



Seafood Industry Year in Review 2013





MESSAGE FROM THE MINISTER



On behalf of the Department of Fisheries and Aquaculture, I am pleased to present the Seafood Industry Year in Review 2013. This annual publication has become a valuable reference document for the seafood industry, academia, and other interested parties from around the world. It contains statistics for the province's wild and farmed fisheries, and also details important initiatives our government has undertaken throughout the year.

The seafood industry continues to be an important economic driver within Newfoundland and Labrador's vibrant economy. Total production in the seafood industry for 2013 was valued at approximately \$1.1 billion, and the economic activity generated by the industry provided employment for more than 18,000 people, mainly in rural parts of the province. Through strategic planning and investment, the Provincial Government is helping the industry build on that success.

Gains achieved by the Provincial Government through the Comprehensive Economic and Trade Agreement between Canada and the European Union have set the stage for a new era of opportunity for our fishery. Those gains include a commitment to remove trade barriers that had prevented access to the richest seafood market in the world, and the creation of a \$400 million federal-provincial fund to make Newfoundland and Labrador's fishing industry more globally competitive than ever. The Provincial Government looks forward to working with industry to make the most of the tremendous opportunities presented in international markets, and to creating economic benefits for the rural communities that rely on the fishery.

With respect to aquaculture, the provincial fish farming industry achieved record-breaking production value in 2013, generating more than \$197 million. The Provincial Government has invested more than \$25 million since 2006, which has levered \$400 million in industry investment to support the growth of the sector. The Provincial Government is committed to working with industry to maintain well-managed sustainable growth in the future.

Through collaboration, government, industry, and community leaders accomplished many advancements within the Newfoundland and Labrador seafood industry in 2013. I look forward to another great year ahead, as we pursue further steps to optimize the value of the wild fishery and aquaculture industries.



KEITH HUTCHINGS, MHA
District of Ferryland
Minister of Fisheries and Aquaculture

ACRONYMS AND ABBREVIATIONS

The following acronyms and abbreviations are used throughout this document and are provided here for reference.

BMA – Bay Management Area
CETA – Comprehensive Economic and Trade Agreement
CFER – Centre for Fisheries Ecosystems Research
DFA – Department of Fisheries and Aquaculture
DFO – Fisheries and Oceans Canada
FFAW – Fish, Food and Allied Workers
FTNOP – Fisheries Technology and New Opportunities Program
LERP – Lobster Enterprise Retirement Program
MI – Fisheries and Marine Institute of Memorial University
NAFO – Northwest Atlantic Fisheries Organization
SFA – Shrimp Fishing Area
TAC – Total Allowable Catch
QCEP – Quality Compliance and Enforcement Program
WTO – World Trade Organization

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Publication Prepared by:
Planning Services Division
Department of Fisheries and Aquaculture
February 2014

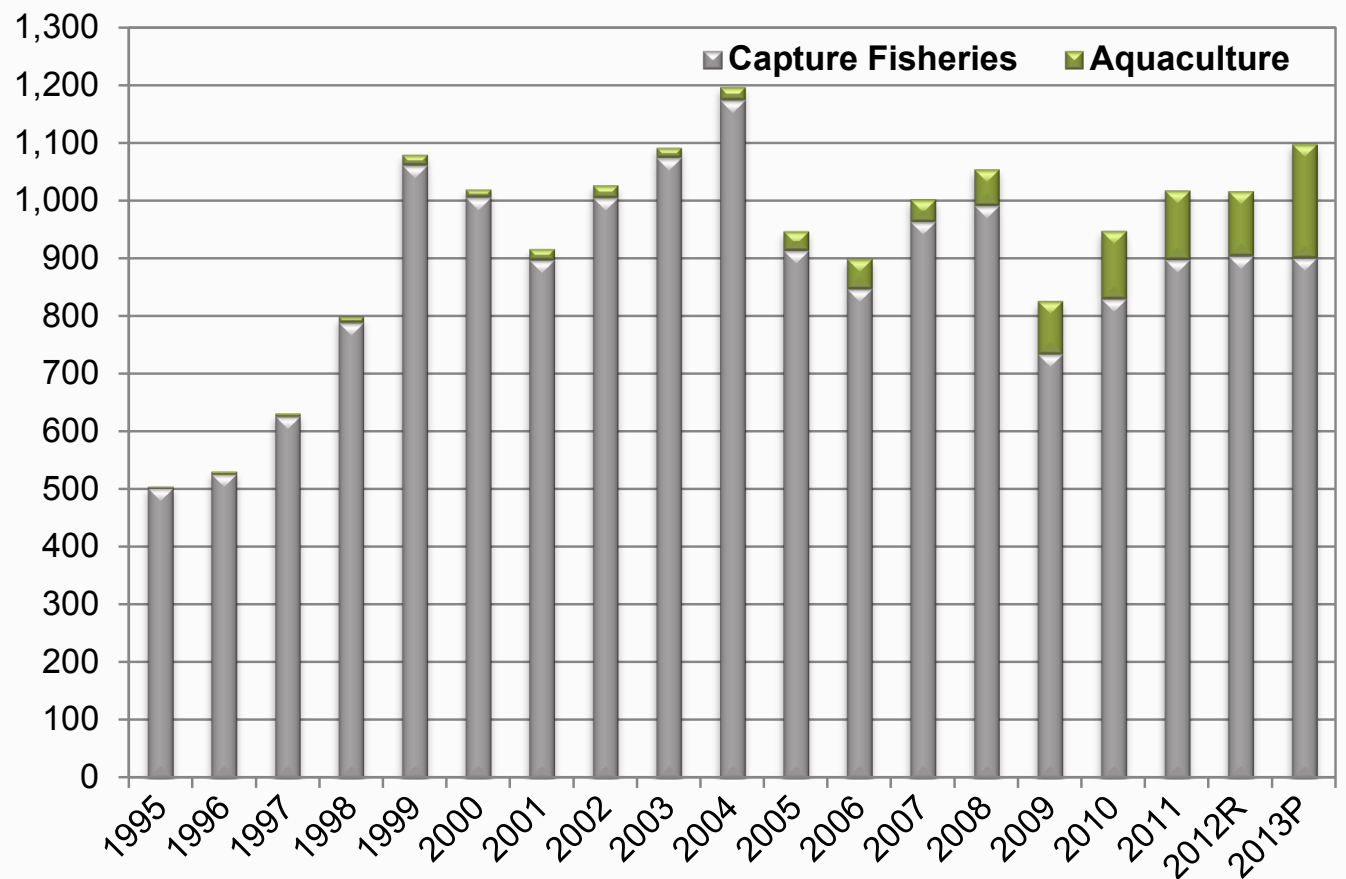
SEAFOOD INDUSTRY PERFORMANCE



Newfoundland and Labrador's seafood industry experienced another successful year in 2013. The industry saw a rise in both commercial capture fisheries landings and aquaculture production volume. The value of total production in the industry increased, due to significant growth in the value of aquaculture production. Despite a decline in the average market prices for many species in 2013, the production value of the commercial fishery remained relatively on par with the previous year. In 2013, total seafood production was valued at approximately \$1.1 billion, representing growth of 8.0 per cent in comparison to 2012.

PRODUCTION MARKET VALUE Newfoundland and Labrador

\$ Millions



Source: Fisheries and Oceans Canada (DFO); Department of Fisheries and Aquaculture (DFA)

R = Revised; P = Preliminary

Global demand for seafood products remained strong in 2013, which increased both the volume and value of Newfoundland and Labrador seafood exports. The majority of the province's seafood products were exported to over 40 countries in 2013. The United States and China remained the province's primary export markets.

EMPLOYMENT

Direct employment in the seafood industry declined in 2013. This is mainly the result of lower employment levels in both the harvesting and fish processing sectors. Total industry employment was down 8.1 per cent, to 18,423 workers from 20,057 workers in 2012. There is additional spin-off employment opportunities created from the wild fishery and aquaculture.

In 2013, direct employment in aquaculture hatchery and grow-out operations remained stable at 467 workers. The number of fish harvesters decreased 8.2 per cent, to 9,529 workers. The processing facilities processed fish from both the wild and farmed fisheries. Employment in the processing sector decreased 8.5 per cent, to 8,427 workers in 2013 from 9,214 workers in 2012. There were 13 fewer processing facilities in operation in 2013, compared to the previous year.

Seafood Industry Employment

Newfoundland and Labrador

| | 2012R | 2013P | % CHANGE |
|--|---------------|---------------|--------------|
| Hatchery and Grow-out (Aquaculture) | 467 | 467 | 0.0% |
| Harvesting (Capture Fisheries) | 10,376 | 9,529 | -8.2% |
| Processing (Aquaculture and Capture Fisheries) | 9,214 | 8,427 | -8.5% |
| Total | 20,057 | 18,423 | -8.1% |

Source: DFA; Professional Fish Harvesters Certification Board

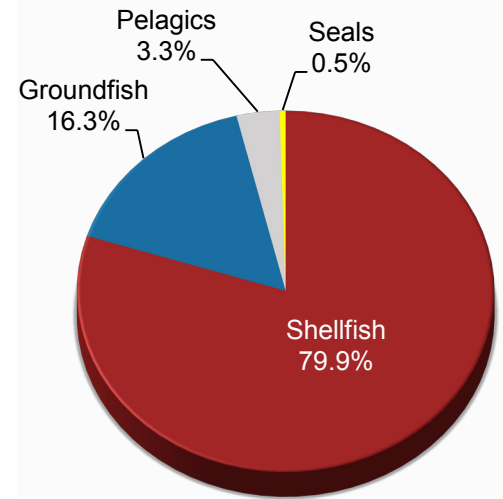
R = Revised; P = Preliminary



CAPTURE FISHERIES

Landings in the commercial fishery increased in 2013, while the landed value recorded a slight decline. Overall, landings totalled 268,646 tonnes, up 4.9 per cent from 2012. This rise in landings is mainly the result of higher landings of flounder, herring, mackerel, and redfish. The total landed value of the 2013 harvest was \$579 million, down 0.4 per cent compared to \$582 million in the previous year. This decrease was the result of lower raw material prices paid for some species, shrimp and snow crab in particular. The chart to the right demonstrates the share of total landed value for each major species group. The volume and value of fish landings in Newfoundland and Labrador are depicted in the chart below and the data for 2012 and 2013 can be viewed in the table on page 9.

Capture Fisheries Landed Value by Species Group, 2013



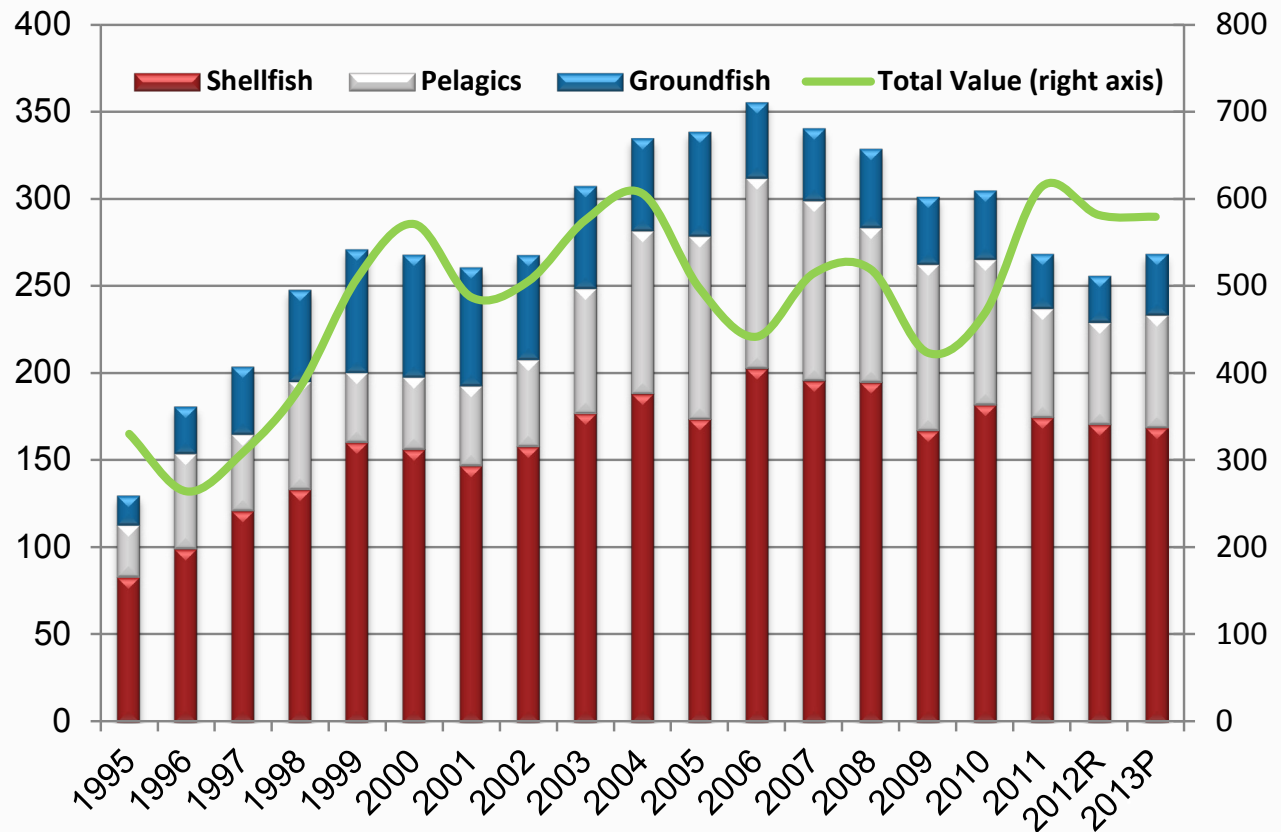
Note: Total landed value = \$579 million.
Source: DFO; DFA

Fish Landings by Species Group

Newfoundland and Labrador

000's tonnes

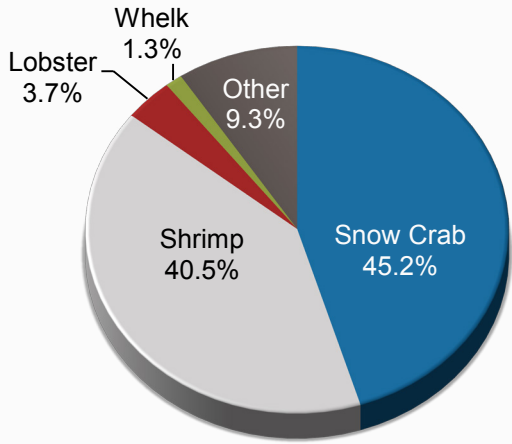
\$ Millions



Source: DFO; DFA

R = Revised; P = Preliminary

Shellfish Landed Value by Species, 2013



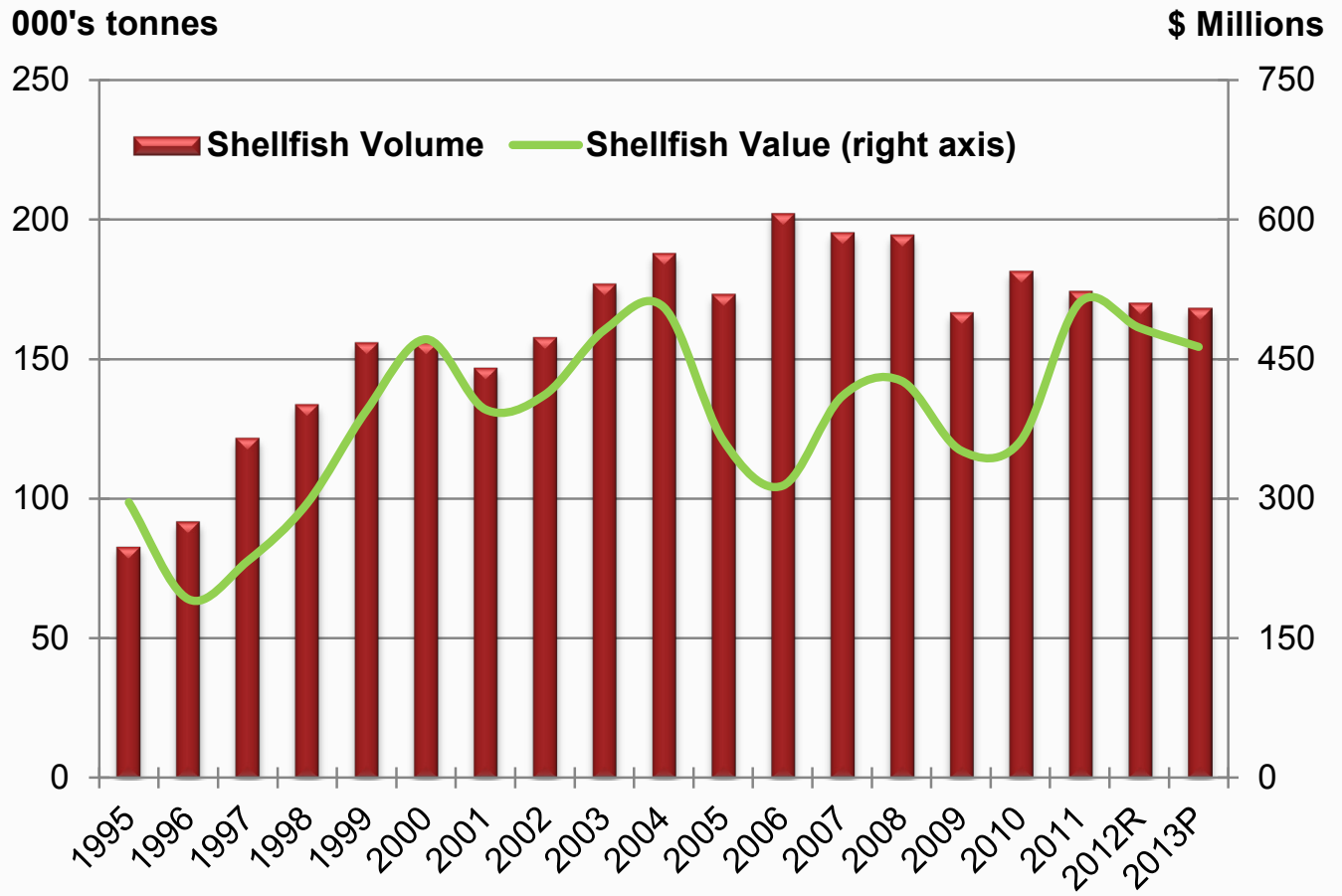
Note: Shellfish landed value = \$463 million.
Source: DFO; DFA

SHELLFISH

The shellfish sector continued to be the largest contributor to the capture fisheries in 2013, comprising 62.7 per cent of total landings and generating 79.9 per cent of total landed value. Shellfish landings declined to 168,383 tonnes in 2013, mainly due to quota cuts in the shrimp fishery. This represents a 1.1 per cent decrease compared to 170,273 tonnes caught in 2012. The corresponding landed value declined 4.3 per cent, to \$463 million, down from \$484 million in 2012.

Shellfish Landings

Newfoundland and Labrador



Source: DFO; DFA

R = Revised; P = Preliminary



SHRIMP

Shrimp landings declined 2.0 per cent in 2013, to 83,878 tonnes from 85,583 tonnes in 2012. This decrease is largely due to a 28 per cent quota cut in Shrimp Fishing Area (SFA) 7. The inshore shrimp fishery recorded a 5.9 per cent decrease in landings, the result of the quota cut in SFA 7, and the gulf shrimp fishery declined 11.7 per cent due to a quota cut in the Esquiman Channel. The overall landed value of shrimp declined 4.5 per cent to \$187 million, down from \$196 million in 2012. The Standing Fish Price-Setting Panel set the minimum raw material price for the spring fishery at \$0.65 per pound in 2013; this compares to \$0.76 per pound in 2012.

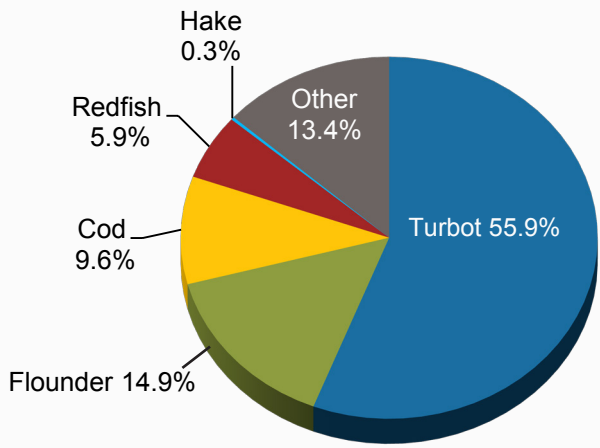
SNOW CRAB

Snow crab landings remained similar to 2012, recording a 0.7 per cent increase to 50,806 tonnes in 2013, compared to 50,463 tonnes the previous year. The associated landed value decreased 3.6 per cent to \$209 million in 2013, down from \$217 million in 2012. This is largely due to a lower average raw material price paid per pound for snow crab; \$1.87 in 2013 compared to \$1.95 in 2012.

OTHER SHELLFISH

Lobster landings increased in comparison to the previous year, up 4.0 per cent to 2,207 tonnes in 2013, compared to 2,123 tonnes in 2012. The corresponding landed value decreased 10.4 per cent to \$17 million, as a result of a decline in the average raw material price for lobster. Prices averaged \$3.57 per pound in 2013, compared to \$4.14 per pound in 2012. Whelk landings and landed value declined in 2013, down 11.8 per cent to 4,329 tonnes, and 11.9 per cent to \$6.1 million respectively. Decreases were also recorded for scallop landings and the corresponding landed value, down 10.4 per cent to 1,416 tonnes and 11.4 per cent to \$2.7 million.

Groundfish Landed Value by Species, 2013



Note: Groundfish landed value = \$94 million.
Source: DFO; DFA

GROUND FISH

Groundfish accounted for 13.2 per cent of total capture fisheries landings in 2013 and 16.3 per cent of total landed value. Landings increased 31.2 per cent to 35,416 tonnes, and the corresponding landed value rose 20.1 per cent to \$94 million. This increase is largely the result of a rebound in flounder and redfish landings.

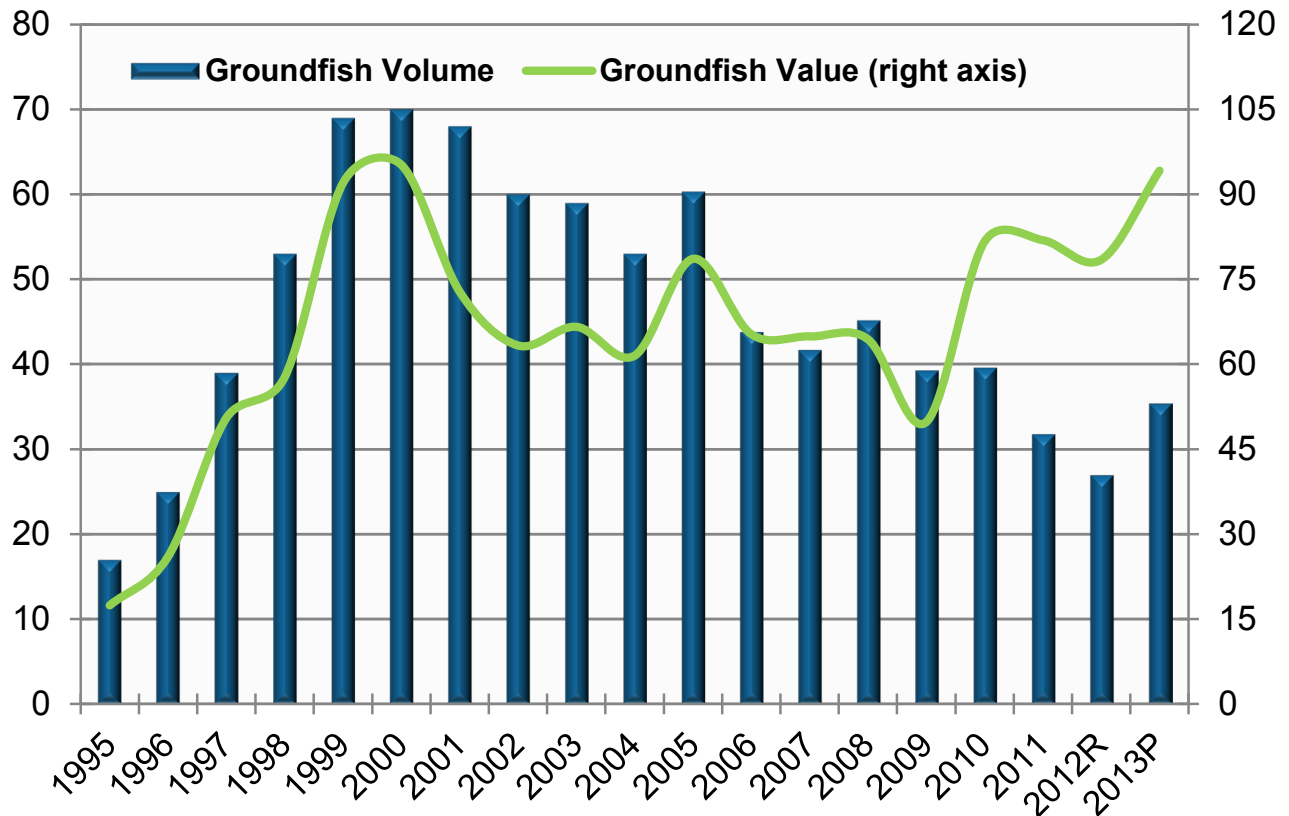
Flounder landings more than tripled, rising from 2,972 tonnes in 2012 to 10,001 tonnes in 2013. This is the result of increased fishing effort, particularly for yellowtail flounder. Redfish landings more than doubled, rising from 1,330 tonnes in 2012 to 2,999 tonnes in 2013 as the result of increased effort in Northwest Atlantic Fisheries Organization (NAFO) Divisions 3LN. Turbot landings were up 4.5 per cent, to 10,981 tonnes in 2013. Cod landings were down 3.2 per cent, from 8,334 tonnes in 2012 to 8,066 tonnes in 2013. An increase in landings in NAFO Divisions 2J3KL partially offset a decline in landings in NAFO Division 3Ps.

Groundfish Landings

Newfoundland and Labrador

000's tonnes

\$ Millions



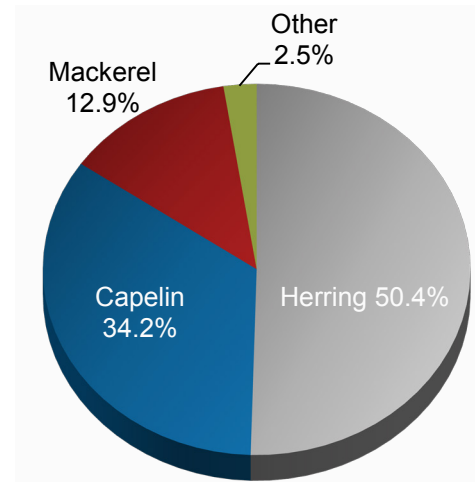
Source: DFO; DFA

R = Revised; P = Preliminary

PELAGICS

Pelagics comprised 24.1 per cent of total capture fisheries landings in 2013, and 3.3 per cent of total landed value. Landings increased 10.2 per cent, from 58,821 tonnes in 2012 to 64,847 tonnes in 2013, primarily the result of higher herring and mackerel landings. The corresponding landed value rose 8.8 per cent, from \$18 million in 2012 to \$19 million in 2013. Herring landings rose 18.7 per cent, from 24,919 tonnes in 2012 to 29,575 tonnes in 2013, due to increased catches in the Gulf of St. Lawrence. Mackerel landings nearly doubled, increasing from 2,619 tonnes in 2012 to 5,145 tonnes in 2013, due to increased availability of commercial-sized fish. Capelin landings declined 3.5 per cent to 30,070 tonnes and the associated landed value remained on par at \$6.6 million as the result of slightly higher raw material prices.

Pelagics Landed Value by Species, 2013



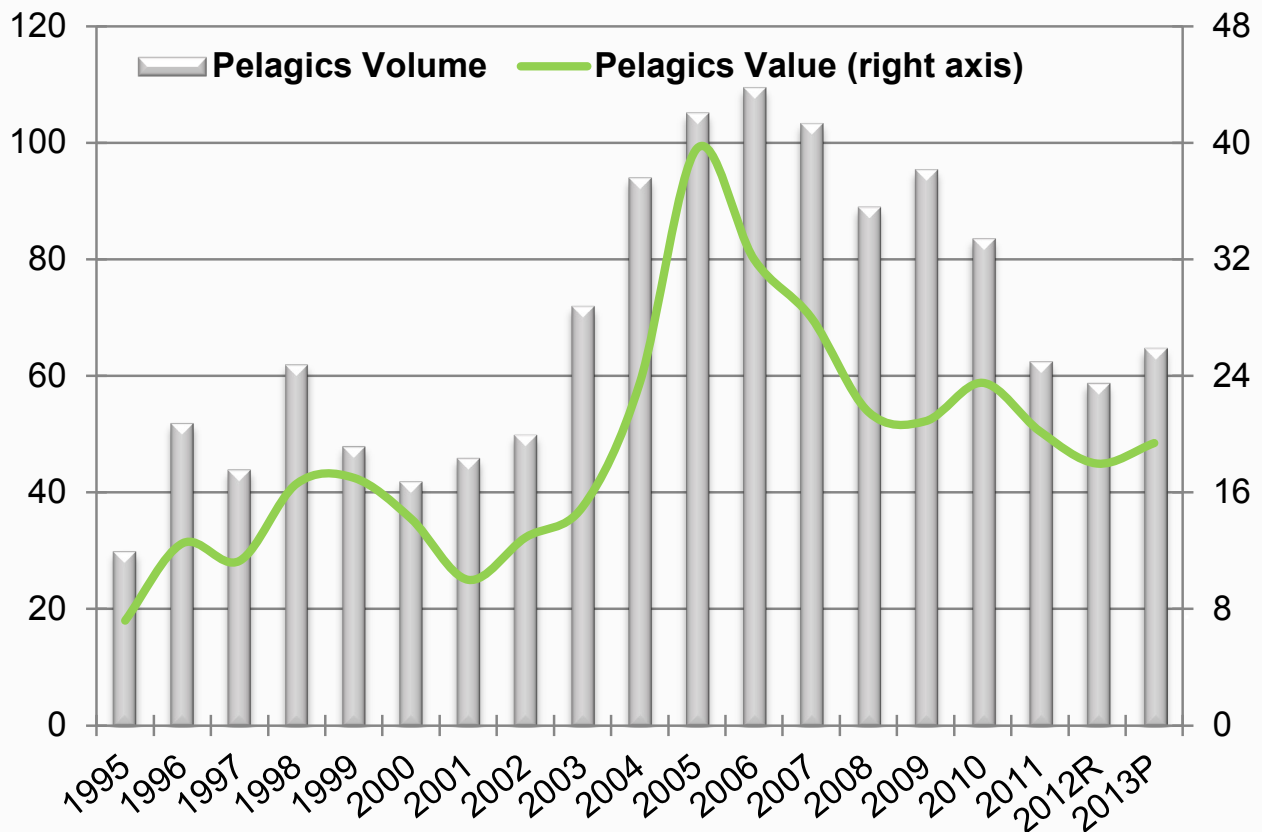
Note: Pelagics landed value = \$19 million.
Source: DFO; DFA

Pelagics Landings

Newfoundland and Labrador

000's tonnes

\$ Millions



Source: DFO; DFA

R = Revised; P = Preliminary

HARP SEALS

Restrictions on the sale of seal products continue to challenge the seal fishery. However, harp seal landings increased for the second consecutive year in 2013. This is primarily due to an increase in harvesting effort. Landings in the province were up 31.2 per cent in 2013, to 88,644 harp seals from 67,567 harp seals in 2012. The associated landed value rose 75.7 per cent, reaching \$2.7 million compared to \$1.5 million in the previous year. Access to markets remains a significant barrier for the sealing industry, particularly in China and the European Union. Appeal efforts at the World Trade Organization (WTO) and in the European Court of Justice case may resolve this situation.



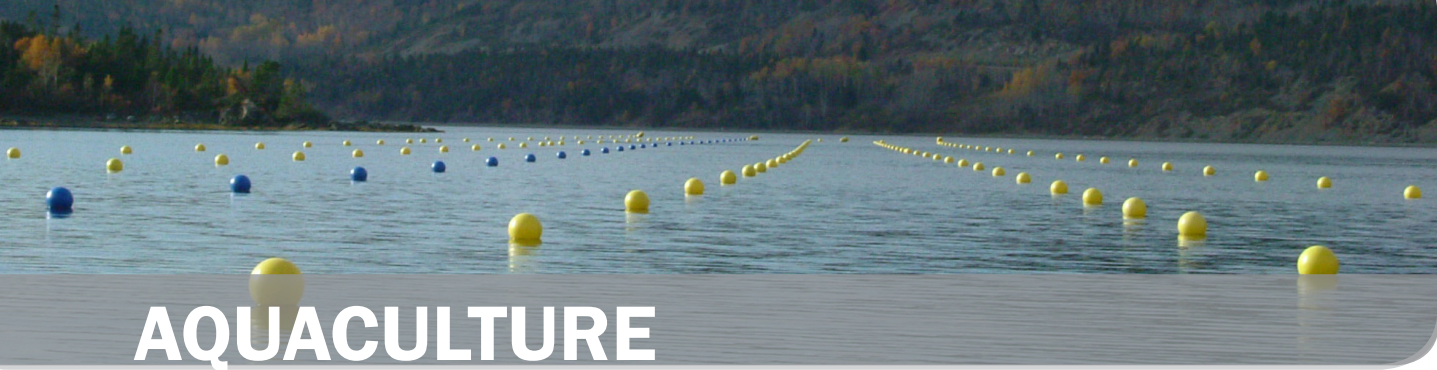
LANDED VOLUME AND VALUE

NEWFOUNDLAND AND LABRADOR

| SPECIES GROUP | 2012 REVISED | | 2013 PRELIMINARY | | 2012/2013 COMPARISON | |
|-------------------------|-----------------|------------------|------------------|------------------|----------------------|--------------|
| | VOLUME (TONNES) | VALUE (000'S) | VOLUME (TONNES) | VALUE (000'S) | % VOLUME | % VALUE |
| SHELLFISH | | | | | | |
| Snow Crab | 50,463 | \$216,921 | 50,806 | \$209,210 | 0.7% | -3.6% |
| Shrimp | 85,583 | \$196,276 | 83,878 | \$187,418 | -2.0% | -4.5% |
| Lobster | 2,123 | \$19,355 | 2,207 | \$17,348 | 4.0% | -10.4% |
| Whelk | 4,910 | \$6,955 | 4,329 | \$6,125 | -11.8% | -11.9% |
| Scallops | 1,580 | \$3,041 | 1,416 | \$2,695 | -10.4% | -11.4% |
| Other Shellfish | 25,614 | \$41,212 | 25,747 | \$40,351 | 0.5% | -2.1% |
| TOTAL SHELLFISH | 170,273 | \$483,760 | 168,383 | \$463,146 | -1.1% | -4.3% |
| GROUNDFISH | | | | | | |
| Turbot | 10,512 | \$50,209 | 10,981 | \$52,654 | 4.5% | 4.9% |
| Flounder | 2,972 | \$3,889 | 10,001 | \$14,074 | 236.5% | 261.9% |
| Cod | 8,334 | \$9,425 | 8,066 | \$9,061 | -3.2% | -3.9% |
| Redfish | 1,330 | \$2,250 | 2,999 | \$5,510 | 125.5% | 144.9% |
| Hake | 255 | \$222 | 278 | \$241 | 9.0% | 8.6% |
| Skate | 551 | \$226 | 288 | \$118 | -47.7% | -47.7% |
| Pollock | 339 | \$215 | 151 | \$104 | -55.5% | -51.7% |
| Monkfish | 186 | \$345 | 53 | \$99 | -71.5% | -71.3% |
| Other Groundfish | 2,520 | \$11,652 | 2,599 | \$12,307 | 3.1% | 5.6% |
| TOTAL GROUNDFISH | 26,999 | \$78,434 | 35,416 | \$94,168 | 31.2% | 20.1% |
| PELAGICS | | | | | | |
| Herring | 24,919 | \$8,239 | 29,575 | \$9,780 | 18.7% | 18.7% |
| Capelin | 31,153 | \$6,656 | 30,070 | \$6,628 | -3.5% | -0.4% |
| Mackerel | 2,619 | \$1,989 | 5,145 | \$2,496 | 96.4% | 25.5% |
| Other Pelagics | 130 | \$943 | 57 | \$484 | -56.2% | -48.7% |
| TOTAL PELAGICS | 58,821 | \$17,827 | 64,847 | \$19,387 | 10.2% | 8.8% |
| Harp Seals (number) | 67,567 | \$1,517 | 88,644 | \$2,666 | 31.2% | 75.7% |
| TOTAL | 256,093 | \$581,538 | 268,646 | \$579,367 | 4.9% | -0.4% |

Note:
 - Species components may not sum to total due to independent rounding.
 - The values of flounder may be understated as they may not be representative of port prices.
 - Total volume does not include the number of seals.

Source: DFO; DFA



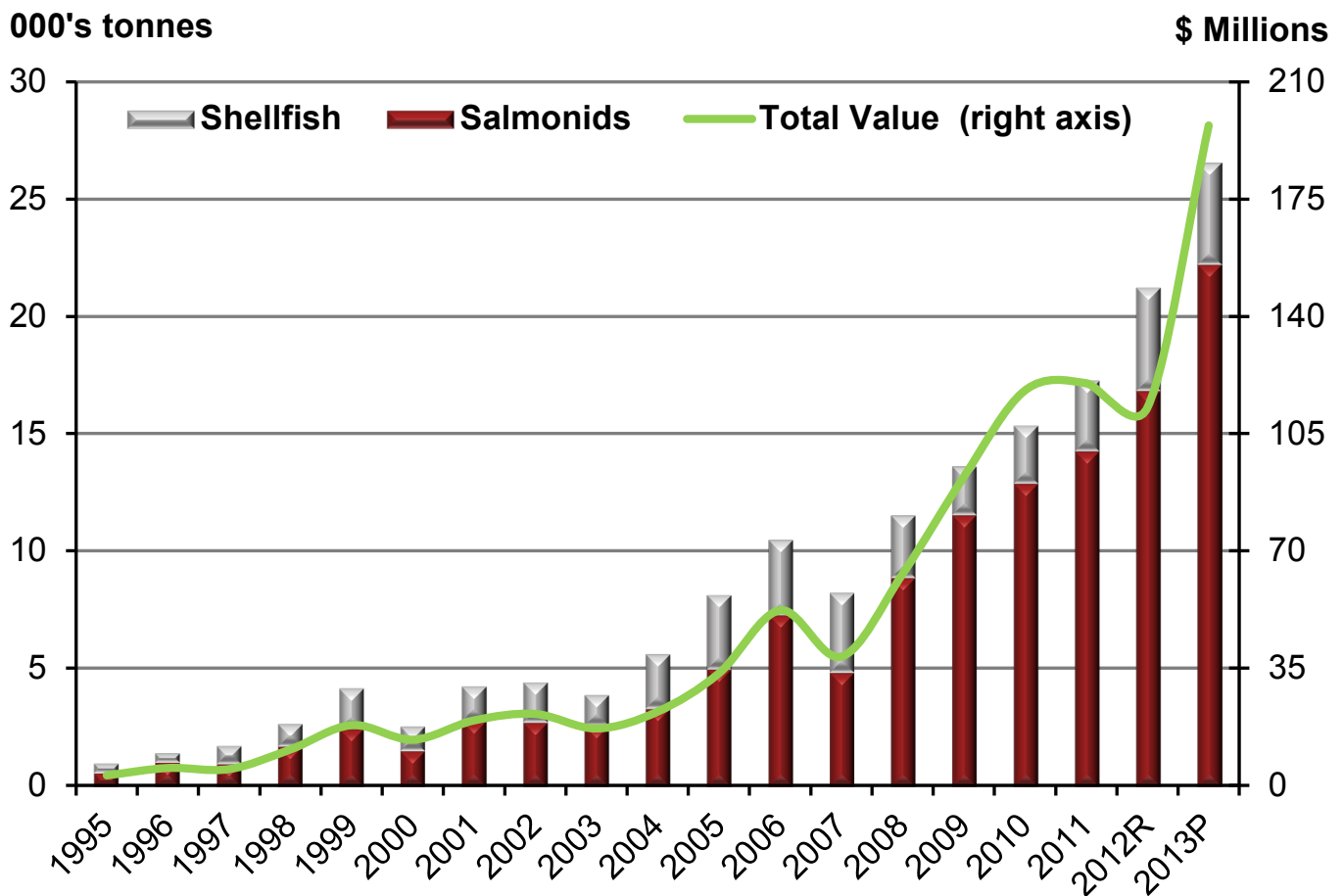
AQUACULTURE

The Newfoundland and Labrador aquaculture industry continued to grow in 2013. Production volume rose by 25.1 per cent, from 21,228 tonnes in 2012 to 26,551 tonnes in 2013. The increase was largely the result of increased production of Atlantic salmon. Mussel production remained relatively on par with 2012.

Total market value increased 74.3 per cent, from \$113 million in 2012 to \$197 million in 2013. The significant growth in market value is the result of higher production volumes, along with rebounding market prices for key commercial species. The majority of market value growth was driven by strong prices for Atlantic salmon.

Aquaculture Production

Newfoundland and Labrador



Note: Salmonid production is reported as head-on gutted weight.
Source: DFO; DFA

R = Revised; P = Preliminary



SALMONIDS

Atlantic salmon and steelhead trout are the two main commercial salmonid species in the province. There is also a limited amount of Arctic char produced. There were 87 commercial salmonid site licences in 2013, covering a combined area of 2,376 hectares. The map on page 29 shows licensed aquaculture sites by sector.

In 2013, salmonid production grew to 22,196 tonnes, valued at \$182 million. The increase in production volume represents a 31.9 per cent rise over 2012, while value grew by 83.8 per cent during the same time period. The substantial increase in market value of salmonids was largely due to strong Atlantic salmon prices. In 2013, the average market price for whole salmon, 8-10 pounds, was US\$3.49 per pound, up from US\$2.43 per pound in 2012.

SHELLFISH

In Newfoundland and Labrador, commercial shellfish aquaculture production is essentially concentrated on blue mussels. There were 53 commercial shellfish site licences that covered a combined area of 4,162 hectares in 2013 (see map on page 29). Production volumes remained relatively stable in 2013, after reaching an all-time high in 2012. In 2013, 4,354 tonnes of mussels were produced, a small decrease of 1.0 per cent over 2012.

Production value increased in 2013, mainly due to stronger market prices for mussels in the United States, which is the primary market for Newfoundland and Labrador mussels. Total market value was \$15 million in 2013, representing an increase of 7.1 per cent over 2012. The average market price for mussels was US\$1.54 per pound in 2013, up 10.8 per cent compared to the average of US\$1.39 per pound in 2012.

In 2013, eight mussel growers and three primary processors received the first organic certification for blue mussels in North America. The certifications were granted by Global Trust Certification/SAI Global in March 2013, to adhere to the Canadian Organic Standards for aquaculture. In addition, one primary processor was certified under the Best Aquaculture Practices¹, the first processor to receive this certification globally.

¹A set of processing certification standards that addresses environmental responsibility, social responsibility, animal welfare, food safety, and traceability.

THE DEVELOPMENT OF BAY MANAGEMENT AREAS

SPECIAL FEATURE



The Department of Fisheries and Aquaculture (DFA) is committed to supporting the development of an aquaculture industry that is socially, economically, and environmentally sustainable. One of the department's major initiatives is the implementation of Bay Management Areas (BMAs). This is a strategy for sustainable aquaculture that respects fish health, the environment, and the production needs of the industry. A BMA is characterized by a comprehensive approach that integrates production, husbandry, and environmental conditions within a specified area to optimize production and biosecurity. All salmon farming jurisdictions in the world have implemented some form of a Bay Management System. It is considered a best practice in the worldwide aquaculture industry.

The department has worked with industry since 2008 to delineate and implement BMAs. The BMA agreement was approved in December 2013 and implemented in January 2014. BMA principles ensure coordination of fish entry, fallow periods, biosecurity plans, and health management plans, within a given area and consider relationships between neighbouring BMAs.

A key component for the development of BMAs is the ongoing collection of scientifically validated oceanographic data to further inform and refine both the boundaries and the practices within each BMA over time. DFA has been working with the Fisheries and Marine Institute of Memorial University of Newfoundland (MI) and its research vessels to gather this data. In 2011, DFA engaged the MI vessel, *MV*

Atlanticat, in the Pools Cove and Belleoram areas of Fortune Bay. In 2013, DFA engaged the MI vessel, *MV Anne S. Pierce*, in ongoing oceanographic work in Fortune Bay, Hare Bay, and Facheux Bay. The work consisted of placing drifters and drogues in the ocean that move with the current (on the surface and at depth) and are tracked via the Global Positioning System. Climate and biophysical oceanographic data collected by DFA, in combination with drifter and drogue data, is used to model oceanographic patterns. This data is then assessed with consideration to epidemiological principles to determine how different regions will influence each other and therefore delineate BMAs.

In support of the development of BMAs, DFA has invested in critical biosecure infrastructure. Construction of a wharf in Harbour Breton and expansions to wharves in Pools Cove and Hermitage were completed in 2013. These wharves are critical as biosecure access points for items such as fish and feed transport in the BMAs. Biosecurity protocols govern the movement of people, fish, feed, and equipment to and from the farms and between BMAs.

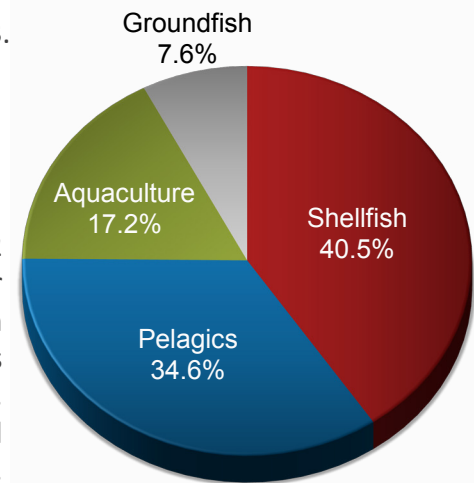
DFA and industry partners recognize that the establishment of science-based BMAs will enhance biosecurity, optimize fish health, and improve the sustainability of the industry through enhanced industry coordination and management. The implementation of BMAs in Newfoundland and Labrador is a proactive approach to meeting or exceeding best practices worldwide.



PRODUCTION OVERVIEW

In 2013, there were 86 active processing operations in the province, down from 99 in 2012. Of these, 70 were primary facilities, 2 were secondary, 3 were aquaculture, and 11 were retail. Total seafood production increased by 5.1 per cent, from 140,030 tonnes in 2012 to 147,128 tonnes in 2013. See the chart on the right for the share of production by sector.

Production Volume by Sector, 2013



Note:
 - Total production volume = 147,128 tonnes.
 - Production volume is based on final processing volume.
 - Sector components may not sum due to independent rounding.

Source: DFA

SHELLFISH

Shellfish production decreased 1.9 per cent, from 60,765 tonnes in 2012 to 59,633 tonnes in 2013. This decrease is mainly attributed to lower shrimp production. Cooked and peeled coldwater shrimp production totalled 16,816 tonnes in 2013, down 6.3 per cent from 17,938 tonnes in 2012, and accounted for 11.4 per cent of total seafood production. Snow crab sections destined for the United States market increased 25.9 per cent, from 15,360 tonnes in 2012 to 19,331 tonnes in 2013. Japanese snow crab sections, however, decreased by 16.9 per cent, to 9,859 tonnes in 2013, after an increase in the previous year. Sections for the Japanese and United States markets combined, accounted for 19.8 per cent of total seafood production. Shellfish represented 40.5 per cent of total production in 2013 compared to 43.4 per cent in 2012.

PELAGICS

Pelagics production increased 18.2 per cent, from 43,089 tonnes in 2012 to 50,926 tonnes in 2013. There was an increase in herring and mackerel production as the result of increased landings. Herring production increased 37.1 per cent, from 12,694 tonnes in 2012 to 17,407 tonnes in 2013. Mackerel production increased 49.0 per cent, from 3,113 tonnes in 2012 to 4,639 tonnes in 2013. Capelin production remained relatively on par with 2012, at 23,139 tonnes. Pelagics production comprised 34.6 per cent of total seafood production in 2013.

GROUNDFISH

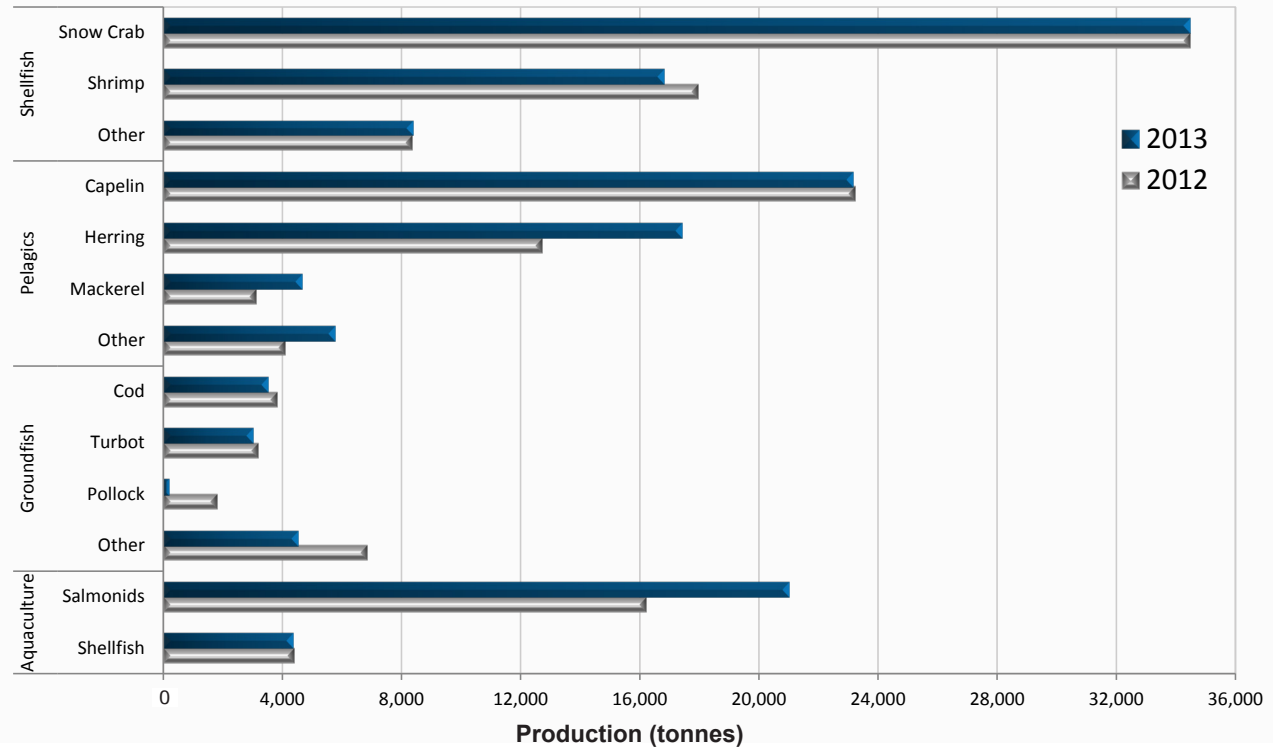
Groundfish processing decreased significantly in 2013, recording a 28.0 per cent drop compared to the previous year, despite an increase in landings. Much of the increase in landings resulted from higher landings of yellowtail flounder and redfish. This was largely due to increased fishing efforts following exemptions that were granted from the minimum processing requirements for yellowtail flounder and redfish in 2013. Groundfish production declined from 15,579 tonnes in 2012 to 11,215 tonnes in 2013. This is the result of lower production of pollock, haddock, and cod. Groundfish production accounted for 7.6 per cent of total seafood production in 2013.

AQUACULTURE

The final processing volume of aquaculture production increased 23.1 per cent in 2013, compared to 2012. Aquaculture production comprised 17.2 per cent of total seafood production in 2013, up from 14.7 per cent in 2012, due to higher volumes of salmon.

PRODUCTION VOLUME BY KEY SPECIES

Newfoundland and Labrador



Note: The breakdown of some species is suppressed due to a low number of producers. Production volume is based on final processing volume.
Source: DFA



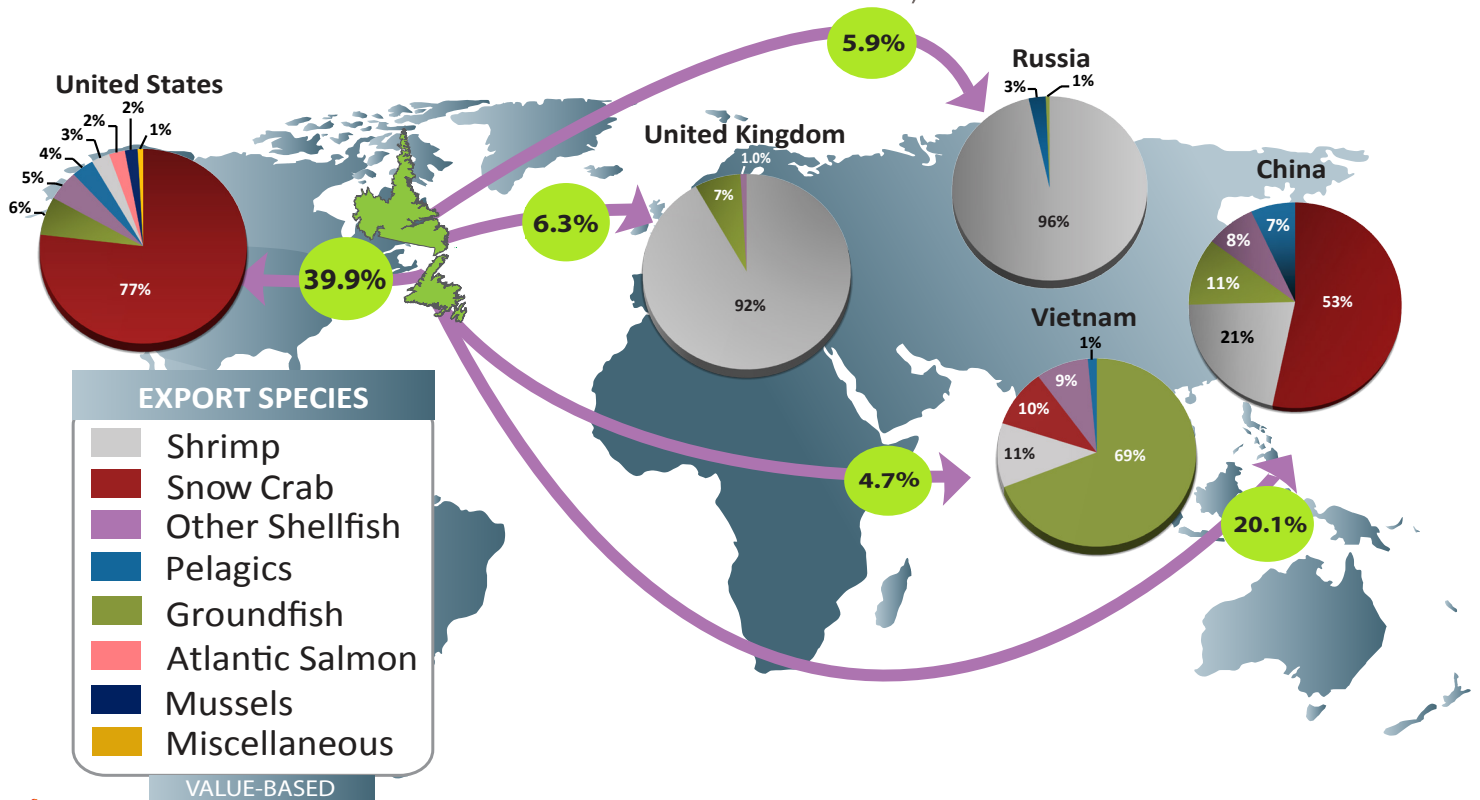


MARKET OVERVIEW

The majority of Newfoundland and Labrador seafood is exported to more than 40 countries around the globe. From January to November 2013, the province's seafood industry exported seafood products valued at over \$780 million, up approximately 6.4 per cent from the same period in 2012. The volume of seafood exports increased as well, up 3.6 per cent to approximately 133,000 tonnes.

The United States remained the largest export market for Newfoundland and Labrador seafood, representing 39.9 per cent of export value from January to November 2013. China followed as the second largest export destination, representing 20.1 per cent of export value. Other key markets, based on export value, included the United Kingdom at 6.3 per cent, Russia at 5.9 per cent, Vietnam at 4.7 per cent, and Denmark at 4.7 per cent. These markets represented 81.6 per cent of the province's value of seafood exports.

TOP FIVE WORLD MARKET DESTINATIONS FOR SEAFOOD PRODUCTS NEWFOUNDLAND AND LABRADOR, 2013



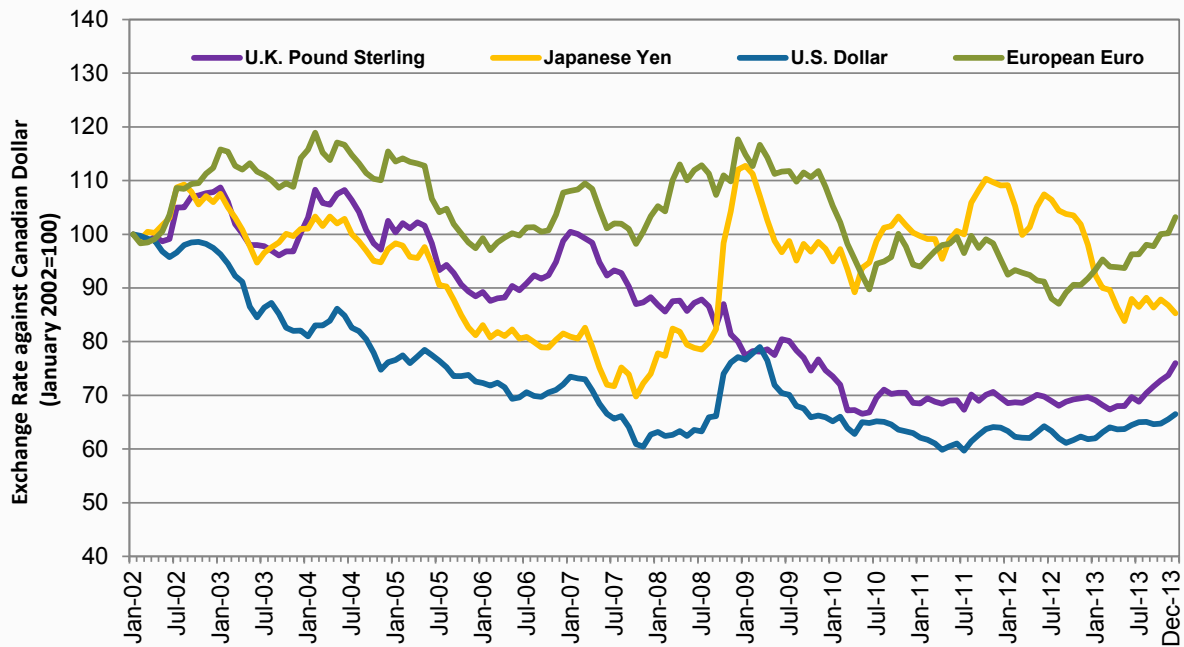
EXPORT SPECIES

- Shrimp
- Snow Crab
- Other Shellfish
- Pelagics
- Groundfish
- Atlantic Salmon
- Mussels
- Miscellaneous

VALUE-BASED

SELECTED FOREIGN EXCHANGE RATES

Indexed to January 2002



Source: Bank of Canada

Global seafood demand remained strong in 2013, as consumers were attracted by the health benefits of seafood consumption. World fish trade was up, with both the volumes and values entering world markets showing moderate growth. However, seafood markets remained impacted by the difficult economic climate in major economies. According to the Food and Agriculture Organization of the United Nations Fish Price Index, overall price levels remained high in 2013, however, they are lower than the peak levels recorded in late 2012.

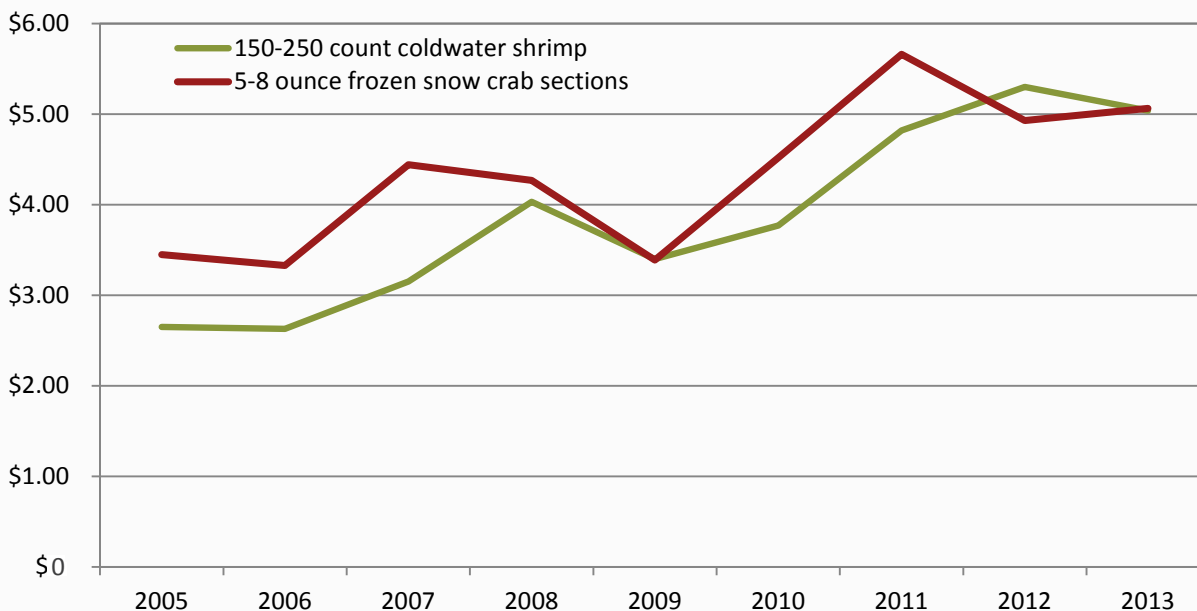
After appreciating considerably for a number of years, the value of the Canadian dollar decreased against the United States dollar, the Euro, and the British pound (see chart above). A weaker Canadian dollar makes Canadian goods less expensive in these markets which results in higher profits for Canadian producers. In comparison to the Japanese yen, the Canadian dollar continued to appreciate, resulting in relatively more expensive Canadian goods in the Japanese market and reduced revenue for provincial producers.

SNOW CRAB

Snow crab was the most valuable seafood export for the province in 2013, valued at over \$351 million in the first 11 months of the year. The United States remained the largest export destination for snow crab, accounting for 68.1 per cent of export value, with China following at 23.8 per cent. While snow crab consumption has increased in China, the country still remains a major reprocessing destination, with finished products ultimately exported to Japan, the United States, and Europe. Market prices for snow crab remained strong through 2013, increasing slightly from 2012 levels. According to Urner Barry Publications Inc., the average market price for 5-8 ounce sections increased 2.6 per cent to US\$5.06 per pound in 2013, up from US\$4.93 per pound in 2012 (see chart on page 17).

AVERAGE MARKET PRICES

US\$/lb



Source: Urner Barry Publications Inc.

SHRIMP

The value of shrimp exports was over \$225 million for the first 11 months of 2013. The key markets for cooked and peeled shrimp, in order by value, were the United Kingdom (46.7 per cent), the Netherlands (18.2 per cent), the United States (17.7 per cent), and Denmark (11.4 per cent). The major markets by value for shell-on, frozen-at-sea shrimp were Russia, China, and Denmark. The average market price for 150-250 count coldwater shrimp (the major product type for the Newfoundland and Labrador shrimp fishery) was US\$5.04 per pound in 2013, according to Urner Barry Publications Inc., down 4.9 per cent from the 2012 average (see chart above).

COD

Cod exports were valued at \$9.9 million for the first 11 months of 2013, down 12.6 per cent from the same period in 2012. The United States and the United Kingdom were the largest export destinations for Newfoundland and Labrador cod, representing 47.1 per cent and 35.1 per cent of total cod export value respectively. Market prices for frozen cod in the United States declined in 2013, largely the result of an oversupply of whitefish in the global market. However, fresh cod prices increased due to a growing demand for fresh fish.

PELAGICS

There was an increase in export volume for major pelagic species in the Newfoundland and Labrador fishing industry in 2013. The value of capelin exports increased 3.8 per cent to approximately \$21 million. China was the largest market for capelin, accounting for 45.0 per cent of export value, followed by the United States and Taiwan. Mackerel exports rebounded after a significant decrease in 2012. The value and volume of mackerel exports more than doubled, reaching \$6.7 million and 2,943 tonnes respectively. Major mackerel markets included Taiwan, accounting for 26.1 per cent of export value, followed by China at 18.2 per cent. Herring exports increased to just over \$8.1 million, up 8.0 per cent relative to the January to November period of 2012. The largest market for herring was the United States, representing 79.3 per cent of the herring export value.

SATELLITE TAGGING - A HISTORIC FIRST

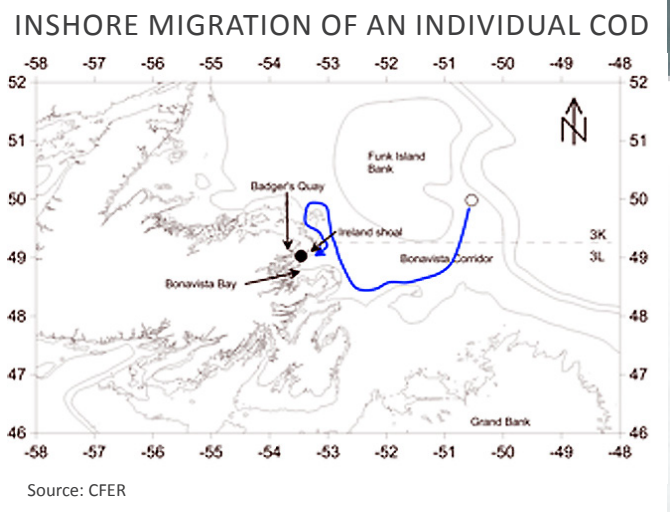
SPECIAL FEATURE



The Centre for Fisheries Ecosystems Research (CFER) focuses on using leading-edge research techniques to enhance the knowledge of adjacent fish stocks. This includes the use of innovative “pop-up” satellite tags to track the distribution and migration patterns of cod and other groundfish in the waters around Newfoundland and Labrador.

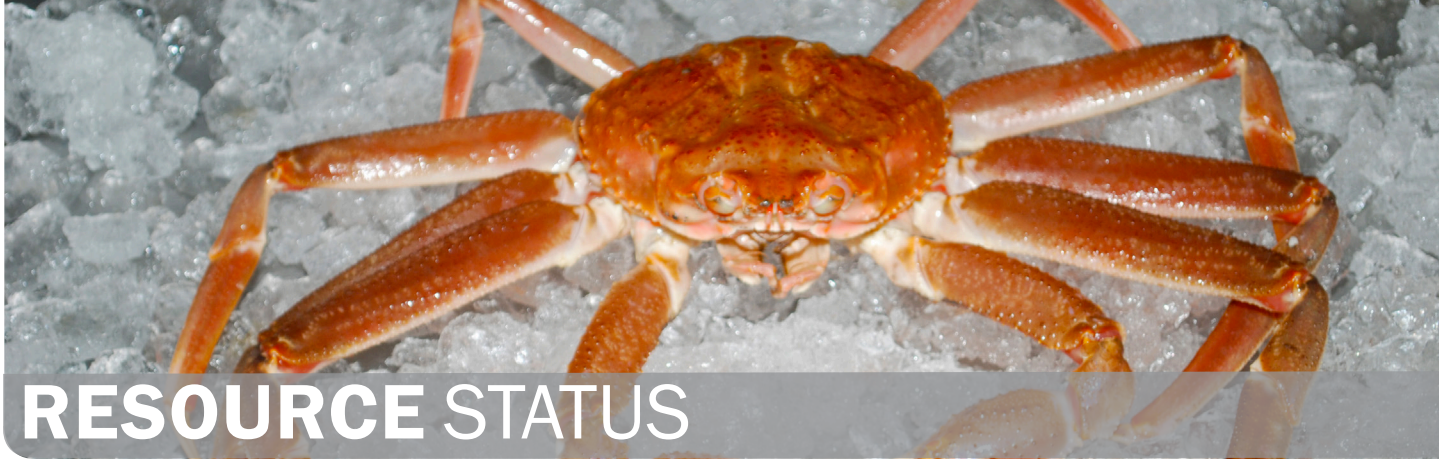
Satellite tags collect and store unique information, such as latitude and longitude, for a year or more before “popping up” from the fish and transmitting the data back to scientists via satellite. This sophisticated technology has traditionally been used to track movements of larger fish, such as tuna. With the help of provincial funding in 2011, CFER developed a method for attaching satellite tags to large cod in order to provide valuable information regarding their overwintering, spawning, and migratory behaviour.

During its offshore acoustic survey, CFER attached these tags to 25 cod in 2012 and 42 cod in 2013. The majority were tagged off the northeast coast of the province, while additional tags were placed on fish off the province’s south coast, the southern Grand Banks, and the Flemish Cap. In October 2013, CFER also tagged 20 Atlantic halibut in the northern Gulf of St. Lawrence, in partnership with the Fish, Food and Allied Workers (FFAW) and Fisheries and Oceans Canada (DFO), in order to provide similar insight on this valuable groundfish stock. This is the first time satellite tags have been successfully placed on cod.



CFER has received all the data from the cod tagging that occurred in 2012. Preliminary results have already provided exciting insight into the specific timing and routes of northern cod migration patterns, from offshore overwintering areas to inshore feeding grounds, over the course of an entire year. Understanding these elements is critical to assessing and managing the northern cod stock.

This data will be analysed by CFER, as well as results from tags expected to “pop up” from cod and Atlantic halibut that were tagged in 2013. This will give a complete picture of their movements and behaviour. CFER is also busy developing a method for using satellite tags on smaller cod, which, if successful, will be deployed during the offshore acoustic survey planned for the spring of 2014.



RESOURCE STATUS

Management measures for commercial fish stocks, including the Total Allowable Catch (TAC), are established and regulated by the Federal Government through DFO. Fish stocks on the Grand Banks that straddle Canada's 200-mile limit are managed by NAFO.

There appears to be a decline in shrimp and snow crab stocks in some areas, while other shellfish stocks remain stable. Most groundfish stocks remain at low levels, although several stocks in areas around the province appear to be improving, with the yellowtail flounder stock on the Grand Banks considered to be fully recovered.

SNOW CRAB

The snow crab resource has been relatively stable on the east coast (NAFO Division 3L) of the province in recent years, while it has declined in the north. The TAC for the snow crab fishery in 2013 was set at 52,287 tonnes, a reduction of 0.4 per cent from a TAC of 52,502 tonnes in 2012. The quota was reduced in NAFO Divisions 3K and 2J by approximately 10 per cent, while the quota was increased by less than 1 per cent in NAFO Divisions 3LNO. The quotas in NAFO Divisions 3Ps and 4R3Pn remained unchanged in 2013.

NORTHERN SHRIMP

The northern shrimp resource extends from the Grand Banks to the Davis Strait. Biomass estimates of northern shrimp in southern areas have declined in recent years from historically high levels. In 2013, the TAC in SFA 6 remained at 60,245 tonnes. The TAC for northern shrimp in SFA 7, which is managed by NAFO, was reduced by 38 per cent to 12,000 tonnes in 2012 and further reduced by 28 per cent to 8,600 tonnes in 2013. It will be reduced by an additional 50 per cent in 2014 to 4,300 tonnes. Canada's allocation of shrimp in SFA 7 is 83 per cent.

GULF SHRIMP

The province's Gulf shrimp fleet fishes in the Esquiman Channel portion (NAFO Division 4R) of the Gulf of St. Lawrence. The abundance of Gulf shrimp has declined in some areas, but overall the stock remains at a healthy level. The TAC in the Esquiman Channel was reduced by 10 per cent, from 10,452 tonnes in 2012 to 9,395 tonnes in 2013. The Newfoundland and Labrador-based fleet is allocated 65 per cent of the TAC in the Esquiman Channel.

TOTAL ALLOWABLE CATCH (TONNES)

| SPECIES GROUP | | 2012 | 2013 |
|----------------------------|---|---------|---------|
| SHELLFISH | SHELLFISH | | |
| | Snow Crab (Newfoundland and Labrador) | 52,502 | 52,287 |
| | Gulf (4R) Shrimp (Newfoundland and Labrador) | 6,803 | 6,115 |
| | Northern Shrimp | | |
| | -inshore (SFAs 6 + 7) (Newfoundland and Labrador) | 46,266 | 44,287 |
| | -offshore/special allocations (Atlantic-wide) | 129,191 | 134,351 |
| GROUND FISH | GROUND FISH | | |
| | 3Ps Cod (15.6% allocated to St. Pierre et Miquelon, France) | 11,500 | 11,500 |
| | 4RS3Pn Cod (Newfoundland and Labrador and Québec) | 1,500 | 1,500 |
| | Redfish Unit 2 (3.6% allocated to St. Pierre et Miquelon, France) | 8,500 | 8,500 |
| | NAFO Stocks | | |
| | 2+3KLMNO Turbot (Canada 36%) | 16,326 | 15,510 |
| | 3LNO Yellowtail Flounder (Canada 97.5%) | 17,000 | 17,000 |
| | 3O Redfish (Canada 30%) | 20,000 | 20,000 |
| 3LN Redfish (Canada 42.6%) | 6,000 | 6,500 | |
| PELAGICS | PELAGICS | | |
| | Herring (Newfoundland and Labrador stocks + 4R) | 30,341 | 30,721 |
| | Mackerel (Atlantic-wide) | 36,000 | 36,000 |
| | Capelin (Newfoundland and Labrador stocks + 4R) | 35,591 | 36,711 |

Source: DFO; DFA

COD

The northern cod (NAFO Divisions 2J3KL) stock consists of an inshore and offshore component. The offshore component has been under a directed fishing moratorium since 1992. A limited inshore fishery was conducted from 1998 to 2002, and again from 2006 to 2013. In 2012, commercial harvesters were permitted an allowance of 3,750 pounds per licence holder. This allowance was increased to 5,000 pounds in 2013. The northern cod stock remains well below historical levels, but has increased from the levels observed in the 1994-2005 period.

The TAC for the south coast cod (NAFO Division 3Ps) stock was set at 15,000 tonnes from 2001 to 2006, but reduced to 13,000 tonnes in 2007 and 2008 based on scientific information. The TAC was further reduced to 11,500 tonnes in 2009 and remained at this level for the past four years. The biomass of NAFO Division 3Ps cod has increased considerably since 2009, and recent scientific information indicates continued growth is expected.

The Northern Gulf of St. Lawrence cod (NAFO Divisions 4RS3Pn) stock remains well below its historic level. In 2003, the stock was placed under a directed fishing moratorium, but the fishery reopened in 2004 with a TAC of 3,500 tonnes. Due to signs of improvement, the TAC was increased to 6,000 tonnes in 2006 and to 7,000 tonnes from 2007 to 2009. However, the TAC was reduced to 4,000 tonnes in 2010, 2,000 tonnes in 2011, and 1,500 tonnes in 2012 due to a declining stock biomass. A TAC of 1,500 tonnes was maintained for the 2013 fishing season.

UNIT 2 REDFISH

Unit 2 redfish is located off the south coast of the island, in parts of the Laurentian Channel, and on the eastern Scotian Shelf. The stock has been relatively stable over the past several years, with little growth due to low recruitment. Since 2006, the TAC has been set at 8,500 tonnes. This TAC was maintained for the 2013 fishing season.

NAFO-MANAGED STOCKS

2+3KLMNO TURBOT (GREENLAND HALIBUT)

The TAC for Greenland halibut was set at 16,000 tonnes in 2007 and remained at this level until 2010, during which time NAFO adopted a new management strategy evaluation approach for this stock. Under the approach, the TAC was increased to 17,185 tonnes in 2011, but due to indications of a short-term decline in the stock, the TAC was reduced by 5 per cent to 16,326 tonnes in 2012 and was further reduced by 5 per cent to 15,510 tonnes in 2013. The TAC will be slightly reduced to 15,441 tonnes in 2014. Canada's allocation is 36 per cent of the TAC, which is mainly fished by Newfoundland and Labrador-based vessels.

3LNO YELLOWTAIL

The yellowtail flounder resource in NAFO Divisions 3LNO has experienced significant growth in the past several years. Indicators of stock status continue to be positive, and yellowtail flounder is considered to be fully recovered to levels equivalent to those of the 1980s. The TAC has been set at 17,000 tonnes since 2009 and will remain at this level in 2014. Canada's share of this stock is 97.5 per cent, which is harvested by offshore vessels based in Newfoundland and Labrador.

3O REDFISH

The redfish resource in NAFO Division 3O appears to have increased since the early 2000s. The TAC for the 3O redfish fishery has been set at 20,000 tonnes since 2005 and will remain at this level in 2014. Canada's share of this stock is 30 per cent.

3LN REDFISH

The NAFO Division 3LN redfish fishery, which was under moratorium in 2009, was reopened in 2010 with a TAC of 3,500 tonnes. This TAC was increased to 6,000 tonnes in 2011 and 2012, and further increased to 6,500 tonnes in 2013. The TAC will increase by an additional 500 tonnes to 7,000 tonnes in 2014. Canada's share of this stock is 42.6 per cent.

OTHER STOCKS

NAFO-managed straddling groundfish stocks that will remain under moratoria in 2014 include 3NO cod, 3NO and 2J3KL witch flounder, and 3LNO American plaice.



DEPARTMENTAL INITIATIVES

During 2013, the department continued work with stakeholders through a number of ongoing and new initiatives towards the vision of a sustainable provincial seafood industry that achieves its optimum economic contribution to the province.

AQUACULTURE

- The department continued to invest in biosecurity with the completion of the Harbour Breton inflow wharf and extensions of wharves in Pools Cove and Hermitage. Design and engineering of the Milltown inflow wharf was completed and the tender for the work was released.
- DFA continued to collect data in remote regions of the south coast to provide information for industry development and management. Biophysical data points were collected via remote recording stations that transmit data through satellite links.
- The department provided funding to support a wide range of research initiatives for the aquaculture industry. Projects included marketing, promotion and certification initiatives, sea lice control, mussel culture, and processing technology.
- DFA began the renewal of a Provincial Aquaculture Strategy. Consultations were conducted with provincial stakeholders, including industry participants; municipal, provincial, and federal government agencies; first nations organizations; regional development groups; academic and research institutions; and non-governmental organizations. Public opinion was also collected through an online questionnaire.
- DFA is working with the Department of Finance to develop a socio-economic profile for the aquaculture industry. The profile will highlight the socio-economic impacts of the industry.

TRADE

- On October 18, 2013, Canada and the European Union signed an Agreement-in-Principle on a Comprehensive Economic and Trade Agreement (CETA). This agreement will create tremendous benefits for the provincial seafood industry. Over 99 per cent of fish and seafood tariff lines important to Newfoundland and Labrador are effectively going to be duty free once CETA comes into effect. In addition, CETA will provide opportunities for Newfoundland and Labrador producers to develop new value-added and branded seafood products for European markets.
- A \$400 million Federal-Provincial Fisheries Investment Fund has been established to invest in initiatives such as research and development, marketing, fisheries research, and enhancements to provincial fisheries infrastructure. Programs and initiatives delivered through this fund will enhance the industry's capacity to compete globally.
- DFA will continue to monitor ongoing trade agreement negotiations, including the Trans-Pacific Partnership Agreement and the Canada-Japan Economic Partnership Agreement, to ensure the achievement of real market access which will result in positive benefits for the seafood industry.

LOBSTER SUSTAINABILITY PLAN

- The Conservation and Sustainability Plan for the Newfoundland Lobster Fishery continued in 2013. This initiative is funded jointly by the FFAW, the Government of Newfoundland and Labrador, and the Government of Canada on a 40/30/30 basis.
- The program encourages the long-term sustainability and economic prosperity of the lobster fishery through conservation practices, trap reductions, and the Lobster Enterprise Retirement Program (LERP).
- LERP was initiated as part of the plan, to improve the income levels of fish harvesters and viability of lobster-dependent fishing enterprises. The program provides lobster licence holders an opportunity to sell their licences and retire their fishing enterprises through a reverse auction process. It is slated to run until March 2014.
- Thus far, there have been nine rounds of bidding under LERP with 240 licence retirements.



SEALING INDUSTRY

The provincial Sealing Industry Communications and Advocacy Strategy supported the sealing industry in 2013 through key activities, including:

- Efforts to develop new seal products and target new international markets;
- Efforts to carry out an international branding and marketing strategy for seal products;
- Providing support to the Federal Government in its legal action through the WTO to remove the European Union ban on seal products;
- Providing support to the Fur Institute of Canada and Inuit Tapiriit Kanatami in their legal efforts to have the European Union seal product ban annulled;
- Advocating for the development of mandatory training and certification requirements to support professionalization in the sealing industry;
- Coordinating an integrated approach on seal management and market development;
- Efforts to finalize the Canada-China agreement for market access for edible seal products into China;
- Efforts to stop the ban on harp seal fur products in the Russian Federation, Belarus, and Kazakhstan; and
- Providing an inventory loan to the seal processing industry for the purchase of raw material to protect the viability of the province's seal industry while challenges at WTO and the European Court of Justice are ongoing.

MARKETING

- DFA and the provincial seafood industry participated in key international seafood trade shows, including the International Boston Seafood Show, European Seafood Exposition, and China Fisheries and Seafood Expo.
- DFA coordinated a webinar information session for industry on market opportunities and doing business with Brazil.
- DFA partnered with the New Brunswick and Nova Scotia governments on a Japanese televised cooking competition promoting Atlantic Canadian seafood products.
- DFA provided funding to the Lobster Council of Canada towards a lobster traceability pilot project and contributed towards branding and quality standards initiatives.
- In partnership with the Restaurant Association of Newfoundland and Labrador, the Newfoundland and Labrador Chef's Association, and the Department of Natural Resources, DFA participated in "From This Rock" culinary events promoting Newfoundland and Labrador agri-food and seafood products.
- In cooperation with the Newfoundland and Labrador Chef's Association, DFA promoted seafood products at "The Gathering" in Burlington, Newfoundland and Labrador, and at a James Beard culinary event in New York City.
- The Newfoundland and Labrador Culinary Olympic Team was supported by DFA to assist with its participation in culinary competitions, conferences, and educational endeavours.
- DFA promoted the Newfoundland and Labrador seafood industry in an industry profile supplement featured in *Chef and Grocer* magazine, a Canadian trade publication.
- DFA continues to provide support to industry for certification efforts. In April 2013, Newfoundland and Labrador snow crab achieved Marine Stewardship Council certification. To date, 77 per cent of Newfoundland and Labrador seafood products, by value, have obtained this certification.
- Financial assistance was provided to the Newfoundland Aquaculture Industry Association towards obtaining organic certification of Newfoundland and Labrador blue mussels.
- Market intelligence and support was provided to industry and the Standing Fish Price-Setting Panel.



FISHERIES TECHNOLOGY AND NEW OPPORTUNITIES PROGRAM (FTNOP)

- There was approximately \$1.77 million invested into fisheries and aquaculture research and development projects under FTNOP in 2013.
- In the harvesting sector, funding was provided for initiatives such as gear assessment, testing of twin trawls, and modified beam trawls; continued support of research to develop energy efficient shrimp trawls while reducing seabed impacts; testing of drop chain footgear and semi-pelagic shrimp trawls to reduce seabed impact and improve fuel efficiency; underwater camera research to monitor fish behaviour in potting and other static gear; and development of improved whelk sorting technology.
- In the processing sector, funding was provided for projects such as testing of enhanced crab butchering technology to improve yields and throughput; research on enhanced sanitation technology; development and modification on the latest generation of energy efficient steam cooking technology; completion of a plant energy audit; research on the utilization of shrimp shells to enhance value in the industry; continued support for the development of a demonstration bio-refinery using fish waste; and transfer of new and improved thawing technology.
- Marketing funding was provided for projects such as mussel marketing campaign to globally promote our organically-produced farmed mussels; marketing and promotion of seafood products; and development, marketing, and promotion of seal products.
- In the aquaculture industry, funding was provided for initiatives such as research to develop innovative deep water mussel socking and harvesting technology; researching the use of cleaner fish to reduce sea lice on farmed salmon; and aquaculture promotion.



FISHERIES RESEARCH GRANT PROGRAM

The Fisheries Research Grant Program funded several research initiatives in 2013, including:

- A study of haddock off the southern portion of the island to provide information regarding the biomass and abundance of NAFO Division 3Ps haddock for the 2014 scientific assessment of this stock. CFER is conducting this research.
- A tagging project for inshore northern cod to provide information on exploitation rates and migration patterns, and research projects on cod in the Northern Gulf of St. Lawrence that aim to provide information on life history characteristics of this stock. These initiatives are conducted by DFO and the FFAW in collaboration with DFA.

- A post-season snow crab trap survey to help determine the biomass and recruitment prospects of the province's snow crab resource, conducted by the FFAW in partnership with DFO.
- A survey in Connaigre Bay to investigate interactions between aquaculture sites and the lobster and snow crab fisheries in the area, conducted by DFO in partnership with the FFAW, Cold Ocean Salmon, and DFA.
- A Lobster Science Logbook and At-Sea Sampling initiative, conducted by the FFAW in partnership with DFO. This initiative collects information on catch, effort, abundance, and recruitment during the lobster fishing season to inform decision-making processes for the province's lobster resource.
- Research on hagfish and sea cucumber to enhance knowledge of the resource and the sustainable utilization of these emerging fisheries in Newfoundland and Labrador.

INSPECTION PROGRAM

- In 2013, over 3,500 inspections were conducted pertaining to raw product requirements; handling and holding conditions on vessels, trailers, and unloading sites; buyers and processing licence compliance checks, aquaculture sites, and point of export inspections at Port aux Basques.
- There were 17 audits conducted on licensed processing facilities in 2013. These audits ensured that each licence holder was complying with the requirements specified under the *Fish Inspection Act* and specific licence conditions or exemptions.

QUALITY COMPLIANCE AND ENFORCEMENT PROGRAM FIRST GRADUATES



In 2013, the Quality Compliance and Enforcement Program (QCEP) completed its sixth year with its first group of graduates. The eight graduates completed all QCEP courses and graduated with an Advanced Diploma in Compliance and Enforcement. QCEP is a specialized training program designed to enhance knowledge and skills with respect to compliance, enforcement, and quality assessment. When the program was developed in 2007, it was a unique initiative unlike any other program in the country.

QCEP is comprised of 18 modules in advanced training of numerous aspects of fish inspection and regulation enforcement, including inspection techniques and procedures; courtroom terminology and proceedings; note-taking and report writing; communications; seafood handling, grading, and processing; arrest, search, and seizure; interviews and interrogations; criminal law; law enforcement ethics; leadership and field skills; physical fitness and lifestyle management; enforcement operations; officer safety; and licensing and management. The program modules provide classroom exercises and have been administrated in partnership with the College of the North Atlantic, the Marine Institute, the Royal Canadian Mounted Police, and the Canadian Coast Guard.



OUTLOOK FOR 2014

Global seafood demand is expected to remain strong in 2014. While a difficult economic climate has impacted the world's major traditional seafood markets, new economic growth in the United States, Japan, and the United Kingdom should benefit fish producers in the coming year. Demand in developing countries is stronger, improving both production and imports in those countries. As an increasing number of consumers find themselves part of the world's middle class, consumption habits are moving towards increased demand for higher quality products and higher valued products. This trend will continue to influence markets positively, as increasing demand for seafood products will likely encourage increased fishing effort, which could bode well for the Newfoundland and Labrador seafood industry.

CAPTURE FISHERIES

In 2014, fish landings are expected to remain on par with 2013. Quota reductions in some fisheries, such as northern shrimp, will likely be offset by increased landings in the groundfish sector. If market prices remain stable, the Newfoundland and Labrador seafood industry will once again be valued at over \$1 billion.

In recent years, the supply of coldwater shrimp has been declining globally and this trend is expected to continue in 2014. A reduction in global supply will largely come as a result of a drop in coldwater shrimp production in Greenland this year. Under the 2013-15 European Union Autonomous Tariff Rate Quota, 30,000 tonnes of cooked and peeled shrimp can enter into the European Union without a tariff charge. These factors will likely have a positive impact on the Newfoundland and Labrador shrimp industry in 2014.

Global demand for snow crab should remain strong in 2014. The supply of cod has increased globally over the past several years and is expected to continue increasing in 2014. This could result in lower prices, especially for traditional products such as frozen fillets and blocks.

AQUACULTURE

Newfoundland and Labrador aquaculture production is expected to show a slowdown in growth in 2014, due to lower levels of Atlantic salmon production. Decreased production will be the result of changes in production schedules, along with production losses due to Infectious Salmon Anaemia virus events in 2013. Market prices for Atlantic salmon, however, are anticipated to remain strong in 2014, based on minimal growth in production volumes globally. While mussel production volumes are expected to show a small decline in 2014, market prices for mussel products are anticipated to remain relatively on par with 2013.

Active Fish Processing Plants Newfoundland and Labrador, 2013

● Location of Plant



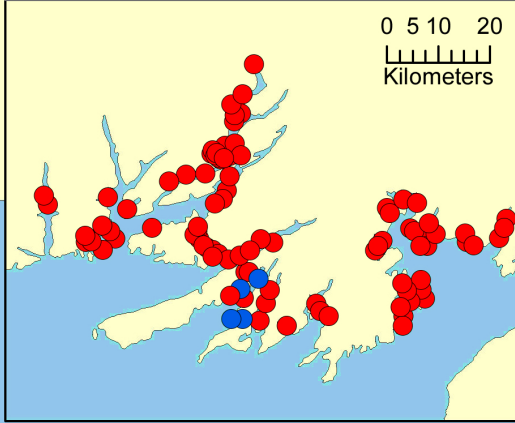
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Licensed Aquaculture Sites Newfoundland and Labrador, 2013

- Salmonid/Hatchery
- Shellfish

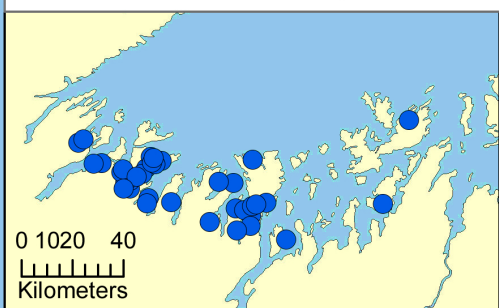
Connaigre Peninsula

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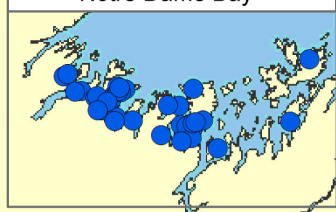


Notre Dame Bay

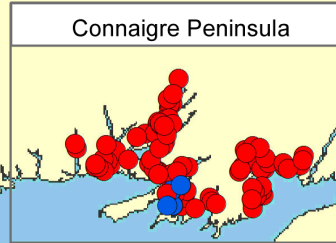
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Notre Dame Bay

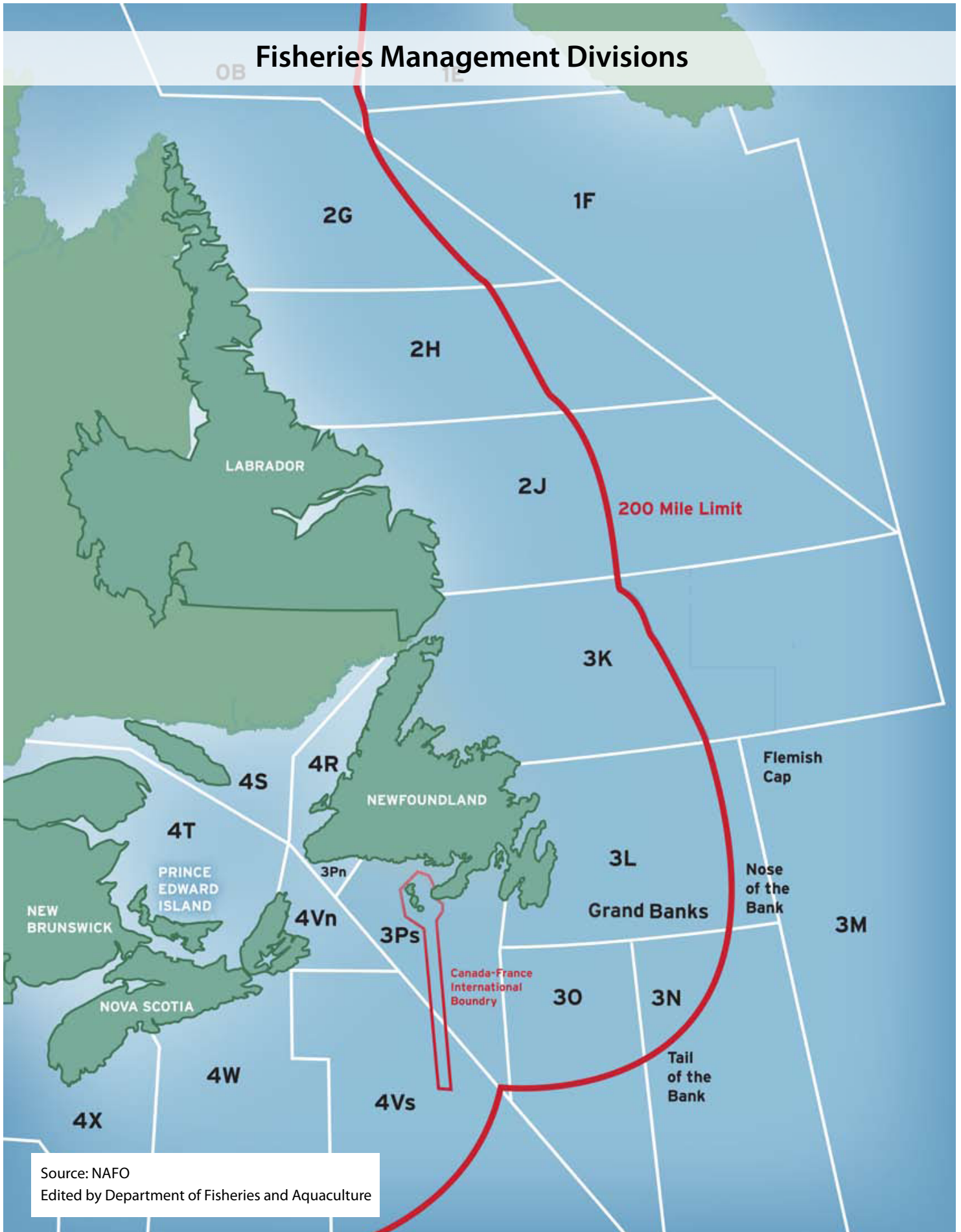


Connaigre Peninsula



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PHOTO REFERENCES

Front cover inset top right: harvesting capelin, mussel farmers, processing cod, cooking crab

Front and back cover feature image: iceberg

Message from the Minister: harvesting capelin

Page 1: variety of Newfoundland and Labrador seafood

Page 3: herring

Page 5: shrimp, snow crab, lobster

Page 8: seal oil capsules, seal meat, harvesting seals, seal fur products

Page 10: mussel farm

Page 11: mussels on growing lines, salmonid site in Fortune Bay, feed vessel

Page 12: bay management current trackers

Page 13: cod processing

Page 14: mussel processing, salmon processing, whole salmon

Page 15: the China Fisheries and Seafood Exposition 2013

Page 18: satellite tagging of cod

Page 19: snow crab

Page 22: unloading shrimp

Page 23: assorted Newfoundland and Labrador shellfish

Page 24: fine dining with Newfoundland and Labrador seafood

Page 25: drop chain footgear installation on a traditional shrimp trawl

photo credit: Centre for Sustainable Aquatic Resources/ MI

Page 26: QCEP graduates

Page 27: sun on the ocean

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Fisheries and Aquaculture

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