

### Management Context

The New England Region includes Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island. Federal fisheries in this region are managed by the New England Fishery Management Council (NEFMC) and NOAA Fisheries (NMFS) under nine fishery management plans (FMPs). Two of these FMPs are developed in conjunction with the Mid-Atlantic Fisheries Management Council (MAFMC). The MAFMC is the lead Council for the Dogfish FMP and the NEFMC is the lead for the Monkfish FMP.

#### New England Region FMPs

1. Northeast multispecies
2. Sea scallops
3. Monkfish (with the MAFMC)
4. Atlantic herring
5. Small mesh multispecies
6. Spiny dogfish (with the MAFMC)
7. Red crab
8. Northeast skate complex
9. Atlantic salmon

Of the stocks or stock complexes covered in these fishery management plans, sixteen are currently listed as overfished: Atlantic cod, Atlantic halibut, Atlantic salmon, Atlantic wolffish, ocean pout, pollock, smooth skate, thorny skate, white hake, windowpane, winter flounder (two stocks), witch flounder, and yellowtail flounder (three stocks). Twelve stocks or stock complexes are currently subject to overfishing: Atlantic cod (two stocks), Atlantic wolffish, pollock, white hake, windowpane (two stocks), winter flounder (two stocks), witch flounder, and yellowtail flounder (two stocks).

### Commercial Fisheries

In 2009, commercial fishermen in the New England Region landed 647 million pounds of finfish and shellfish, earning \$782 million in landings revenue. Landings revenue was dominated by American lobster (\$298 million) and sea scallop (\$210 million). These species groups commanded ex-vessel prices of \$3.08 and \$6.63 per pound, respectively and comprised 65% of total landings revenue, but only 20% of total landings in the New England Region.

Massachusetts had the highest landings revenue in the region with \$400 million in 2009, followed by Maine (\$286 million) and Rhode Island (\$62 million). In terms of pounds landed, Massachusetts also contributed the most (356 million pounds), followed by Maine (185 million pounds) and Rhode Island (84 million pounds).

#### Economic Impacts<sup>1</sup>

In 2009, the New England Region's seafood industry generated \$621 million in sales impacts in Connecticut, \$1.2 billion in sales

impacts in Maine, \$6.7 billion in sales impacts in Massachusetts, \$651 million in sales impacts in New Hampshire, and \$906 million in sales impacts in Rhode Island. Massachusetts generated the largest impacts across the three other impact categories, generating 78,000 job, \$1.7 billion in income, and \$2.6 billion in value added impacts. The smallest income impacts were generated in Connecticut (\$130 million) and the smallest employment impacts were also generated in Connecticut (3,800 jobs).

#### Key New England Region Commercial Species

- American lobster
- Atlantic herring
- Atlantic mackerel
- Bluefin tuna
- Cod and haddock
- Flounders
- Goosefish
- Quahog clam
- Sea scallop
- Squid

The sector that generated the greatest employment impacts by state was the retail sector with 46,000 employment impacts in Massachusetts and 9,000 employment impacts in Maine. The harvest sector in Maine generated 9,500 employment impacts. More sales impacts were generated by importers in Massachusetts than any other sector in any another state in the region at \$3.8 billion and the greatest value added impacts were also generated by importers in Massachusetts (\$1.2 billion).

#### Landings Revenue

Landings revenue in the New England Region totaled \$782 million in 2009. This was a 14% increase (a 2.8% decrease in real terms) from 2000 levels (\$688 million) and a 3.6% decrease (a 3.3% decrease in real terms) relative to 2008 (\$811 million). Totaling \$604 million in 2009, shellfish revenue experienced a 29% increase (a 10% increase in real terms) from 2000 to 2009 and experienced a 2.7% decrease (2.4% decrease in real terms) from 2008 to 2009.

In the New England Region, Massachusetts had the highest finfish landings revenue (\$115 million) followed by Maine (\$30 million), and Rhode Island (\$23 million). Shellfish landings revenue was also dominated by Massachusetts, which contributed the most (\$285 million) followed by Maine (\$255 million), and Rhode Island (\$38 million).

American lobster and sea scallop had the highest landings revenue in the New England Region in 2009, with \$298 million and \$210 million, respectively. Together they accounted for 65% of total landings revenue in 2009. Between 2000 and 2009, the landings revenue from these species experienced a 0.1% decrease for American lobster and 122% increase for sea scallop.

From 2000 to 2009, species or species groups with large changes in landings revenue include Atlantic mackerel (increased 1131%), Atlantic herring (increased 156%), and bluefin tuna (decreased 74%). Species or species groups with large changes in landings revenue between 2008 and 2009 include squid (167% increase), Atlantic mackerel (84% increase), and bluefin tuna (54% increase).

<sup>1</sup>The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at: [www.st.nmfs.noaa.gov/documents/commercial\\_seafood\\_impacts\\_2007-2009.pdf](http://www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf))

### Landings

Fishermen in the New England Region landed 647 million pounds of finfish and shellfish in 2009. This was a 12% increase from the 576 million pounds landed in 2000 and a 7.6% increase from the 601 million landed in 2008. Finfish landings contributed 66% of total landings in the New England Region (428 million pounds) in 2009. From 2008 to 2009, finfish landings experienced a 8.4% increase. Shellfish landings experienced a 6.2% increase from 206 million pounds in 2008 to 219 million in 2009 and a 13% increase from 193 million pounds in 2000.

#### Commercial Fisheries Facts

##### Landings revenue

- On average, between 2000 and 2009, the key species or species groups accounted for 84% of total revenue, generating \$669 million in the New England Region.
- American lobster had higher landings revenues than any other species or species group, averaging \$323 million in landings revenue from 2000 to 2009.
- Atlantic mackerel had the largest annual increase in landings revenue over the 10 year time period, increasing 764% from \$437,000 in 2001 to \$3.8 million in 2002.
- Squid had the largest annual decrease in landings revenue over the 10 year time period, decreasing 88% from \$20 million in 2006 to \$2.4 million in 2007.

##### Landings

- Key species or species groups contributed an average of 72% annually to total landings between 2000 and 2009.
- Atlantic herring, contributed the most to landings in the region, averaging 185 million pounds from 2000 to 2009.
- Atlantic mackerel had the largest annual increase in landings over the 10 year time period, increasing 1575% from 1.6 million in 2001 pounds to 27 million pounds in 2002.
- Atlantic mackerel had the largest annual decrease in landings over the 10 year time period, decreasing 91% from 88 million pounds in 2004 to 8.2 million pounds in 2005.

##### Prices

- Bluefin tuna had the highest average annual ex-vessel price per pound (\$6.15) over the time period, followed by sea scallop (\$5.73), and quahog clam (\$4.83).
- Atlantic herring had the lowest average annual ex-vessel price per pound (\$0.09) over the time period, followed by Atlantic mackerel (\$0.19), and squid (\$0.63).
- Atlantic mackerel had the largest annual increase in ex-vessel price over the 10 year time period, increasing 200% from \$0.12 per pound in 2004 to \$0.36 in 2005.
- Atlantic mackerel had the largest decrease in ex-vessel price over the 10 year time period, decreasing 61% from \$0.36 per pound in 2005 to \$0.14 in 2006.

Atlantic herring and American lobster had the highest annual landings in the New England Region in 2009, with 209 million pounds and 97 million pounds, respectively. Together they accounted for 47% of the total landings in 2009. Atlantic herring

landings increased 34% and American lobster landings increased 17% during this period.

From 2000 to 2009, species or species groups with large changes in landings include Atlantic mackerel (increasing 1498%), sea scallop (increasing 77%), and quahog clam (decreasing 70%). Species or species groups with large changes in landings between 2008 and 2009 include squid (increasing 102%), bluefin tuna (increasing 81%), and Atlantic herring (increasing 27%).

Between 1990 and 1994, there was a 68% drop in total landings of sea scallop in the New England Region from 24 million pounds to 7.6 million pounds. Additionally, an Emergency Action was enacted in December 1994, which closed three large fishing grounds on the Northeast Continental Shelf to rebuild certain groundfish stocks, but which also affected a large percentage of the scallop biomass. Portions of these closed areas were reopened to scallop fishing in 1999, resulting in a total catch of 13.7 million pounds. Building on the success from the previous closure management system, Amendment 10 to the Atlantic Sea Scallop FMP was implemented in 2004, which uses rotational area management. Since that time, total landings have continued to increase, reaching a peak of 40.6 million pounds in 2006.

##### Prices

The ex-vessel prices for the New England Region's key species and species groups in 2009 were higher than their 10 year average for six of the key species (four of the species in real terms). Ex-vessel prices for Atlantic herring and quahog clam experienced the biggest increases between 2000 and 2009, increasing 100% (71% in real terms) and 73% (48% in real terms), respectively. Relative to 2008 ex-vessel prices, New England's Atlantic mackerel experienced the greatest increase (66.7%, 67.2% in real terms) from \$0.12 in 2008 to \$0.20 in 2009. Quahog clam experienced the greatest price decrease between 2008 and 2009 declining from \$7.81 to \$5.53 (29.2%, 28.9% in real terms). Relative to ex-vessel prices in 2008, two species or species groups experienced increases, including Atlantic mackerel (67%), and squid (33%).

In Connecticut, the species or species group with the largest change in ex-vessel price from 2000 to 2009 was flounders (91% increase, 63% increase in real terms) from \$1.27 to \$2.42. The largest change in ex-vessel price experienced in Maine was for bloodworms (122% increase, 90% increase in real terms) from \$4.87 to \$10.79 and in Massachusetts the largest change in ex-vessel price was experienced by clams, all other (224% increase, 177% increase in real terms) from \$0.79 to \$2.56).

#### Recreational Fishing

In 2009, almost 1.4 million recreational anglers took 7.5 million fishing trips in the New England Region. Over 88% of these anglers were residents of a regional coastal county. Of the total fishing trips taken, 46% were taken from a private or rental boat and another 48% were shore-based. Striped bass was the most frequently caught species or species group with 5 million fish caught in 2009 and represented 28% of total fish caught in the region. Of the striped bass caught, 89% of them were released rather than harvested.

*Economic Impacts and Expenditures<sup>1</sup>*

The contribution of recreational fishing activities in New England Region are reported in terms of economic impacts at the state level (employment, sales, income, and value added impacts) and expenditures on fishing trips and durable equipment at the regional level. Employment impacts in Connecticut were the highest in the region with over 5,200 full- and part-time jobs generated by recreational fishing activities in the state. Massachusetts (5,000 jobs), and Maine (2,000 jobs), followed in terms of employment impacts.

**Key New England Region Recreational Species**

- Atlantic cod
- Atlantic mackerel
- Bluefin tuna
- Bluefish
- Little tunny
- Scup
- Striped bass
- Summer flounder
- Winter flounder
- Tautog

Overall, these employment impacts were generated by expenditures on recreational fishing trips taken by anglers (private or rental boat, for-hire boat, or shore-based trips) or expenditures on durable equipment. Throughout the New England Region, expenditures on durable equipment in 2009 generated more employment impacts than any other expenditure: 94% in Connecticut, 50% in Rhode Island, and 45% in Massachusetts.

In addition to jobs, the contribution of recreational fishing activities to New England Region's economy can be measured in terms of sales impacts and the contribution of these activities to gross domestic product (value added impacts). In 2009, sales impacts were the highest in Connecticut (\$797 million in sales impacts), followed by Massachusetts (\$657 million), Maine (\$167 million), Rhode Island (\$114 million), and New Hampshire (\$46 million). In the same year, value added impacts were the highest in Connecticut (\$457 million in value added impacts), followed by Massachusetts (\$357 million), Maine (\$88 million), Rhode Island (\$56 million), and New Hampshire (\$25 million).

Overall, there were \$1.8 billion in expenditures on fishing trip and durable equipment expenditures across the New England Region in 2009. Approximately 78% of these expenditures were durable equipment purchases. The greatest expenditures were for vehicle expenses (\$612 million), followed by fishing tackle (\$402 million), boat expenses (\$264 million), other equipment (\$100 million), and second home expenses (\$12 million). Fishing trip expenditures by New England's non-residents totaled almost \$233 million, of which the greatest portion can be attributed to shore-based fishing trips (\$164 million). Residents of the New England Region spent \$149 million on saltwater fishing trips, with the most of these expenses related to private boat trips (\$80 million).

<sup>1</sup>Expenditures and economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see Marine Angler Expenditures in the United States, 2006, available at: [http://www.st.nmfs.noaa.gov/st5/publication/AnglerExpenditureReport/AnglerExpendituresReport\\_ALL.pdf](http://www.st.nmfs.noaa.gov/st5/publication/AnglerExpenditureReport/AnglerExpendituresReport_ALL.pdf))

**Recreational Fishing Facts***Participation*

- An average of 1.4 million anglers fished in New England Region annually from 2000 to 2009.
- In 2009, coastal county residents made up 88% of total anglers in this region. These anglers averaged 89% of total anglers annually over the 10 year time period.
- The largest annual increase in the number of coastal anglers during the 10 year time period occurred between 2004 and 2005, increasing 17%, from 1.2 million anglers to 1.3 million anglers.
- The largest annual decrease during the same period for coastal anglers occurred between 2008 and 2009, decreasing 12%, from 1.4 million anglers to 1.2 million anglers.

*Fishing trips*

- In the New England Region, an average of 8.9 million fishing trips were taken annually from 2000 to 2009.
- Private or rental boat and shore-based fishing trips accounted for 3.5 million and 3.6 million fishing trips, respectively, in 2009. Together these made up 94% of the fishing trips taken in that year.
- The largest annual increase in the number of total trips taken annually over the 10 year time period occurred between 2004 and 2005, increasing 6.9%, from 8.7 million trips to 9.3 million trips.
- The largest annual decrease during the same period in total trips taken occurred between 2008 and 2009, decreasing 18%, from 9.2 million trips to 7.5 million trips.

*Harvest and release*

- Striped bass was the most commonly caught key species or species group, averaging 9.6 million fish over the 10 year time period. Of these, 94% were released rather than harvested.
- Of the ten commonly caught key species or species groups, seven were released more often than harvested over this time period. The species or species group that was most commonly released was little tunny (94% released).
- Atlantic mackerel (90% harvested), followed by winter flounder (57% harvested), and bluefin tuna (51% harvested) were key species or groups that experienced the greatest proportion of harvests rather than releases.
- The largest annual change in the number of fish released was for releases of bluefin tuna, which increased 4616% between 2002 and 2003; the largest annual change in number of fish harvested occurred in little tunny, which increased 6985% from 2005 to 2006.

*Participation*

There were 1.4 million recreational anglers who fished in the New England Region in 2009. This was a 19% increase from 2000 (1.2 million anglers). These anglers were New England Region residents from either a coastal (1.2 million anglers) or non-coastal county (165,000 anglers). Over 88% of total anglers in 2009 were

residents of a coastal county. Coastal county angler participation in 2009 increased 17% relative to 2000 (1 million anglers) and decreased 12% between 2008 and 2009. Non-coastal county angler participation increased 36% relative to 2000 (121,000 anglers) and decreased 12% relative to 2008 (187,000 anglers).

### *Fishing Trips*

Recreational fishermen took 7.5 million fishing trips in New England Region in 2009. This was a 14% decrease from the 2000 (8.8 million trips) and was 1.7 million fewer trips than those taken in 2008. Approximately 48% of the saltwater trips were shore based (3.6 million trips). The other most popular mode of fishing was private or rental boat-based with 3.5 million trips in 2009.

### *Harvest and Release*

The New England Region's species and species groups caught most frequently in 2009 were striped bass (5 million fish), scup (3.7 million fish), Atlantic mackerel (3.6 million fish), and bluefish (2.2 million fish) in 2009. Little tunny (97% released), striped bass (89% released), summer flounder (86% released), Atlantic cod (70% released), scup (69% released), tautog (68% released), bluefish (65% released), and bluefin tuna (54% released) were more often released rather than harvested.

Anglers harvested more often than released Atlantic mackerel (89% harvested) and winter flounder (54% harvested). In 2009, most of the striped bass were caught in Massachusetts (2.8 million fish) and Connecticut (1.4 million), making up 84% of the total catch. Atlantic mackerel were caught in large numbers in Maine and New Hampshire which represented 75% of the total catch of Atlantic mackerel in the New England Region. Between 2000 and 2009, eight of the New England Region's key species or species groups showed decreases in catch totals. Key species or groups with the largest decreases were little tunny (79%), summer flounder (65%), and striped bass (52%).

### **Marine Economy**

The sum of the gross domestic products by state for Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island was \$753 billion in 2008. Employee compensation totaled \$444 billion and annual payroll totaled \$305 billion. These economic measures experienced increases of 37%, 32%, and 26% respectively, between 2000 and 2008, and experienced a 2.9% increase, a 2.3% increase, and a 3.1% increase, respectively, between 2007 and 2008. Approximately 377,000 establishments employed 6.2 million full- and part-time employees across the region in 2008. This was a 0.9% increase in establishment numbers and a 1.3% increase in employee numbers from 2000 to 2008.

In 2008, the commercial fishing location quotient (CFLQ) for Maine was the highest in the region at 14.01. This was a 73% increase from 2001 and a 2.6% decrease from 2007. Maine's CFLQ suggests that the level of employment in commercial fishing-related industries in this state is approximately 14 times higher than the level of employment in these industries nationwide. The CFLQ in 2008 in Rhode Island was 2.59 (a 10% decrease from 2000 and a 15% decrease from 2007).

### *Seafood Sales and Processing*

In 2008, there were 115 nonemployer firms engaged in seafood product preparation and packaging across the New England Region, a 51% increase from 2002 levels. There was no change in the number of firms in Massachusetts over this time period. In 2008, 56% of these firms were located in Maine. Region-wide, annual receipts totaled \$15 million in 2006 and increased 39% from 2005 to 2006. Annual receipt totals experienced a 439% increase in Connecticut between 2000 and 2008. In contrast to the increase in nonemployer firms region-wide, the number of employer establishments engaged in seafood product preparation and packaging decreased 7.1% from 101 in 2002 to 91 in 2008. Approximately 48% of these establishments were located in Massachusetts in 2008.

There were 370 seafood wholesale establishments in 2008 that employed 3,164 full- and part-time workers. From 2007 to 2008, the number of seafood wholesale establishments decreased 5.9% and the number of employees decreased 4.6% in the New England Region.

Nonemployer firms engaged in seafood retail in the New England Region totaled 171 in 2008, a 6.2% increase relative to 2000. Of these firms, 37% were located in Massachusetts. At the state level, these firms showed a 32% increase in Connecticut and a 36% increase in Rhode Island between 2000 and 2008. Annual receipts in the region totaled \$20 million in 2008, a 1.1% increase from 2000 (a 14% decrease in real terms) and a 0.3% increase from 2008 (a 9.4% decrease in real terms). Employer establishments engaged in seafood retail increased 14% from 2000 to 2008, totaling 235 in 2008. These establishments employed 1,077 workers. Over 50% of these establishments were located in Massachusetts.

Region-wide, the numbers of employees in the seafood retail sector decreased 15% between 2005 and 2008. Across the states within the region, the largest change occurred in Rhode Island (33% decrease). Annual payroll decreased in the New England Region, with a 11% decrease region-wide (24% decrease in real terms) to \$28 million in 2008.

### *Transport, Support, and Marine Operations*

For the sectors where information was available, marinas employed more people than any other industry in this sector, employing approximately 3,600 people in 2008. This industry also had the highest annual payroll in the region totaling \$160 million. Marinas had the highest number of establishments (497), followed by the ship and boat building industries with 196 establishments and the navigational services to shipping industries with 39 establishments.

In Massachusetts, industries with large changes in establishment numbers, employees, or annual payroll from 2007 to 2008 were: port and harbor operations (99% increase in payroll), coastal and Great Lakes freight transportation (40% decrease in employees), marine cargo handling (40% decrease in establishments) and coastal and Great Lakes freight transportation (37% decrease in payroll). In Maine, large changes were seen for coastal and Great Lakes freight transportation (67% increase in

establishments), deep sea passenger transportation (50% decrease in establishments), navigational services to shipping (31% increase in employees) and marinas (18% decrease in payroll). In Connecticut, large changes were seen in the port and harbor operations (100% increase in establishments), deep sea passenger transportation (50% decrease in establishments), ship and boat building (32% decrease in establishments) and coastal and Great Lakes freight transportation (25% increase in establishments).