The Fishing and Aquaculture Industry

The fishing and aquaculture industry is of major importance to the Prince Edward Island economy, which is not surprising since the province's location is so near to the rich fishing grounds of the Gulf of St. Lawrence. The landed value of the catch, which is made up of a number of species, was over $165 million in 2003. The province's small population of 140,000 is unable to absorb this production and therefore much of it is marketed within Canada or exported to international markets.

Processing the catch increases the value significantly. The total economic return to the province from the fisheries and aquaculture industry, including employment in processing and related service industries, increases the value to the economy to approximately $350 million.

PEI fishers have access to the fishing grounds of the Gulf of St. Lawrence and the Northumberland Strait as well as a number of bays and rivers within the province. However, they have only limited access to the offshore fishing resources and the fishery has thus largely developed into an inshore fishery with fishing activities centred within a day or two of sailing from home port.

AQUACULTURE

PEI has developed a significant aquaculture industry primarily involving the culture of mussels, oysters and salmonids. In the mussel sector, more than 125 growers who lease approximately 275 sites and more than 10,500 acres are involved in this increasingly important industry with rope cultured PEI mussels now being recognized as a gourmet item. The mussel industry has grown from 100,000 pounds in 1980 to 37 million pounds in 2003 and represents 13 per cent of the total landed value of all species on the Island. PEI mussels are sold in markets in Canada, the United States, Europe and Japan. Oysters remain a major contributor to the economy with an aquaculture sector, and a public fishery with 750 active licenses. In the leasehold fishery there are more than 750 sites with leased acreage in excess of 6,500 acres. More than 1,000 fishers and aquaculturists are involved in this fishery. Finfish aquaculture is also a significant sector with approximately six fresh-water-based farms involved in hatchery and grow-out operations.

VESSELS

The PEI fishing fleet is made up of approximately 1,425 vessels, most being of the smaller type, between nine and 15 metres (30 to 50 feet). These inshore boats are multipurpose in design, and constructed to suit the highly diversified fishery of PEI.

The vessel design has evolved through the centuries to meet the diversified nature of the fishery and accommodate advancements made to fishing equipment and techniques. Most of the vessels, both of wooden and fibreglass construction, are shallow draft with the majority powered by diesel engines. There is a broad working deck used for setting and hauling gear, and storing the catch.

Vessels operating out of harbours along the Northumberland Strait differ in construction and design from those operating in the Gulf of St. Lawrence. The Northumberland Strait vessels are so named because they are designed for the choppy strait waters, while others are designed to operate in the rolling swell common in the Gulf of St. Lawrence. The majority of vessels are constructed in PEI boat shops.

A fleet of midshore, decked vessels engage in the snow crab fishery.

The mussel industry has developed many styles of aluminum and fibreglass vessels. These are outfitted with hydraulic lifting cranes to service mussel longlines.

The shellfish and estuarial fishery use approximately 1,000 dories, a four- to five-metre wooden or fibreglass boat, powered by an outboard motor.

HARBOURS

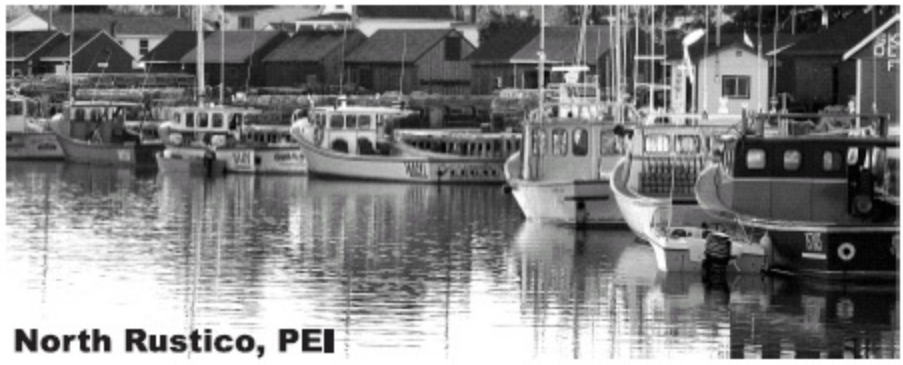
There are some 50 harbours scattered along the PEI coastline, situated mainly in the numerous inlets which shelter the vessels from the sea.

There are approximately 20 major harbours on PEI, which, along with offering shelter, provide services for the fishing fleet. These harbours have modern vessel-berthing areas, bait and equipment facilities, slips to launch and haul up vessels, repair shops, fishing equipment supply stores, fish-landing equipment, and modern plants to process the catch and have ice and cold storage facilities.

FISHERMEN

There are more than 4,700 fishers and crew engaged in commercial fishing activities on PEI. Few can engage in the commercial fishery for the full 12-month period because ice surrounds the province for a period of between four and five months annually. In most years, the fishing grounds and harbours are ice covered between December and April.

Most fishers are busy at tasks related to their fishing activities during the winter months. There are nets and traps to be repaired and replaced, and vessels and engines to be repaired. These tasks are very important to fishing operations. Should equipment and vessels not be in top condition when the fishing season opens, lost fishing days and lost income will result.



North Rustico, PEI

Aspects of the aquaculture industry, however, are year round. In fact, the busiest harvest season for mussels is the ice-cover period from December to April. PEI finfish hatcheries are busy in late fall spawning broodstock. The eggs are incubated and hatched over the winter months.

PROCESSORS

Approximately 60 registered processing facilities on PEI process the species landed in the province. There are processing facilities and/or buying stations located at most harbours. There are two types of processing facilities – the larger facilities are provincially licensed and federally registered which means they can export products off PEI, whereas the smaller provincially licensed plants can only sell within PEI.

Usually the fisher's catch is sold to a single processing firm where daily supplies of bait, fuel and materials to repair gear are purchased. Some belong to co-operatives which purchase the fish, as well as provide supplies and a variety of other services to their membership.

The products produced by processors on PEI include lobster, oysters, scallops, flounder, cod, snow crab, rock crab, toad crab, hake, eels, herring, mackerel, smelts, tuna, quahaugs, clams (both soft-shell and surf), silversides, mussels, trout, salmon, char, whelks (escargot) and marine plants. Most of these species are also processed for export in one or more of the following forms: fresh chilled, frozen, salted, smoked, canned, marinated and other products.

LOBSTER

The lobster fishery is the major source of income for PEI fishers. Approximately 1,300 of the inshore vessels, operating out of the province, engage in the lobster fishery. It represents a higher percentage of the per capita income than in any other province with a commercial fishery. PEI fishers catch approximately 20 per cent of the annual Canadian landings of lobsters. Lobsters account for some two-thirds to three-quarters of the annual PEI fishing income with a catch of approximately 20 million pounds each year. Conservation practices including seasons, minimum carapace size, escape mechanisms for the undersize lobsters and trap limits have contributed to the stable and successful development of this fishery.

The Island lobster fishery is divided into three areas.


Lobster Trap

There is a spring season in areas 24 and 26A (April 30 to June 30) and a fall season in area 25 (August 16 to October 16). Area 24 includes the north side of the province from North Cape to East Point. Area 26A includes the south side of Kings and Queens County from East Point to Victoria. Area 25 includes the west side of Prince County from Victoria to North Cape.

The lobster catch is divided into two categories, depending on lobster size. The standard legal measure of lobster size, or carapace length, is the measured distance from the rear of the eye socket to the end of the body shell (excluding the tail). Minimum size requirements vary from time to time and from area to area.

Lobsters not of minimum legal size must be released into the sea. It is also illegal to retain "berried" lobsters – females with eggs on the undershell. These berried lobsters which are in the final stages of reproduction, are protected by law and must be returned to the water to protect the future of the industry.

The smaller legal-sized lobsters or "canners" historically were so named because the majority of these lobsters were canned.

Most of the canner lobsters are first cooked in the shell. The meat is then removed and processed as thermal canned lobster or as frozen in tins or plastic containers. Lobster is also frozen in the shell in a brine solution and this product is commonly known as "popsicle pack." In recent years a market for lobster tails has been developed with the tail being frozen in the shell and the remainder of the meat removed and canned.

The larger size or "market" lobsters were so named because many New England states, historically the main importers of live lobster, prohibited their importation unless they met a minimum size requirement. After being caught, these market lobsters are "**banded**" (rubber bands placed over the lobster's claw) to prevent them from injuring each other.


Rubber bands placed over the lobster's claw

They are then placed in salt water pounds (tanks) for storage and transported in refrigerated trucks, or by air, to market. The main markets are in the United States and Canada. Air shipment of live lobsters to European and Japanese markets is also carried out.

Each PEI fisher is permitted to fish this species for a two-month period. Many of those involved engage in other fisheries in addition to the lobster fishery to complete their yearly income. This is dependent on the other licence(s) that the fisher possesses. The other types of species available will vary from year to year and from area to area.

SEA PLANTS

Irish moss, Chondrus crispus, together with the associated seaplant Furcellaria, have provided Island fishers with a valuable harvest. PEI is the Canadian leader in seaplant production with the major species being Irish moss.

On PEI, the industry is centred on the western shore of Prince County, where the largest production of Irish moss is harvested and major buyers have drying and packaging plants.

There are two methods of harvest – by drag rakes or by gathering storm-tossed moss along the shoreline. The harvest is taken by drag rakes towed behind lobster boats, converted for this purpose. Up to six rakes are towed by each boat. Large quantities of Irish moss, sometimes mixed with Furcellaria, are washed ashore during gale force winds. Both fishing and non-fishing families can gather this storm-tossed moss, either picking it up from the shore or scooping it from the tidal wash with handrakes or with baskets towed by horses. A number of harvesters dry the wet moss in the sun, usually as a family activity, prior to selling to the buyers.

GROUNDFISH

Groundfish include such bottom feeding species as cod, hake, flounder and other related flatfish species. Because of the closures of the cod fishery and gulf redfish, groundfish landings have declined from 41 million pounds in 1992 to approximately one million pounds in 2003. The catch is mainly marketed as fresh whole and frozen fillets for the United States market. As well, flatfish are used for bait.

The only groundfish fishery currently occurring on the Island is a flatfish fishery and DFO's sentinel fishery. There is a fixed gear (tangle-net) fishery for blackbacks (winter flounder) in the spring and another tangle-net fishery in the east off Fishermen's Bank after the fall herring fishery closes. As well, some mobile gear vessels fish for blackbacks and American plaice in eastern PEI in the fall. The tangle-net fishery is carried out by stringing three to four nets together. The string is set near the bottom, where it is held horizontally in the water. Longlining (or line trawling) is another method of fishing cod and hake and is used in the sentinel fishery. A longline is simply a long fishing line which is set near the bottom with baited hooks attached at intervals.

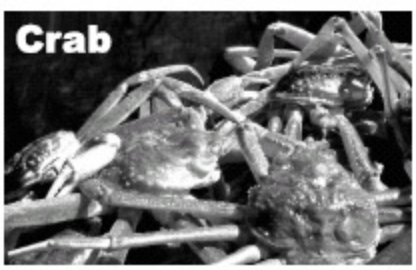
SCALLOPS

Scallop fishing is an important supplementary fishery on PEI. Scallops occur mainly along the southern and western side of the Island on grounds shared by Nova Scotia and New Brunswick fishers. There are two major scallop fishing areas (SFAs): one in the western Northumberland Strait – SFA 22, and the other in the eastern Northumberland Strait – SFA 24. This area has had some buffer zones in place since 1997 to protect lobster and its habitat. As well, a fishery is also carried out on the north shore of PEI in SFA 23. This area has a buffer zone in place as well. Scallops are harvested in the spring in Area 22, late summer and late fall in Area 23 and in late fall in Area 24. The only portion of the scallop that is utilized to any extent is the adductor muscle, which opens and closes the shell.

Scallop fishing is conducted from converted lobster boats, usually dragging four to six "Digby style" scallop drags. The chain sweep method is also used.

CRAB

Snow crab, rock crab and toad (spider) crab are harvested on PEI in various sized traps. The snow crab fishery, which was carried out in the 1960s, was re-established for PEI fishermen in the mid 1980s. In the snow crab fishery there are 28 permanent licence holders with quotas that vary from year to year based on stock status. A quota is available to First Nations fishers and there is also permanent sharing of snow crab in the Gulf of St. Lawrence with a limited quota. Landings and values have been significant, adding a vital component to PEI's fishing economy. Snow crab is primarily fished off the north


Crab

shore of PEI and the majority of the product is shipped to Japan and the United States as frozen clusters consisting of the legs and shoulders. Rock crab has evolved from a bycatch fishery to a fishery with more than 80 licence holders with seasons and quotas. Landings have shown increases in the last few years and rock crab products are marketed frozen, primarily to the United States and Canadian marketplace.

The toad (spider) crab fishery is a permit fishery with 15 permits issued with the majority of the fishery taking place off northeastern PEI with no set quota. There is a limited quantity in Northumberland Strait as it appears this species prefers deeper water.

MACKEREL

Mackerel fishing occurs along most of the Island's coastline but primarily on the north side. Three types of mackerel fishing are important on PEI: gill netting, jigging and to a lesser extent purse seining.

Jigging is important on the north side of PEI. In this fishery, up to six men work from a single boat using lines with five or six hooks attached. In recent years fishers use two pipes, separated slightly to allow hooks to travel through but not the fish. This greatly increases the harvesting ability in handlining. Gill net fishing is also common throughout the province and accounts for increasingly larger landings of this valuable midwater species.

A small percentage of this fish is canned and sold on the international market and a small amount is split and salted or filleted and frozen. At certain times of the year much of the catch is retained and sold for fresh bait primarily in the autumn lobster fishery in PEI and frozen bait in the winter lobster fishery in Nova Scotia. The larger fall mackerel are graded, frozen and packed as a food grade product which is shipped to Japan, Europe and the United States.

BLUEFIN TUNA

In PEI, bluefin tuna are captured by both commercial and sports fishery methods. The commercial fishery uses the "tended line" method of fishing which involves the use of a baited hook on lines attached to the fishing vessel. The sports fishery involves fishing by using the "rod and reel" method.

Tuna licence holders charter their boats

to fishing parties or, in some areas of the province, vessels engage in the fishery on a strictly commercial basis. Once brought aboard, the fish is the property of the vessel owner and is sold fresh to local buyers. It is then shipped to the Japanese market.

Typically, tuna caught off PEI weigh between 800 and 1,200 pounds (360 to 545 kilograms); however, higher weights have been recorded. Island tuna vessels also fish in several areas off the coast of Nova Scotia where the highly migratory bluefin can be found in large schools.

HERRING

Herring are caught in varying amounts throughout PEI. They are fished by the use of gill nets which may be either secured to the bottom of the sea with the use of weights or left to drift.

The herring fishery has both a spring and fall season. The spring fishery occurs primarily in western PEI and can comprise up to 33 per cent of PEI's total herring landings. Spring herring is used mainly for bait in the lobster fishery, although some herring is also exported for processing into "bloaters" (smoked herring) and fresh to the United States.

The fall herring fishery, harvested for the roe, occurs off southeastern PEI in the Fishermen's Bank area and also in the North Cape area of the western part of the province. Japan has provided the main market for fall herring products (roe). The remainder of the herring is sold for smoking.

AQUACULTURE SPECIES

MUSSELS

PEI rope-cultured mussels marketed under several trades including "Island Blue" are the primary aquaculture species. Mussels are cultured in the cool, sheltered waters surrounding Prince Edward Island. They have become one of North America's most popular seafoods. PEI cultured mussels, second in value to lobsters, are grown in mesh socks that are suspended from buoyed rope longlines in the water. The longline is strung tight and anchored securely.

Socks are filled with seed mussels and suspended from the longline. Harvesting occurs year-round including through the ice during the winter. Because cultured mussels are grown suspended in the water column, they taste sweeter and are more tender than "wild" mussels. They are also plumper, free of grit, have a higher meat yield and a much cleaner appearance.

OYSTERS

PEI is very famous for "Malpeque" oysters. Although many people associate the Prince Edward Island oyster fishery with cultivation on leased grounds, the majority of the Island's Malpeques come from public fishing grounds. Oyster harvesters operating from small dories lift the oysters from the seabed with toothed tongs. Governments, in cooperation with shellfish fishermen's organizations, carry out an enhancement program to increase natural production. This program has been successful in increasing production substantially during the past 15 years.

There are two seasons in the public fishery – a spring fishery from May 1 to July 15 where oysters are harvested from marginally contaminated areas and relayed to dealers' leases for cleansing, and a fall fishery September 15 to November 30 where oysters are harvested for direct shipment by dealers to the market.

The primary producing grounds are in the western and central areas of Prince Edward Island. A large percentage of Prince Edward Island oysters are sold to off-Island markets where they are served fresh on the half-shell in the retail and food service sectors. In addition to the trade name Malpeque, many oyster shippers have developed their own specific brands.

Numerous leaseholders are active developing their leased grounds as well. Techniques employed include seed collection, nursery culture and grow out. Some leaseholders use floating bags to enhance the growth and survival of small seed. The production of cultured oysters has increased in recent years.

FINFISH

The finfish species cultured on PEI include Atlantic salmon, rainbow trout and Arctic char. All finfish culture in PEI occurs in land-based tanks or in pond cages. The major component of the finfish culture industry is the export of high-quality, disease-free hatchery products such as eggs, fry and smolts. PEI has a modest but consistent meat fish production. Rainbow trout and Arctic char are cultured by Island growers for markets in the eastern United States and Canada. The popular market size is eight to 14 ounces and one to two pounds.

NEW AQUACULTURE SPECIES

PEI has evaluated a number of potential species for aquaculture. Over the past 10 years government and industry have tested production technologies for sea scallops, quahaugs, soft shell clams, bar clams and striped bass. While commercial ventures have not resulted to date, a tremendous understanding of the production factors for these species was gained.

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