

A BRIEF DESCRIPTION OF CANADIAN FISHERIES FOR ATLANTIC BLUEFIN TUNA

by

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Canadian Atlantic fisheries taking bluefin tuna can be divided into three major gear types: sport (rod and reel), trap net and purse seine. Incidental catches are also taken by longline, harpoon and gill net although these are relatively small. Table 1 shows the magnitude of catches in each fishery in recent years.

Sport fishing for large bluefin in Canadian waters first started in 1935 off southwest Nova Scotia and developed in other areas as abundances changed and as the popularity of sport fishing increased. It began off Newfoundland in 1957 in Conception Bay and later spread to Notre Dame Bay. Sport fishing began off Prince Edward Island in the Gulf of St. Lawrence in 1967 and in the Chaleur Bay area (New Brunswick and Quebec) in 1973. Figure 1 illustrates the areas of the Atlantic coast of Canada where "giant" bluefin sport fisheries have existed or do exist. The development of lucrative markets in recent years has strengthened interest in these fisheries.

A 30- to 40-ft boat is typically used in the sport fishery. These boats often fish in-shore for lobster or groundfish during the remainder of the year. A crew of two, plus one to four anglers, usually comprise the fishing party and a fishing day may entail all the daylight hours, but is no longer than one day. Hooks are baited with mackerel, herring or squid, dependent upon local availability. In 1975, regulations were introduced to the sport fishery in an effort to limit the catch. Ten-week seasons were established for each area and the number of licensed boats was fixed. Each boat was limited to a maximum catch of two bluefin per day and to using 130-lb. test line with only one hook and one line in the water at a time. Night fishing was prohibited. Compulsory logbooks were issued to all license holders and are submitted on a weekly basis. Since 1975, detailed effort statistics have been collected from these logs. These show that the success of individual fishermen is highly variable and not only dependent upon availability of fish and the weather, but also upon the experience and equipment of the captain.

Sport fishing started off the Wedgeport, Nova Scotia, area in 1935. The International Tuna Cup Match was first held in 1937 and with the exception of 1942-45, was held every year. Annual catches in this area reached a peak of more than 1,400 bluefin in 1949, but have decreased since. The tuna match was not held between 1958 and 1965 due to lack of fish and has not been held since 1976. No bluefin were caught in this area in 1978. In the last few years, a few boats have been

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fishing off the eastern shore of Nova Scotia between Halifax and Cape Breton. In the early years, "jumpers" were often taken, but these disappeared from the catches and only giant bluefin are taken. Fishing was mainly concentrated in August and September off Wedgeport. The recent shift from southwest Nova Scotia to the eastern shore was accompanied by a shift in season to November and a significant increase in average weight. Landings for the Nova Scotia sport fishery are presented in Table 2 while number of boats fishing and the number of fish caught are presented in Tables 3 and 4.

A bluefin sport fishery started along the east coast of Newfoundland in 1957 and catches reached a peak of 388 fish in 1966. Since that time, catches have declined sharply until only 2 fish were caught in 1978. The Newfoundland season extended from July to September and bluefin taken in these waters were substantially less in weight than those taken in the Gulf of St. Lawrence during the same year. Number of fish caught and number of boats fishing each year are summarized in Tables 3 and 4.

Sport fishing began in the Gulf of St. Lawrence off the north shore of Prince Edward Island in 1967 and as the number of boats involved increased rapidly, catches reached a peak of 1,048 fish in 1974. This development is shown in Tables 3 and 4. Rod and reel fishing started in New Brunswick and Quebec in the Chaleur Bay area in 1973 and reached a peak in 1977. The recent trend of increasing annual mean weights in giant bluefin catches has been especially obvious in the Gulf of St. Lawrence sport fisheries where world weight records are set almost every year.

Local fisheries for giant bluefin, based upon incidental catches by harpoon and in nets and traps, have existed sporadically. The most significant catches are made by trap nets set for mackerel in St. Margaret's Bay, Nova Scotia. Landings from 1964-78 are presented in Table 5. These fish were considered a nuisance because of the damage they caused to the net until recent Japanese markets developed. However, the fat content of these fish was too low early in the June to October season to provide a satisfactory product for this market. In 1975, two experimental impoundments were established adjacent to a trap. Lean early-season fish were placed in these impoundments and fed five percent of their body weight per day for one to four months. This procedure was an economic success, increasing the local market value of these fish four to eight times without increasing the catch. By 1978, eighteen impoundments had been established in St. Margaret's Bay and eighty-seven percent of the bluefin landed had been impounded and fattened. The number of bluefin entering this area and the timing of their entry is largely determined by local hydrographic conditions and the occurrence of forage species, such as mackerel, herring and squid. The variability of catch is shown in Table 5. Catch statistics prior to the development of the impoundment procedures are more a reflection of market availability than of abundance.

Canadian purse seine operations for bluefin tuna began in 1963 with two small 84-ton capacity seiners with multispecies capabilities. These vessels fished for bluefin off the eastern coast of the United States during July and August of 1963-65. In 1965, they were joined by two 250-ton capacity vessels. During 1966 and 1967, five 1000-ton capacity seiners were built to operate from St. Andrews, New Brunswick, and these replaced the smaller seiners. However, they operated predominately in the Pacific and until 1970, their activities in the Atlantic were restricted to yellowfin and skipjack in the Gulf of Guinea. As a result, no small bluefin were taken in the Atlantic by Canadian seiners from 1966-69. In 1970, these vessels began to operate off the eastern United States during the summer months, when large schools of small fish were present. The size of fish taken has been a reflection of year-classes available. As a result of mercury legislation enacted in 1971, fish over 80 lbs. were avoided. In 1975, size regulations reduced the catch of one-year-old fish and limited the total purse seine catch to 320 ST. As a result, these large seiners operate in the Atlantic opportunistically. Size frequency of the catch is not a realistic picture of total availability. Logbooks have been collected after each trip from 1963 to present but the opportunistic nature of the fishery in recent years makes it difficult to interpret effort data.

Table 1. Canadian landings of bluefin tuna from the Atlantic Ocean 1962-78 (round weight MT)

Year	Traps	Purse seine	Rod & reel	Total
1962	137	-	40	177
1963	229	323	90	642
1964	318	579	99	996
1965	175	461	90	726
1966	211	-	102	313
1967	298	-	58	356
1968	253	-	180	433
1969	407	-	170	577
1970	275	1 161	151	1 587
1971	68	935	128	1 131
1972	36	202	261	499
1973	160	639	215	1 014
1974	300	103	365	768
1975	141	295	193	629
1976	172	332	342	846
1977	372	298	302	972
1978	221	241	209	671

1962-74 trap landings include incidental longline catches

Table 2. Nova Scotia sport catch 1935-78 (round weight MT)

Year			
1935	2.7	1955	8.6
1936	9.1	1956	3.2
1937	33.6	1957	3.6
1938	37.6	1958	—
1939	45.8	1959	13.6
1940	15.0	1960	4.9
1941	10.4	1961	10.6
1942	—	1962	28.6
1943	—	1963	27.9
1944	—	1964	17.2
1945	—	1965	18.4
1946	111.1	1966	7.2
1947	106.6	1967	6.2
1948	136.1	1968	136.4
1949	202.8	1969	3.1
1950	74.8	1970	6.2
1951	85.7	1971	3.0
1952	68.9	1972	3.8
1953	28.6	1973	5.2
1954	49.4	1974	8.7
		1975	3.4
		1976	—
		1977	5.4
		1978	8.2

Table 3. Number of boats fishing per province in sport fishery. 1956-78.

Year	N.S.	NFLD.	P.E.I.	N.B./QUE
1956	...	3		
1957	...	3		
1958	...	3		
1959	...	5		
1960	...	5		
1961	35	6		
1962	38	6		
1963	42	14		
1964	46	18		
1965	48	20		
1966	46	25		
1967	40	33	1	
1968	37	39	5	
1969	37	42	8	
1970	41	34	7	
1971	19	30	30	
1972	...	26	39	
1973	...	14	85	...
1974	...	19	112	...
1975	5	14	93	36
1976	—	...	112	30
1977	3	8	107	39
1978	2	1	100	38

Table 4. Number of fish landed in sport fishery per province 1956-78

Year	N.S.	NFLD.	P.E.I.	N.B./QUE
1956	...	2		
1957	...	10		
1958	...	8		
1959	...	11		
1960	...	11		
1961	45	133		
1962	117	43		
1963	116	269		
1964	69	315		
1965	73	282		
1966	30	388		
1967	23	179	5	
1968	53	637	13	
1969	12	578	31	
1970	15	418	99	
1971	9	76	173	
1972	12	104	482	
1973	16	37	650	3
1974	25	30	1048	97
1975	9	33	339	122
1976	—	6	650	187
1977	13	5	440	291
1978	17	2	437	47

