

A fisherman wearing a black hoodie and orange gloves is pouring ice from a white bucket into a black crate filled with fish. The scene is set on a wooden dock with several other crates and cardboard boxes nearby. The background shows a body of water and a building.

THE ECONOMIC IMPACT OF RHODE ISLAND'S FISHERIES AND SEAFOOD SECTOR

THE
UNIVERSITY
OF RHODE ISLAND

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EXECUTIVE SUMMARY

- + 428 firms
- + 3,147 jobs
- + \$538.3 million gross sales



The Rhode Island Fisheries and Seafood Sector spans commercial fishing and shellfishing, fishing charters, processing, professional service firms, retail and wholesale seafood dealers, including importers and exporters, service and supply firms, and tackle shops. These 428 firms generated 3,147 jobs and \$538.33 million of gross sales in 2016. Including spillover effects across all sectors of the Rhode Island economy, the total economic impact was 4,381 jobs and output of \$419.83 million (+/- 11.6%).

This study is the first to measure the economic impact of the RI Fisheries and Seafood Sector using an approach in which businesses are hand-counted to estimate jobs, gross sales, and economic impacts across the state. We find that Commercial Fishing is the largest subsector by jobs and number of firms, while Wholesalers is the largest by annual gross sales.

BACKGROUND

This study uses the approach of Sproul (2015) and Sproul and Michaud (2018), in which survey data, business listings from the RI Secretary of State Corporate Database, and marketing databases are combined to estimate annual revenues (or gross sales) and jobs for firms in the RI Fisheries and Seafood Sector in 2016.

Impact estimates were generated by inputting our revenues and jobs estimates into the industry-standard, IMPLAN input-output modeling software. For impacts, we report only the conservative “output multipliers” following Jeong and Crompton (2015). All confidence intervals presented are 95% intervals, recognizing both potential measurement error in the data collection, and potential sampling error in terms of which data were available.

Details of our data collection, subsector definitions, estimation procedure and confidence intervals can all be found in the Technical Appendix to this report, available at riepr.org.



RESULTS

The Rhode Island Fisheries and Seafood Sector includes 428 firms, generating \$538.3 (+/- 11.6%) million in annual gross sales and employing 3,147 people (+/- 9.4%). The largest subsector, in terms of the number of firms and jobs, is Commercial Fishing, including finfish, shellfish and squid.

Gross Sales and Jobs by Subsector

Category	Firms	Sales, \$M	Jobs
Commercial Fishing	150	88.39	1,711
Charters	75	19.99	182
Processors	11	67.05	215
Professional Services	18	5.76	73
Retail Dealers	26	11.57	136
Service and Supply	27	84.61	152
Tackle Shops	25	14.71	62
Wholesalers	96	246.26	617
All Fisheries and Seafood	428	538.33	3,147



74% of RI Fisheries and Seafood employment is found in the largest two subsectors (Commercial Fishing and Wholesalers) comprising 246 of the 428 (57%) firms in our study. There are only 11 firms in the Processors subsector, but these firms on average generated more than \$6 million of gross sales using almost 20 employees in 2016, relative to the average of \$1.26 million and 7.35 jobs for the sector as a whole.

Economic impact estimates are presented below. Value Added estimates correspond to Gross State Product (GSP, the state equivalent of GDP). Output estimates correspond to gross sales, but adjusted to avoid double-counting in retail and wholesale. Direct Effects are attributed directly to the firms in our study, while Indirect Effects are estimated impacts on upstream suppliers to these firms and Induced Effects are downstream economic impacts arising from labor income and proprietor income (Lindall and Olson, 2008). Thus, if the Value Added Direct Effects were summed over all sectors of the RI economy, we would expect it to equal the GSP. The Total Effect, on the other hand, represents the answer to the hypothetical question, “what would the RI economy lose if the RI Fisheries and Seafood Sector were to disappear?”

Figures presented in (+/-) format represent 95% confidence intervals. For example, the total jobs impact of 4,381 +/- 509 (11.6%) means we estimate the true total impact has a 95% chance of lying between 3,872 and 4,890 jobs.

Economic Impact Estimates

Impact Type	Jobs	Value Added, \$M	Output, \$M
Direct Effect	3,147	164.58	251.09
Indirect Effect	414	34.55	54.99
Induced Effect	819	69.45	113.24
Total Effect	4,381	268.59	419.33
(+/-)	(509)	(31.18)	(48.68)



COMMERCIAL FISHING

Commercial fishing is the largest subsector in terms of both jobs and number of businesses. These businesses tend to specialize either in finfish/squid or shellfish, including lobster, crab, scallop and clams.

Quick Facts for Commercial Fishing

Number of Firms in RI	150
Jobs	1,711
Gross Sales, \$M	88.39
Jobs per Firm	11.41
Gross Sales per Firm, \$M	0.59
Gross Sales per Employee, \$K	51.64



While we counted 150 commercial fishing businesses in Rhode Island, we were able to identify 1,229 license holders with landings in 2016, using data from the National Oceanic and Atmospheric Administration (NOAA). However, we were not able to perfectly match license holders with businesses, nor were we able to collect sufficient gross sales and jobs data from the fishing businesses themselves, so we used the X-Vessel values

values of landings (NOAA) and the resulting jobs estimate from the IMPLAN input-output model. The Technical Appendix to this report contains more discussion about these data. Because the business data do not admit a breakdown of commercial fishing by species, we present the NOAA data for values of landings below. Besides lobster, top shellfish species are Scallops (\$8.49M), Quahogs/Clams (\$5.59M) and Jonah Crab (\$3.32M). Top finfish species are Fluke (\$5.47M) and Scup (\$4.04M).

X-Vessel Value of Landings

Species	Value, \$M	Share
Lobster	12.47	14.1%
Other Shellfish	17.72	20.0%
Squid	33.94	38.4%
Other Finfish	24.26	27.4%
Total	88.39	100%



The data suggest that fishing license holders are generally specialized, with 42% landing 5% shellfish or less by value, and 55% landing 95% shellfish or more by value. Thus, shellfishing operations are generally of a smaller economic scale: the majority of licenses are for shellfish, though they comprise only 34.1% of the total value of landings.

To facilitate policy discussion, we estimated economic impact multipliers for X-Vessel landings values. The IMPLAN model does not include downstream effects, such as the existence of the processing subsector relying on landings from commercial fishing, so we used the relationships revealed in this report to estimate them. Details of our analysis and comparison with a recent Cornell University study (Hasbrouck et al., 2011), can be found in the Technical Appendix. The multipliers are “total effects” in the Rhode Island economy, inclusive of effects on commercial fishing.



Total Effect Multipliers for X-Vessel Values

Effect	Multiplier
Output	3.06
Value Added	1.98
Employment	32.43 (jobs per \$million)

CHARTERS

We identified 75 businesses operating as fishing charters, many of whom are included in our study of the Marine Trades (Sproul and Michaud, 2018). While similarly regulated to commercial fishing in Rhode Island, these businesses are treated as recreational fishing for the purpose of economic impact analysis. As with Tackle Shops, the impacts from Charters can be considered to measure a small share of the economic impact of recreational fishing.

Fishing charters are the smallest firms in our study, generating an average of 2.43 jobs and gross sales of \$267,000. The business has a heavy seasonal component with many firms operating part-time, so the larger firms bring up the average. The median charter operation generates \$147,000 per year in gross sales.

Quick Facts for Charters

Number of Firms in RI	75
Jobs	182
Gross Sales, \$M	19.99
Jobs per Firm	2.43
Gross Sales per Firm, \$M	0.27
Gross Sales per Employee, \$K	109.84

PROCESSORS

We found only 11 seafood processors operating in Rhode Island, but these are the largest businesses in our study, in terms of both gross sales (\$6.10 million) and jobs (19.52) per firm, handling virtually all of the landings by the commercial fishing operations in the state.

Quick Facts for Processors

Number of Firms in RI	11
Jobs	215
Gross Sales, \$M	67.05
Jobs per Firm	19.52
Gross Sales per Firm, \$M	6.10
Gross Sales per Employee, \$K	312.29



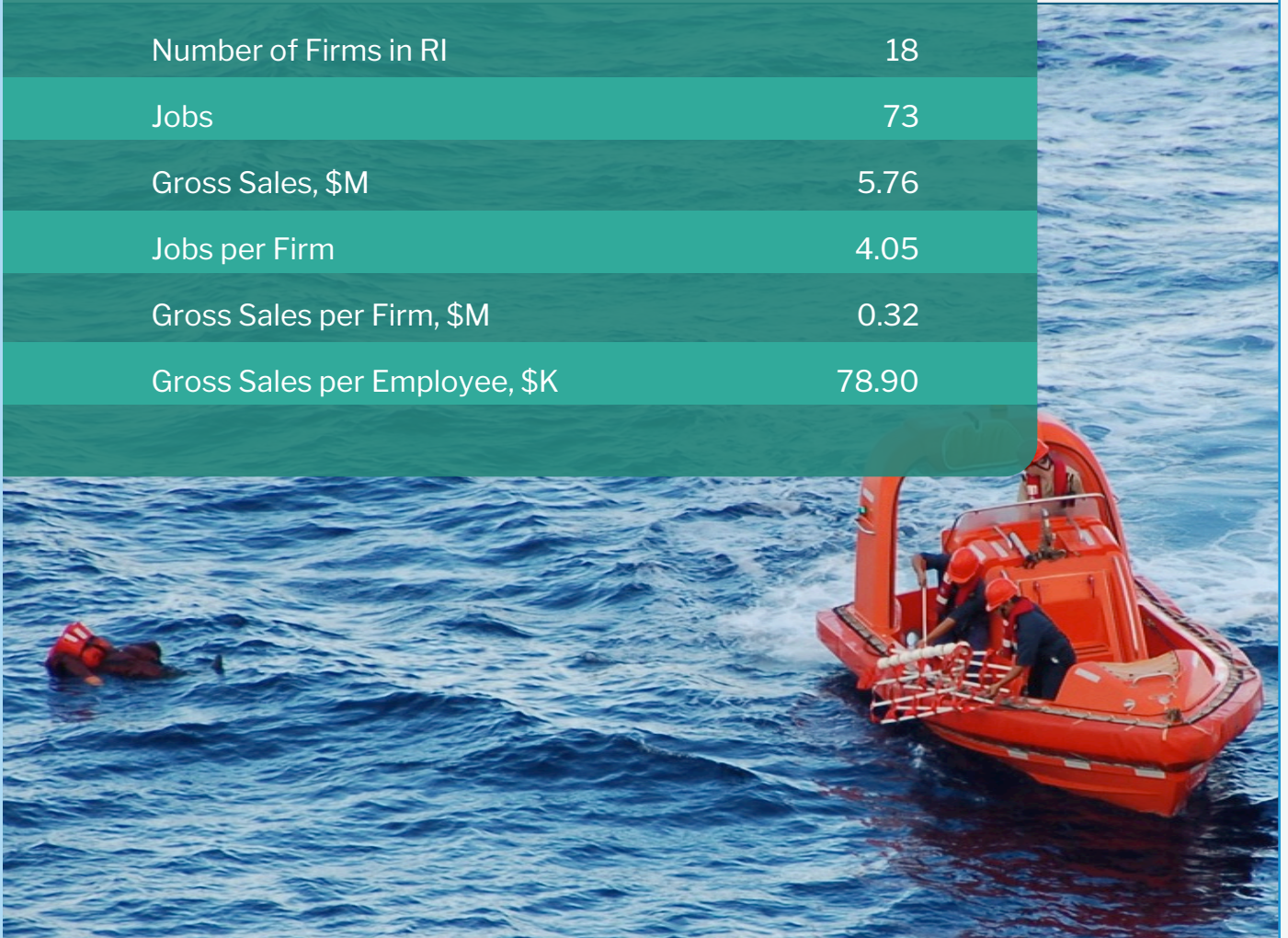
7 of the 11 processors specialize in finfish and squid, while the other 4 specialize in shellfish, including lobster, mussels and clams. While we define processors to be businesses primarily processing others' catch, some of these firms are vertically integrated to include commercial fishing operations and/or fishing vessels, as well as wholesale seafood operations.

PROFESSIONAL SERVICES

Professional services firms in the RI Fisheries and Seafood Sector include typical office operations such as financial management, accounting, insurance, consulting and logistics, but they also include professional services unique to fisheries and seafood, such as quota management, fisheries research and marine safety training. Since we include only firms specializing in the fisheries and seafood sector, this is the smallest subsector in our study, generating combined annual gross sales of \$5.76 million across 18 firms.

Quick Facts for Professional Services

Number of Firms in RI	18
Jobs	73
Gross Sales, \$M	5.76
Jobs per Firm	4.05
Gross Sales per Firm, \$M	0.32
Gross Sales per Employee, \$K	78.90



RETAIL DEALERS

Quick Facts for Retail Dealers

Number of Firms in RI	26
Jobs	136
Gross Sales, \$M	11.57
Jobs per Firm	5.25
Gross Sales per Firm, \$M	0.44
Gross Sales per Employee, \$K	84.79

We identified 26 retail seafood dealers operating in the state, including one that has gone out of business since 2016. These firms include primarily fresh and frozen fish and seafood markets, as well as community supported fisheries, such as those operating at farmers markets, and retail “lobster shacks” selling live and/or cooked lobsters both on-site and available for shipping and delivery.

For conservatism in our estimates, restaurants, bars and “oyster bars” are not included in our study, even in cases where they are explicitly seafood- or local-seafood-themed.

SERVICE AND SUPPLY

The Service and Supply subsector is third-largest by total gross sales, and second-largest in gross sales per firm (\$3.13 million), behind Processors.

Quick Facts for Service and Supply

Number of Firms in RI	27
Jobs	152
Gross Sales, \$M	84.61
Jobs per Firm	5.63
Gross Sales per Firm, \$M	3.13
Gross Sales per Employee, \$K	556.64



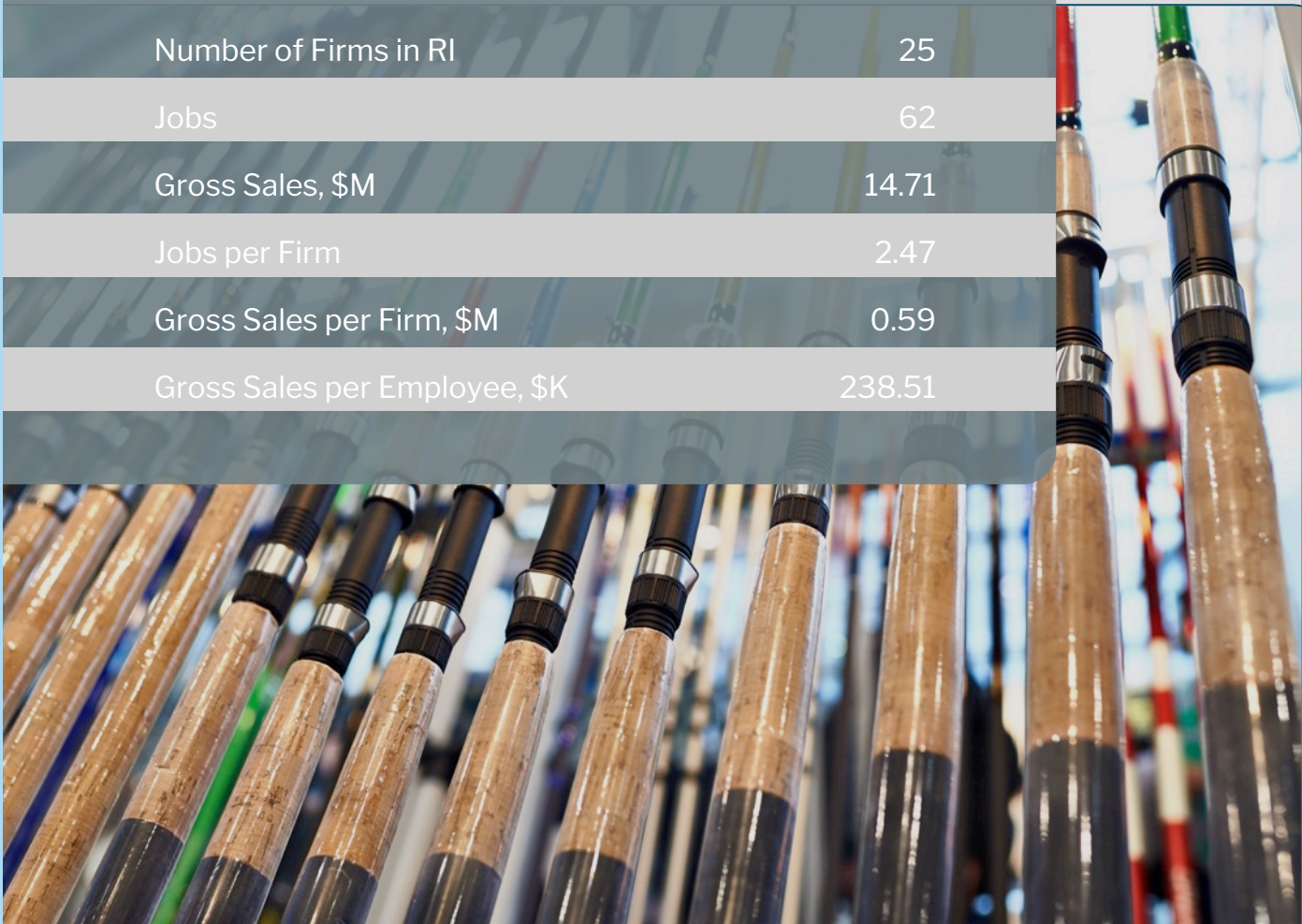
The firms in this subsector are primarily wholesale suppliers to the commercial fishing industry, including nets, commercial tackle and other gear for fishing operations, and to the commercial shellfishing and aquaculture industries, including bait and traps. The subsector also includes commercial fishing boat and equipment maintenance, repair and service businesses, including welders, engine repair, and fuel dealers.

TACKLE SHOPS

The 25 businesses in this subsector include bait and tackle shops, outfitters of fishing gear and apparel, and sellers of specialty lures and custom fishing rods and reels. Some of the retailers are also vertically integrated with small-scale manufacturing operations.

Quick Facts for Tackle Shops

Number of Firms in RI	25
Jobs	62
Gross Sales, \$M	14.71
Jobs per Firm	2.47
Gross Sales per Firm, \$M	0.59
Gross Sales per Employee, \$K	238.51



The 25 firms in this study have substantial overlap with the 29 sporting goods retailers identified in our recent study of the RI Marine Trades (Sproul and Michaud, 2018), though we found a few more bait and tackle shops, and we exclude retail dealers of canoes, kayaks and the like, resulting in slightly lower sales and jobs estimates.

WHOLESALERS

Quick Facts for Wholesalers

Number of Firms in RI	96
Jobs	617
Gross Sales, \$M	246.26
Jobs per Firm	6.42
Gross Sales per Firm, \$M	2.57
Gross Sales per Employee, \$K	399.37

Wholesalers are the largest subsector in our study by far in terms of gross sales, generating \$246 million and 617 jobs. 39 of Rhode Island's 96 seafood wholesalers are exclusively shellfish dealers. In addition to basic wholesale operations, the category also includes importers and exporters, seafood trading operations, and dealers of salted, smoked and prepared seafood.

While we do not report economic impacts at the subsector level, wholesale businesses generally have low value-added as a percentage of their large gross sales, due to their function as brokers between seafood processors and restaurants or retailers.

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