



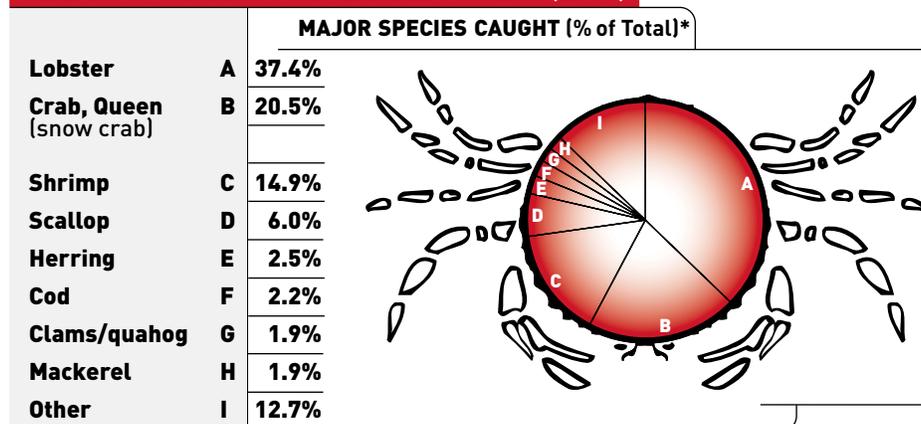
Seafood Industry in Atlantic Canada

With its four provinces representing 40,000 kilometres of coastline, Atlantic Canada accounts for the vast majority of Canada's rich variety of harvested and processed groundfish, shellfish, and pelagic products exported worldwide. In addition, the region's ideal coastal environment has spawned an aquaculture industry specializing in a wide range of species with products shipped to global markets.

The seafood industry in Atlantic Canada is recognized internationally for its quality, leadership and innovation. Here you will find the world's leading producer of canned sardines, the world's largest exporter of fresh, live lobster, and an industry known for its innovations such as new packaging techniques that can extend the shelf life of fresh seafood products for up to 10 days.

In addition to innovation, the industry is placing greater emphasis on value-added products such as hors d'oeuvres, pâtés and frozen fish entrées. This trend is generating significant economic benefits and activities within the seafood industry. As a result, Atlantic Canada's seafood exports amounted to approximately \$3 billion, or 69% of the Canadian total, in 2005.

ATLANTIC CANADA COMMERCIAL FISHERY (2005)



source: Department of Fisheries and Oceans (2006)
*value of commercial landings

CHARACTERISTICS

In 2005, the region's commercial landings totalled almost 800,000 tonnes, with a value of \$1.5 billion. The processing and marketing of fish and shellfish harvested from the wild account for the majority of the industry's products. In today's global marketplace, Atlantic Canada's rich tradition in fisheries and its excellent transportation infrastructure (air, sea and land) continue to support the fisheries and aquaculture industry as it develops innovative harvesting, processing and conservation technologies.

The Atlantic Canadian fisheries sector accounts for 73% of total landings in Canada with top production in herring, shrimp, snow crab, scallops, mackerel and lobster. Snow crab has become Atlantic Canada's second most valuable seafood product, with total 2005 landings valued at \$299 million – a 103% increase since 1998.

2005 CANADIAN COMMERCIAL CATCHES AND VALUES

	Catches (tonnes)	Values (in 000 s)
Nova Scotia	250,721	\$647,127
New Brunswick	115,867	\$182,432
Prince Edward Island	40,725	\$132,047
Newfoundland and Labrador	352,427	\$494,040
Atlantic Provinces Total	759,739	\$1,455,646
Quebec Total	57,306	\$152,316
Pacific Total	228,159	\$314,255
Canadian Total	1,045,205	\$1,922,217

source: Department of Fisheries and Oceans - (2006)
Totals may differ due to rounding.

There are over 70 aquatic species licenced for aquaculture farming in Canada. Atlantic Canada is leading in the development of many of these species.

BUSINESS COSTS

Competitive Alternatives: KPMG's guide to international business costs, 2006 compares the costs of doing business in over 120 cities around the world. Atlantic Canada has specific cost advantages in the areas of land, construction, labour and benefits as well as energy and therefore the region ranks higher than its international counterparts in the G7.

BUSINESS ENVIRONMENT

Atlantic Canada's seafood industry continues to grow at a tremendous pace which is reflected in the growth in

Canada/United States Free Trade Agreement

- Eliminates tariffs on processed seafood and marine products, increasing export potential and providing a competitive edge over competitors.
- Harmonizes technical regulations so as not to restrict trade in fishery products.

North American Free Trade Agreement (NAFTA)

- Phases out tariffs on almost all Canadian exports to Mexico.
- Streamlines customs procedures and liberalized investment policies.

General Agreement of Tariffs and Trade (GATT) — Uruguay Round

- Implements an average one-third tariff reduction on processed fish products.
- Reduces or eliminates tariffs on a wide range of fish processing inputs and equipment.
- Enhances export competitiveness throughout Atlantic Canada, particularly for processed fish products exported to Europe, Japan and the Republic of Korea. Key areas of interest are crab, lobster, herring, frozen fish and fillets, shrimp, halibut, salted fish, scallops and mackerel.

LEADERSHIP

New vision and planning, dramatic shifts in direction and the integration of ecological concerns are breathing new life into the Atlantic seafood industry. It is being transformed from a traditionally resource-driven sector to one that is market-driven and more sustainable.

The Atlantic seafood industry is demonstrating both creativity and initiative by experimenting with traditional species, developing markets for non-traditional and under-utilized species, and applying new technologies to a growing aquaculture industry. It is also targeting niche markets worldwide with specialized products such as sea urchins, Irish moss and frozen herring roe. All this is being done with an emphasis on rebuilding and maintaining fish stocks while adopting harvesting and marketing strategies that respond to world demand at competitive prices.

AQUACULTURE INDUSTRY

Atlantic Canada was a pioneer in the emerging aquaculture industry in the 1980s, starting with farmed salmon and

exportation of fish and seafood products. There is also a consistent pattern of growth in value-added fish and seafood products for export.

Most of Atlantic Canada's fish exports go to the United States. In recent years, however, the region has been capturing significant new markets in both Europe and the Pacific Rim. Trade agreements such as the Canada/United States Free Trade Agreement, the North American Free Trade Agreement and the Uruguay Round of the General Agreement of Tariffs and Trade (GATT) are opening doors to additional market opportunities.

COMPARATIVE BUSINESS COSTS INDEX*

OVERALL RESULTS (U.S. average = 100)

YOKOHAMA, JP	108.3	ATLANTIC CANADA	CHARLOTTETOWN, PE	91.7
FRANKFURT, DE	109.7		HALIFAX, NS	92.2
LONDON, UK	109.1		MONCTON, NB	91.1
PARIS, FR	100.2		ST. JOHN'S, NL	94.3
SEATTLE, WA	104.4		SYDNEY, NS	92.2
BOSTON, MA	107.8		TRURO, NS	89.4
NEW YORK, NY	112.6		PICTOU, NS	89.9

source: *Competitive Alternatives: KPMG's guide to international business costs, 2006 Edition.*
 * Business costs are expressed as an index, with the United States average being assigned the baseline index of 100. A cost index of less than 100 indicates lower costs than those in the U.S.

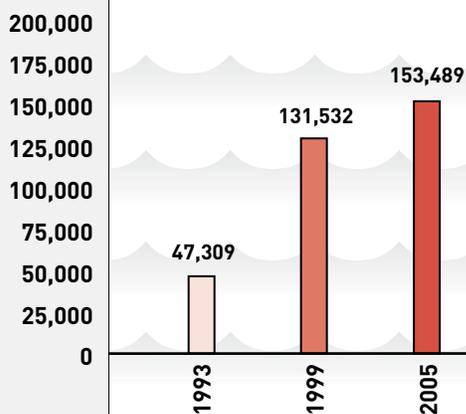
Atlantic Canada firms have developed leading-edge fish processing technologies such as the Modified Atmosphere Packaging, which enhances convenience, consistency, food safety and extends the product's shelf life for up to 10 days.

SEAFOOD INDUSTRY IN ATLANTIC CANADA

mussels and evolving into a broad list of species including oysters, cod and trout. Today, the total value of aquaculture production surpasses \$255 million per year and the volume of production increased from 32,000 tonnes in 1996 to 69,000 tonnes in 2004. With the industry growth that is being experienced, both in the quantity and species produced, salmon, mussels, oysters and trout remain the pre-eminent species in Atlantic Canada.

ATLANTIC CANADA AQUACULTURE EXPORTS

In 1000's of \$



source: Statistics Canada (2006)

New Brunswick's Bay of Fundy region is an ideal environment for salmon farming. The Bay of Fundy is home to approximately 90 salmon farms. Total salmon aquaculture production in New Brunswick was 35,000 tonnes in 2004, with a value of \$175 million.

On Prince Edward Island, almost 21,000 tonnes of mussels and oysters were produced in 2004. The province is home to 77 percent of Canada's farmed mussel production. Prince Edward Island boasts a history of disease-free, land-based finfish culture enabled by the ample supply of pathogen-free surface and ground water.

Newfoundland and Labrador's aquaculture species are predominantly salmon, cod, mussels and steelhead trout. There is an abundance of sites with particular natural advantages for aquaculture. Opportunities exist for new investment in salmon production, in the mussels sector, and the stocking of cod juveniles for commercial cod hatcheries.

Nova Scotia has over 370 sites and offers a diverse range of established and new aquaculture ventures including Atlantic salmon, blue mussels, oysters, steelhead trout, clams, halibut, arctic char and sea plants. In addition to the established farmed species, Nova Scotia companies are exploring emerging species such as abalone and other marine fish such as Sablefish.

Cod aquaculture is in the early commercial phase in Atlantic Canada, but industry experts claim that farmed cod production could reach 128,000 tonnes, valued at \$545 million, by 2015. In terms of farmed halibut, there is a well-established broodstock program including a pedigree database.

RESEARCH AND DEVELOPMENT

Atlantic Canada is responding to existing and new market opportunities by developing better and more cost-effective harvesting, processing, packaging and shipping techniques, all the while adapting to ecological and environmental concerns. Research and development (R&D) activities at universities, marine and food research centres, and private sector facilities support these efforts. For example, a number of seafood processing plants in the region are piloting a collaborative industry project to develop practical, cost-effective practices to conserve energy, raw products and water, and reduce environmental impacts. The plants will introduce new processes to their specialized product lines in an effort to minimize water and energy use and divert product losses from the waste water stream, improving yield with less effect on the environment.

A range of institutions and agencies across the region provide R&D services to assist the fishery and aquaculture industry to develop new products and techniques. The following are among the many examples.

The **Atlantic Veterinary College** (Charlottetown, PE) at the University of Prince Edward Island is a well-established learning institution, research centre and service provider. The College's aquatic animal facilities support extensive research and service in aquaculture and fish health. The school is best known among veterinary colleges for its expertise in this area. Home to world-class research centres such as the Lobster Science Centre, the Animal Welfare Centre and the Centre for Aquatic Health Sciences, the College is a place of dynamic and varied research.

ATLANTIC CANADA RESEARCH AND DEVELOPMENT CENTRES AND INSTITUTES

- **Aquatron, Dalhousie University** (Halifax, NS)
- **Atlantic Veterinary College** (Charlottetown, PE)
- **Bedford Institute of Oceanography** (Dartmouth, NS)
- **Bonne Bay Research Station** (Norris Point, NL)
- **Canadian Aquaculture Institute** (Charlottetown, PE)
- **Canadian Centre for Fisheries Innovation** (St. John's, NL)
- **Canadian Institute of Fisheries Technology** (Halifax, NS)
- **Centre for Aquaculture and Seafood Development** (St. John's, NL)
- **Coastal Zones Research Institute** (Shippagan, NB)
- **Department of Fisheries and Oceans** (Moncton, NB)
- **Huntsman Marine Science Centre** (St. Andrews, NB)
- **Marine Gene Probe Lab at Dalhousie University** (Halifax, NS)
- **Memorial University of Newfoundland Ocean Sciences Centre** (St. John's, NL)
- **National Research Council's Institute for Marine Biosciences** (Halifax, NS)
- **Nova Scotia Agricultural College Aquaculture Centre** (Truro, NS)
- **PEI Food Technology Centre** (Charlottetown, PE)
- **Research and Productivity Council** (Fredericton, NB)
- **Shippagan Marine Centre** (Shippagan, NB)

SEAFOOD INDUSTRY IN ATLANTIC CANADA



PROVINCES AND ABBREVIATIONS

- NB** - NEW BRUNSWICK
- PE** - PRINCE EDWARD ISLAND
- NS** - NOVA SCOTIA
- NL** - NEWFOUNDLAND AND LABRADOR

If you would like more information on this sector, please contact:

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The **National Research Council's Institute for Marine Biosciences** (Halifax, NS) focuses on the growth and diversification of Canada's finfish, shellfish and seaweed aquaculture industries. The Institute's accomplishments in reproduction, husbandry, animal health and nutrition, and the detection and identification of marine toxins are recognized worldwide. In addition, its Certified Reference Materials Program enables chemical analysts around the world to monitor marine pollutants and shellfish toxins.

The **Canadian Centre for Fisheries Innovation** (St. John's, NL) provides the fishing industry with the tools of scientific research and technology. Using the resources of Memorial University of Newfoundland, the Centre offers expert assistance in aquaculture, harvesting, and processing in order to increase and enhance clients' productivity and profitability.

The **Huntsman Marine Science Centre** (St. Andrews, NB), Canada's first marine laboratory, uses its teaching and research facilities to study coastal land marine environments, their organisms, and the sustainable development and effective management of Atlantic Canada's coastal resources.

SEAFOOD IN ACTION

New approaches are paying off for larger national and international companies in Atlantic Canada's fisheries and aquaculture industry.

Cooke Aquaculture Inc. is a truly regional company with operations - either current or in development - in all four Atlantic Canada provinces. Headquartered in New Brunswick, Cooke Aquaculture Inc. is acknowledged to be one of the 50 best managed companies in Canada. It is a fully integrated salmon production company, with two-thirds of its product sold in the fresh market, either as whole fish or as value-added portions and fillets. The remaining one-third of its production is sold as value-added products including pâtés, mousses and smoked products. While Cooke's products are sold under a variety of labels, you may be most familiar with these quality products under the **True North Salmon** or **Heritage** labels.

Located on Prince Edward Island's north shore, **P.E.I. Mussel King Inc.** is the largest privately owned mussel growing operation in Canada. Since its inception in 1978, the company's three mussel farms have acquired water leases in Prince Edward Island and Nova Scotia. The company is responsible for developing many innovative techniques that have become standard mussel culture methodology in the Atlantic Canada region. P.E.I. Mussel King distributes fresh and frozen mussels under the market name **Island Blue**. Its fresh mussels are packed in traditional mesh or using the Modified Atmosphere Packaging (MAP) method. Products are shipped year-round to customers in North America, the Middle East, the Pacific Rim and Europe.

In addition to being the world's largest exporter of fresh, live lobster, Nova Scotia-based **Clearwater Seafoods** is a recognized leader in developing innovative seafood products. Its latest innovation is frozen, shell-off raw lobster meat. Previously, the only way to obtain raw meat was to buy 'live' lobsters. However, the time and costs of cooking, shucking, storage and waste dissuaded chefs from offering multiple menu offerings or serving to large banquet functions. The shell-off process is 100% natural and does not involve any additives or preservatives. It allows whole pieces to be extracted and immediately vacuum packed and frozen to maintain maximum freshness and product integrity.



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