0.5	0.5
Marina Fees	0.5	0.9
Bait	0.4	0.4
Fishing Rods, Reels, Tackle	2.1	3.4
Boats, Motors, Trailers	1.3	0.8
Ancillary Fishing Expenditures	12.2	13.0
Other Trip Expenses	4.4	6.1
Auxiliary Equipment	0.2	0.3
Special Equipment	2.7	1.9
Miscellaneous Expenses	0.3	0.7
Owned, Leased Property	4.6	4.0
• Total Sport Fishing	17.1	19.0

FTE – full-time equivalent

Sources: U.S. Fish and Wildlife Service, 1997; and estimates by TechLaw.

The other major findings related to sporting fishing include:

- Freshwater sport fishing accounted for about 63 percent of the economic activity generated by sport fishing and of sport fishing employment.
- Marine sport fishing accounted for about 37 percent of the economic activity generated by sport fishing and of sport fishing employment.
- When considering the type of expenditures made by anglers, those most closely tied to sport fishing—head and charter boats³, marina fees, bait, fishing equipment, boats and motors—account for only 28 percent of the value of economic activity that sport fishing contributes. Other expenses for fishing trips (e.g., food and lodging), other types of equipment (e.g., trucks, other vehicles), leased or owned property, and miscellaneous expenses account for the rest of the dollar value of sport fishing’s contribution. As shown in the table above, the employment contribution similarly shows a minority of this contribution related to expenditures most closely tied to sport fishing and the great majority related to ancillary expenditures.

³ A head boat is a boat on which fishing space and privileges are provided for a fee. The vessel is operated by a licensed captain and crew. A charter boat is a boat that carries passengers who have pre-arranged their fishing trip for certain species. Fees are based on species to be fished and distance.

Overall Economic Contribution of the COMMERCIAL FISHING INDUSTRY to New York State

The overall economic contribution of the commercial fishing industry to NYS is estimated at \$149.6 million in 1999. The contribution of the activity within the industry is estimated at \$77.9 million. This activity in turn creates an economic impact on sales of goods and services by NY businesses worth \$73.6 million. The overall contribution of the commercial fishing industry by dollar value of activity is summarized below. The categories represent high value species (lobster, inshore and offshore; mollusks and shellfish; and dredge clams) and gear type (inshore, multi-species trawler, and longline). Mollusks and shellfish include clams other than surf clams, conch, crabs, mussels, oysters, scallops, and squid.

Contribution of Commercial Fishing Industry to NY Economy, Dollar Value of Activity (*millions of 1999 dollars*)

Commercial Fishing Segments	Value of Landings	Impact on Sales of Goods and Services	Total Economic Contribution
Lobster Inshore	\$21.8	\$21.3	\$43.1
Lobster Offshore	5.5	5.4	10.9
Mollusks, Shellfish	26.9	26.2	53.2
Surf Clam Dredges	2.2	2.3	4.5
Inshore Fisheries	3.8	3.7	7.4
Multi-Species Trawlers	11.6	10.8	22.4
Longline	4.2	3.9	8.2
Great Lakes	0.0	(1)	NA
Aquaculture	1.9	(1)	NA
• Total Commercial Fishing	\$77.9	\$73.6	\$149.6

(1) – Not calculated because of lack of data. The value of landings in 1999 was estimated at \$2,000

NA – not available because of lack of data on impacts for these segments of the commercial fishing industry

Sources: NMFS, 2000c; Great Lakes Fishery Commission, 2000; USDA, 2000; and estimates by TechLaw.

The employment contribution of the commercial fishing industry includes 10,500 full-time, part-time, and seasonal jobs in the industry and an additional 800 full-time equivalent jobs created as an impact of the economic activity within the industry. While it was possible to estimate employment impacts by commercial fishing segment, comparable estimates of commercial fishing employment by segment were not possible. The overall employment contribution is summarized in the following table:

Contribution of the Commercial Fishing to New York Economy, Employment

Commercial Fishing Segments	Employment in Sector (thousands of jobs)	Total Employment Impacts (thousands of FTE jobs)
Lobster Inshore	NA	0.2
Lobster Offshore	NA	0.1
Mollusks, Shellfish	NA	0.3
Surf Clam Dredges	NA	0.0
Inshore Fisheries	NA	0.0
Multi-Species Trawlers	NA	0.1
Longline	NA	0.0
Great Lakes	NA	NA
Aquaculture	NA	NA
• Total Commercial Fishing	10.5	0.8

NA – data not available to estimate employment by commercial fishing segment

FTE – full-time equivalent

Source: NYS DEC, 2000a; Gall, 1999; analysis of loan applications to the New York State Department of Economic Development, Long Island Fisheries Assistance Program; and estimates by TechLaw.

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Fishing and Seafood Industries Versus Other Raw Food Products

Commercial fishing is like agriculture in that it produces food products. In 1999, the major edible farm products in New York State with values exceeding \$50 million were milk, meat, apples, potatoes, and grapes. Commercial fishing landings were \$76 million in 1999. This value would follow milk, apples, and meat in the listings of the New York's major raw food products for 1999.

- Milk production: \$1.8 billion.
- Apple production: \$138 million.
- Meat (beef, lamb, and pork) production: \$131 million.
- Commercial fish landings: \$76 million.

Comparisons for the other fish and seafood related industries are more problematic. The most recent economic census did not disclose total amusement and recreational services spending for NY State. The seafood industry is so complex that it would be difficult to find ready comparisons to other food processing and distribution industries (e.g., beef, dairy).

Findings related to commercial fishing include:

- Marine fisheries accounted for over 99 percent of all commercial fishery landings in NY.
 - The top ten species landed by volume in 1969 and 1999 accounted for more than 80 percent of total landings in both years. Five species are common to both lists – quahog clam, Atlantic surf clam, silver hake, American lobster, and bluefish.
 - The top ten species by value landed in 1969 and 1999 accounted for approximately 92 percent of total landings in 1969 and approximately 88 percent in 1999. Half of the species are common to both lists – quahog clam, American lobster, Atlantic surf clam, striped bass, and yellowtail flounder.
 - The volume of landings in 1999 was 16 percent higher than in 1969, while the value of landings was 25 percent higher than in 1969.
 - Lobsters accounted for over one-third of the value of economic activity of commercial fishing in 1999. Similarly, mollusks and shellfish (other than surf clams) also accounted for over one-third of the economic activity in 1999.
 - Almost all fish harvested by New York commercial fishers is sold to the state's seafood industry which adds additional value to this harvested fish and seafood before it reaches final consumers.

Overall Economic Contribution of the SEAFOOD INDUSTRY to New York State

The overall economic contribution of the seafood industry to New York State is estimated at \$7.8 billion in 1999. The contribution of the activity within the industry is estimated at \$3.7 billion. This activity in turn creates an economic impact on sales of goods and services by New York businesses worth \$4.1 billion. The overall contribution of the seafood industry by dollar value of activity is summarized below by the five segments considered in the study. Fulton Market is considered separately from other wholesalers because of its size, history, and unique place in the state's seafood industry.

Contribution of the Seafood Industry to New York Economy, Dollar Value of Activity (*millions of 1999 dollars*)

Seafood Industry Segments	Value Added	Impact on Sales of Goods and Services	Total Contribution
Fulton Market	\$253.2	\$292.4	\$545.5
Wholesalers	535.6	662.3	1,197.8
Processors	181.8	204.8	386.6
Supermarkets, Retail Fish Stores	332.3	365.5	697.8
Restaurants, Food Services	2,369.1	2,592.9	4,962.1
• Total Seafood Industry	\$3,672.0	\$ 4,117.9	\$7,789.9

Sources: Appendix C and estimates by TechLaw.

The employment contribution of the seafood industry includes 85,700 jobs in the industry and an additional 44,800 full-time equivalent jobs created as an impact of the economic activity within the industry. The overall employment contribution is summarized in the following table:

Contribution of the Seafood Industry to New York Economy, Employment

Seafood Industry Segments	Seafood Industry Employment (<i>thousands of part-time and full-time jobs</i>)	Seafood Industry's Employment Impacts (<i>thousands of FTE jobs</i>)
Fulton Market ¹	0.6	3.0
Wholesalers ²	3.5	6.9
Processors	1.5	2.2
Supermarkets, Retail Fish Stores	10.1	4.1
Restaurants, Food Services	70.0	28.6
• Total Seafood Industry	85.7	44.8

¹Estimate from the Office of the Assistant Commissioner for Public Markets, New York City

²Wholesaler employment figure excludes Fulton Market employment

FTE – full-time equivalent

Sources: Estimates by TechLaw, except as noted for Fulton Market.

Of the three industries studied, the seafood industry was the largest contributor to the New York economy. Over 60 percent of the economic sales activity and employment contribution of the fishing and seafood industries to the state economy is provided by the seafood industry.

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Other study findings include:

- The seafood industry in New York purchased over 90 percent of the landings of New York commercial fishers in 1999. This is only a small part of the overall fish and seafood inputs for the state's seafood industry.
- In 1999, the largest source of fish and seafood purchased by New York seafood industry as inputs was imports from outside the U.S. The state's seafood industry and others purchased an estimated \$786 million worth of fish and seafood products from foreign sources.
- Shrimp, almost all of which is frozen, accounted for 42 percent of the value of fish and seafood imported to New York in 1999.
- The New York seafood industry purchased an estimated \$535 million worth of fish and seafood products from sources in other states in 1999. This is in addition to purchases from other countries.
- Fulton Market accounts for about one-third of the value of all seafood wholesale activity in the state.
- The great majority of sales of fish and seafood products by the New York seafood industry are made to other New York businesses or consumers.
- Restaurants make the greatest economic contribution from among the seafood industry segments. This contribution is attributable to the substantial value added by restaurants to the fish and seafood products they purchase and from the great number of jobs generated in restaurants.

Excerpt from *The Economic Contribution of the Sport Fishing, Commercial Fishing, and Seafood Industries to New York State*, prepared by TECHLAW INC. for New York Sea Grant, April 2001