

Assessment and Management of the Georges Bank Cod Fishery: An Historical Review and Evaluation*

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Abstract

Atlantic cod (*Gadus morhua*) in the Georges Bank region have been commercially exploited since the 17th century. Cod fishing was a principal occupation and source of food for the early colonists and dried salt cod subsequently became a major commodity in commerce and international trade. Although catches have fluctuated over the centuries, cod is no less important now than in former times. Cod is presently the mainstay of the USA commercial groundfish fishery on Georges Bank and, in the past two decades, has accounted for more catch (by weight) than any other groundfish species taken in the fishery. In this paper, an historical review of the Georges Bank cod stock and fishery is presented, and the management history of the stock is reviewed and evaluated. Information is also provided on changes in the status of the stock as reflected by indices of abundance and stock assessment results.

Technological innovations and changes in consumer preferences have strongly influenced commercial landings. Prior to the early-1900s, most of the catch was taken by handlining from schooners and longlining from dories. The dory-schooner fishery for cod on Georges Bank reached its heyday in the 1880s, with annual catches exceeding 12 000 tons. By the early-1900s, however, the character of the fishery had markedly changed. With the introduction of steam and diesel-powered vessels, otter trawling, power equipment, and low-cost ice making and refrigeration technology, the fishing fleet became much more mobile and efficient. Historically, the fishery can be divided into five time-periods:

- 1) an era from 1893 to 1914 in which record-high landings (>60 000 tons) in 1895 and 1906 were followed by about 10 years of sharply reduced catches.
- 2) a period from 1915 to 1940 in which annual landings fluctuated between 20 000–40 000 tons, and during which cod was generally taken as a by-catch in the Georges Bank haddock fishery.
- 3) the 1940–60 period when landings declined due to the menace of World War II submarines, reaching a record-low of 8 100 tons in 1953.
- 4) the 1960–76 period in which Canadian and distant-water fleet fisheries for Georges Bank cod developed with annual landings ranging between 11 000 and 53 000 tons.
- 5) the most recent period beginning in 1977 with the implementation of extended fisheries jurisdiction by both the USA and Canada. Total cod landings doubled from 27 000 to 57 000 tons between 1977 and 1982, declined to only 26 000 tons in 1986, but increased to 42 500 tons in 1990.

Recreational fisheries for cod in USA waters have existed for many decades but information on catches has only been collected during the past 30 years. Estimated annual recreational catches of Georges Bank cod have ranged between 470 and 5 300 tons.

Throughout most of its history, the Georges Bank cod fishery was unregulated and growth in the fishery did not appear to exceed resource potential. Prior to the development in the 1930s and 1940s of formalized systems for the collection of comprehensive fishery statistics, stock abundance could only be evaluated from anecdotal reports or from trends in catches. Research and sampling programs established after World War II subsequently provided the scientific foundation for management activities for cod, first under the Interna-

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tional Commission for the Northwest Atlantic Fisheries (ICNAF), and then under the USA Magnuson Fishery Conservation and Management Act (MFCMA) enacted in 1976.

The first formal assessment of cod in Subarea 5 was conducted in 1971 under ICNAF. The 1976 assessment, the last one conducted under the aegis of ICNAF, proved to be critically important for management actions taken under both Canadian and USA extended fisheries jurisdictions in 1977. Although the jurisdictional claims of both countries overlapped (thereby creating a disputed zone on Georges Bank), both countries (under an interim fisheries agreement) adopted the TACs set by ICNAF for 1977. Although cooperative management of Georges Bank groundfish ended in 1978, cooperation between Canadian and USA scientists continue and the independent assessments conducted by Canada and the USA continue to be based on common data. In the USA, the New England Fishery Management Council implemented a sequence of fishery management plans to rebuild the depleted groundfish stocks. The most recent plan, the Fishery Management Plan for the Northeast Multispecies Fishery (Multispecies Plan), was enacted in September 1986 to prevent stocks from reaching minimum abundance levels, defined as those levels below which there is an unacceptably high risk of recruitment failure. However, the Multispecies Plan had not proved effective in preventing overfishing and resource declines, and has been amended three times since October 1987.

Canada also recognized that management of Georges Bank cod had become problematical. A Canadian task force commissioned to develop an action plan to deal with problems in the groundfish fishery noted that: (1) Canadian and USA approaches to fisheries management significantly differed, (2) each country had pursued management strategies without regard for the impact of the other country's actions, and (3) that since 1978, cod catches on Georges Bank had generated fishing mortality levels two or three times the target.

Management plans enacted independently by the USA and Canada have not been very successful in preventing overfishing of Georges Bank cod. Different management objectives and a lack of compatible management strategies and approaches between the two countries have exacerbated the situation. Both the USA and Canada now recognize that cooperative and coordinated management actions are needed to avert overfishing and rebuild transboundary fishery resources, including Georges Bank cod.

Key words: Assessment, cod, *Gadus morhua*, fishery, Georges Bank, management
