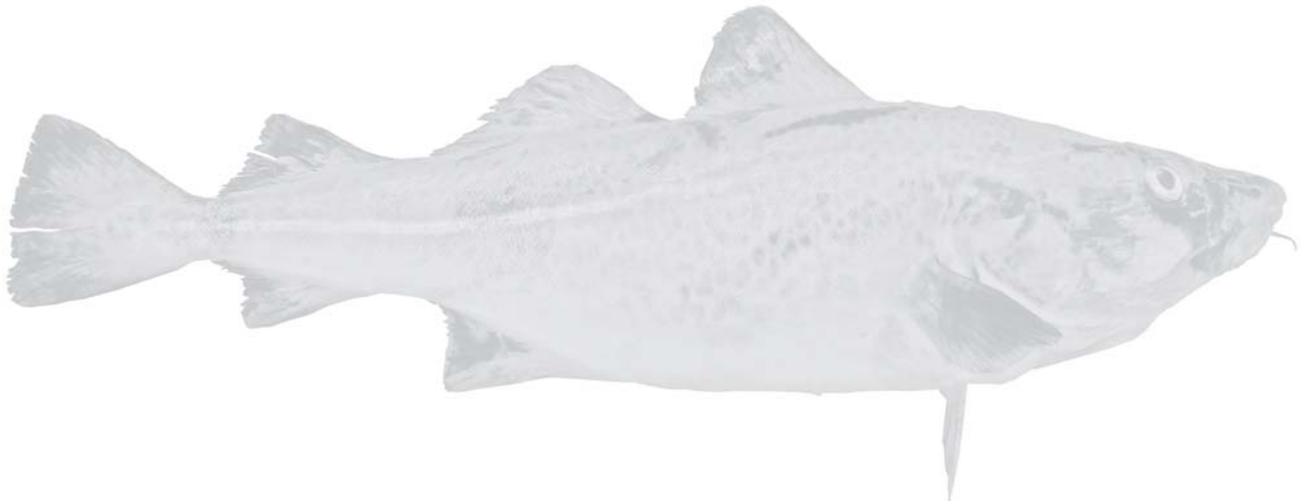


THE COLLAPSE OF THE NORTHERN COD

BY ART MAY

The sixteenth in a series of articles developed from regular public forums sponsored by the Leslie Harris Centre of Regional Policy and Development. Memorial Presents features speakers from Memorial University who address issues of public concern in the province.



What happened to the Northern Cod? This resource had sustained Newfoundland and Labrador for hundreds of years, but it is now so depleted that there is a moratorium prohibiting any harvesting of the stock. How did this unfortunate state of affairs happen? And what are the predictions for its future?

The northern cod stock occupy the waters from Hopedale to St John's, migrating seasonally to the offshore banks for spawning and to the inshore fishing grounds for the summer feeding on capelin. In addition, small stocks reside in the bays year round, and are known as "bay stocks". We sometimes hear that the northern cod has sustained us for 500 years. Since Newfoundland settlement really only became serious after the Treaty of Paris in 1763, and even then much of the coast (the French Shore) was "off limits" to English settlers, the period of sustenance was closer to 200 years, from the late 1700s to the late 1900s. That doesn't make it any less important since for all that time the economy of the colony, the

country and the province was mostly about cod – "Newfoundland Currency" as the one-cent postage stamp correctly identified the mainstay of the economy.

The fishery was concentrated on the headlands and islands of the great bays of the east coast, with a migratory fishery from these bays taking place each summer along the coast of Labrador. Literally tens of thousands of Newfoundlanders migrated north each summer on hundreds of fishing schooners (floaters) or to many dozens of fishing stations along the Labrador coast (stationers). They joined the permanent inhabitants of the Labrador coast (liveryers), who also migrated seasonally from the bottom of the bays in Labrador, where winter food and fuel were

more accessible, to the headlands and islands. The fish were light-salted and dried on the island, then more heavily salted and sold as wet “salt bulk” from Labrador. The period of abundance was short (a few months) and occasionally the fishery failed, probably for reasons of adverse oceanographic climate.

All this changed quickly and substantially in the years following World War II. The appearance on the offshore banks, especially during the spawning season, of trawlers that salted or iced the fish at sea, and factory freezer vessels from a number of European countries, was the beginning of a decline that became painfully evident in the inshore cod fisheries in the 1970s, and reached a low point (pre-moratorium) in 1974. The stock had sustained an annual fishery in the neighbourhood of 250,000 metric tons for about 200 years (until the 1970s). With the buildup of offshore fishing, the total catch in the late 1960s peaked around 800,000 tons. The seeds of the northern Cod’s destruction were therefore planted during the 1960s.

Meanwhile the lack of scientific data and the absence of effective management measures allowed the reduction to continue until the ultimate collapse and moratorium on fishing in 1992. This is not to say that the loss of the northern cod fishery was entirely a phenomenon of overfishing. There is little doubt that the *coup de grâce* was the result of very unusual severe environmental cooling in the early 1990s, resulting in failure of young cod to survive, as well as a geographic shift in distribution.

The first systematic collection of data on the northern cod stock was undertaken only in 1959. The state of scientific knowledge in the 1960s was such that no estimates of stock size could be made. The fisheries took place mostly outside Canadian control (12 miles), and without any meaningful international management. ICNAF (the International Commission for the Northwest Atlantic Fisheries) was created in 1949, and became a useful mechanism for collecting and sharing catch statistics and early information on the biology of the various fish stocks, but was

only beginning to implement quantitative management measures in the few years before its demise in 1977. These measures were implemented with great difficulty because of the huge international investment in the northwest Atlantic fisheries, and were not effective in arresting the decline in stock abundance.

By the mid 1970s and until extension of Canadian fisheries jurisdiction to 200 miles on January 1, 1977, the Canadian offshore trawlers were running out of places to fish because of quota limitations. The Newfoundland inshore cod fishery had reached an all-time low in 1974. As a result, many trawlers had their bows strengthened for fishing in ice, and gradually replaced the foreign fleets on the offshore spawning grounds in spring (though never at the earlier levels of fishing). They did well, as the spawning concentration held up through the 1980s, though the area fished diminished. Meanwhile the inshore cod fisheries enjoyed erratic success, but there was simply not enough data and quantitative scientific evidence to make a definitive “cause and effect” conclusion associated with the offshore fishery (I had published a short article in *Trade News* as early as 1964 connecting the two in terms of some gross measures of fishing success inshore).

An economic downturn in the early 1980s created a financial crisis in the industry as a whole, but in particular, within the large integrated fishing companies. Ignoring advice from the Department of Fisheries and Oceans (DFO) not to expand, and its refusal to issue licences for additional offshore capacity, these companies forged ahead with significant added plant capacity in spite of the cutoff of federal subsidies. They were all technically bankrupt by 1980 (the ratio of debt to equity was 10:1). DFO had forecasted significant increases in fish stocks, but had also forecasted that enough processing capacity already existed to process all the fish to become available. Federal subsidies to processing plants were ended, but some very large plants (in Triton and Jackson’s Arm) were built anyway with bank financing. A crisis came at St. Barbe,

when the Member of Parliament (Brian Tobin) and the Minister of DFO (Hon. Romeo Leblanc) came to the riding to tell the people that a proposed new plant would not receive Federal subsidy. The rusting steel girders were there for years as a monument to the “tragedy of the commons”. Most of the companies which fished offshore went through a significant “bailout” and restructuring financed by the Government of Canada.

At the same time, the inshore cod fisheries were not as successful as might have been expected from a growing stock. In 1986¹, the Newfoundland Inshore Fisheries Association commissioned a report that recommended a reduction in the total allowable catch (TAC) from 266,000 to 185,000 tons. The TAC for 1987 was set at 256,000 tons.

Poor catches inshore could not be quantitatively linked to offshore fishing; the data were just not complete enough to prove cause and effect. Complicating the picture was a 1986 offshore research vessel survey that showed an anomalous high result for cod abundance. The data were treated with suspicion by DFO scientists – appropriately so as it turned out – but it did contribute to the uncertainty about what was actually happening. It is worth noting that meaningful surveys of northern cod were not started until 1978-79, when ice-strengthened research vessels became available; so that it was not until the mid 1980s that a data series existed.

The accumulation of conflicting data and evident decline of inshore fishing success led to an intense period of high profile scientific review. The Task Group on Newfoundland Inshore Fisheries (with three non-Canadian and two Canadian scientists) was unable to find major trouble spots. The TAC for 1988 was set at 266,000 tons, believed to be below the F0.1 level, a conservative measure of fishing effort². Much retrospective analysis

continued, and in 1989 the TAC was initially set again at 266,000 tons. DFO scientists by then had spotted definite trouble, and advised that the TAC for F0.1 would need to be 125,000 tons. In February of that year DFO Minister Tom Siddon announced that the TAC would be 235,000 tons, essentially abandoning the F0.1 strategy.

Dr. Leslie Harris was then asked to do a new review. His report concluded that the F0.1 strategy had never been attained due to imperfect and insufficient data for its calculation, and recommended that the TAC should be reduced to 190,000 tons. It was subsequently set at 197,000 tons for the year 1990.

Yet another review, focused on implementing the Harris recommendations and headed by DFO Regional Director General Eric Dunne, suggested

TACs of 190,000 for 1991, 185,000 tons for 1992 and 180,000 tons for 1993. With the wisdom of hindsight, it is now clear that the experts were “chasing the fishery downhill”, yet as late as 1991 scientists were forced to reconcile conflicting signals from the fishery: the catch by fixed gear in 1991 was the highest since 1982, and this would have been difficult to reconcile with indicators of population decline.

While trying to make sense of conflicting signals from the fisheries, something new and different was occurring – an environmental cooling of significant proportions which resulted in major shifts southward and offshore of cod and other species. Foreign fishing on the northeast edge of the Grand Bank outside 200 miles became more successful, and TACs were overrun from 1988 -1990. It is worth observing that in the late 1980s, Spain and Portugal joined the European Economic Community (EEC), with the provision that they should not fish in EEC waters for some years. The displaced fishing effort subsequently turned up on the Grand

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Bank. The EEC refused to accept NAFO³ quotas, and fishing was essentially uncontrolled at a time when the remaining cod (and other species) were moving south and offshore. The result was a demise more rapid and more devastating than it otherwise might have been.

The years 1991-92 were a period of intense review activity, with the revelations that the stock was at a very low level; that there were almost no young fish (almost the whole stock was composed of only two age groups, 1986 and 1987); that NAFO quotas had been substantially exceeded; and that the stock had evidently declined abruptly.

After a virtual failure of the winter fishery confirmed the significant decline, a two-year moratorium on fishing was announced July 2, 1992. In 2009, we still await the return of the cod and the cod fisheries. We had a “perfect storm” of man-made and natural events that combined to produce a disaster of “biblical proportions”, quoting Richard Cashin⁴ at the time.

Will the cod return to anything like its original abundance? It is in the natural order of things that they will, though their replacement by shrimp and crab (a lower level in the ecosystem) has certainly delayed that recovery. (Meanwhile, the significant fisheries on these species should allow the cod more room to recover).

The mature northwest Atlantic ecosystem

was dominated by cod for a very long time. It has been very much disturbed, but I think not destroyed. We will again have a significant cod fishery, but it probably won't look much like the one we had. In particular we should not expect a recovery large enough to support a fishery anything like that of the 1960s – probably a period of unusually favourable conditions for cod production. 

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Author's note: This essay is intended as a compact review for the general reader, rather than a scientific paper. Several review papers have been consulted and discussions undertaken with people directly involved at the time. Unanimity on cause and effect does not exist. The conclusions of this short review are those of the author.

¹ I should note that I was Deputy Minister of the Department of Fisheries and Oceans from October 1982 to December 31, 1985, and had no current knowledge of events beyond that point in time.

² F0.1 is an expression of the law of diminishing returns; the level of fishing effort at the point in development of the fishery where the addition of another vessel would result in a catch increase only 10% of that which would have been achieved if the vessel was added at the beginning of the fishery.

³ The Northwest Atlantic Fisheries Organization (NAFO) is an intergovernmental fisheries science and management body founded in 1979 as a successor to ICNAF.

⁴ Richard Cashin is a former leader of the Fish, Food and Allied Workers.



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