

Atlantic Halibut of the Gulf of St. Lawrence (Divisions 4RST) – Update (2000)

Background

The Atlantic halibut of divisions 4RST can be found throughout the Estuary and Gulf of St. Lawrence. In the northern Gulf, this species is more abundant in the Esquiman, Laurentian and Anticosti channels, at depths of 200 m and over. In the southern Gulf, the greatest concentrations occur in shallower areas (less than 100 m deep) near the Miscou Bank, north of Prince Edward Island, northwest of Cape Breton Island and around the Magdalen Islands. This species grows fast and continuously, at a mean rate of about 7.5-8.5 cm per year in the Gulf. While the growth rate for males and females is comparable, female halibut reach a larger maximum size than males. This could be due to the fact that Atlantic halibut females reach sexual maturity at a larger size than males, as observed in the species in the Canadian Atlantic waters. Based on observations made during scientific trawl surveys conducted in January and May, the Gulf halibut appears to be able to spawn during those periods.

The high landings of Atlantic halibut during the first half of the twentieth century indicate that the Gulf of St. Lawrence stock was under very strong fishing pressure at the time. Catches during this period fluctuated between 1000 t and 2000 t. In the early 1960s, landings dropped to about 650 t, and then stabilized at a level below 500 t, with a record low of 91 t recorded in 1982. Since then, catches have rarely exceeded the 300 t mark, which is equivalent to the precautionary total allowable catch (TAC) established in 1988. Since 1995, landings have increased significantly, which is thought to be due mainly to the increased fishing effort by the fixed gear fleet, notably longliners.

The current Atlantic halibut management unit for the Gulf, which corresponds to divisions 4RST, was defined in 1987 based on tagging-recapture results inside and outside the Gulf, and taking into account additional biological data such as size and growth rate. A second management unit, 3NOPs4VWX, applies to the Canadian Atlantic coast halibut stock.

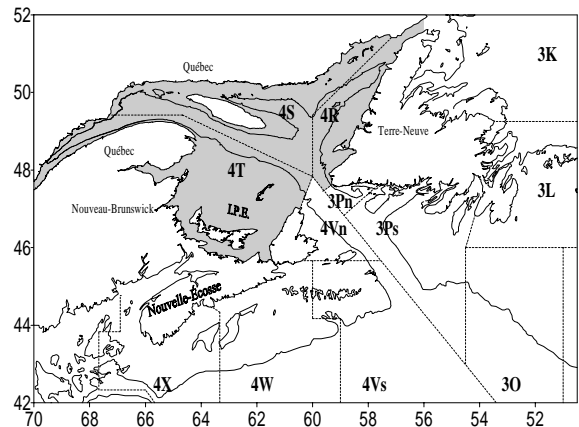


Figure 1. Map of the Gulf of St. Lawrence regions, showing NAFO divisions. The shaded area indicates the area to which this report is referring to.

The most recent stock assessment was carried out in 1999 (DFO 2000). This document is an update based mainly on recent information from the fishery and the tagging program.

The fishery

As of February 7, 2001, landings for the 2000 fishing year totalled 225 t, which is close to 65% of the authorized TAC of 350 t (Table 1). Total landings during the 1999 fishing season were only 355 t, or a little over three quarters of the authorized TAC of 450 t for the period, which was extended until May 14, 2000 due to exceptional circumstances. Owing to a recommendation made by the Fisheries Resource Conservation Council (FRCC 1999), the TAC for the 1999 fishing season (January 1 to December 31) was increased to 350 t. Furthermore, management authorized an additional 100 t to take into account the extension of the 1999 fishing year until May 14 under the new groundfish management plan. From 2000 on further, the fishing season and authorized TAC will cover the period from May 15 of the current year to May 14 of the following year. The

authorized TAC for the 2000 fishing year was maintained at 350 t.

Table 1. Gulf of St. Lawrence Atlantic halibut landings (t).

Division	Year						
	1953-1987 ¹	1988-1995 ¹	1996	1997	1998	1999 ²	2000 ³
TAC	n.a.	300	300	300	300	450	350
4R	144	79	80	105	116	110	57
4S	108	65	95	108	85	122	112
4T	84	92	60	83	120	123	57
Unknown	45	0	0	0	0	0	0
Total	337	236	235	296	320	355	225

n.a. Not applicable

¹ Average

² Fishing year, landings and TAC refer to the period from January 1st, 1999 to May 14th, 2000

³ Preliminary data. Commencing in 2000, fishing year, landings and TAC refer to the period from May 15th of the current year to May 14th of the following year

As in previous years, most of the catch was taken with fixed gear, primarily longlines (Figure 2). Detailed historical information on landings of Atlantic halibut in the Gulf can be obtained in the document by Archambault and Grégoire published in 1996.

The examination of size frequencies for halibut in 2000 commercial catches made with fixed gear indicates that, as in previous years, a wide array of sizes were caught, ranging from a minimum of 45 cm to a maximum of 239 cm (Figure 3). The size distribution is comparable to that of the two previous years.

Tagging Program

The tagging program for Atlantic halibut in the Gulf consists of tagging individuals under 81 cm, which must be thrown back in commercial fishing, since they are under the minimum legal size. In 2000, the program was in its third year. A total of 705 Atlantic halibuts were tagged from the three traditional fishing grounds for this species in the Gulf. Volunteer commercial fishers as well as those under the Sentinel Fisheries program participated in the tagging effort. Tagging activities in the three sectors to date are described below. In 1998, 89 fish were

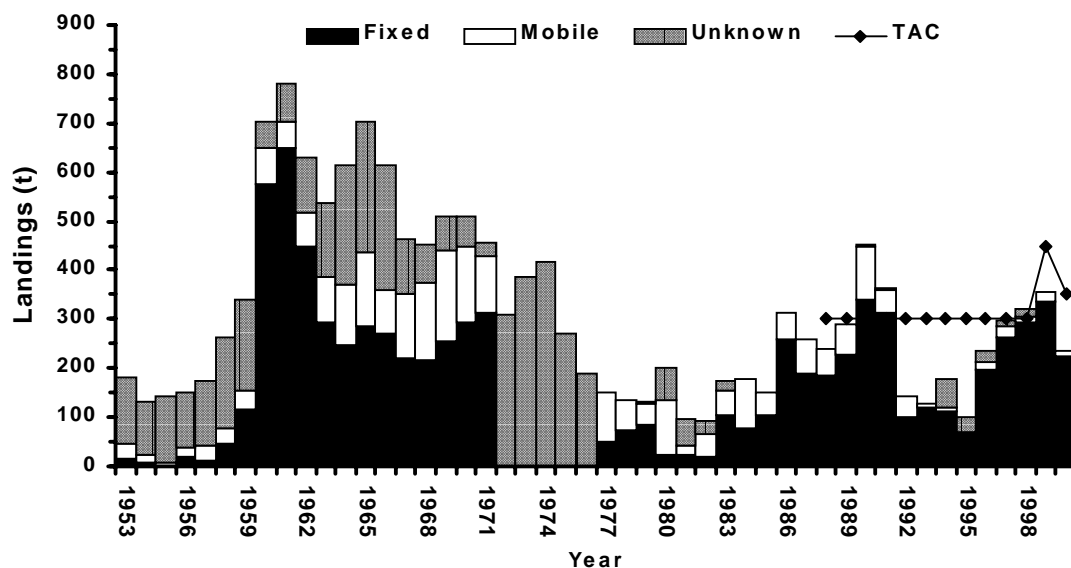


Figure 2. Historical series of commercial landings of Gulf Atlantic halibut, 1953-2000.

tagged off the west coast of Newfoundland; in 1999, 200 halibut were tagged off the west coast of Newfoundland, 56 in the area around Anticosti Island and 50 in the southwestern Gulf; in 2000, 206 halibut were tagged off the west coast of Newfoundland, 40 near Anticosti Island and 64 in the southwestern Gulf (Figure 4). The size of the individuals tagged over the three years ranged from 35 cm to 81 cm.

By the end of 2000, 24 individuals had been recaptured in the same fishing grounds where they had been tagged: three individuals in the southwestern Gulf, six south of Anticosti Island and 15 off the west coast of Newfoundland (Figure 5).

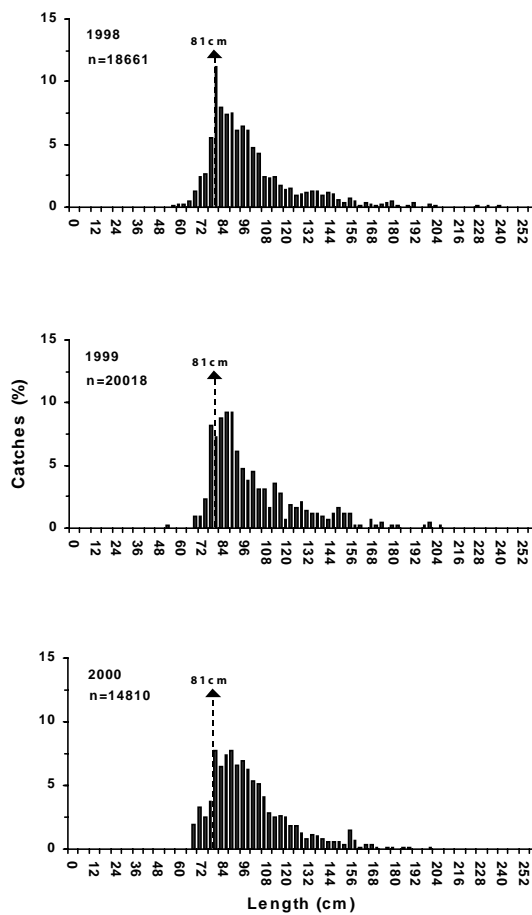


Figure 3. Size frequency distribution of Atlantic halibut in commercial catches using fixed gear (minimum legal size of 81 cm is shown).

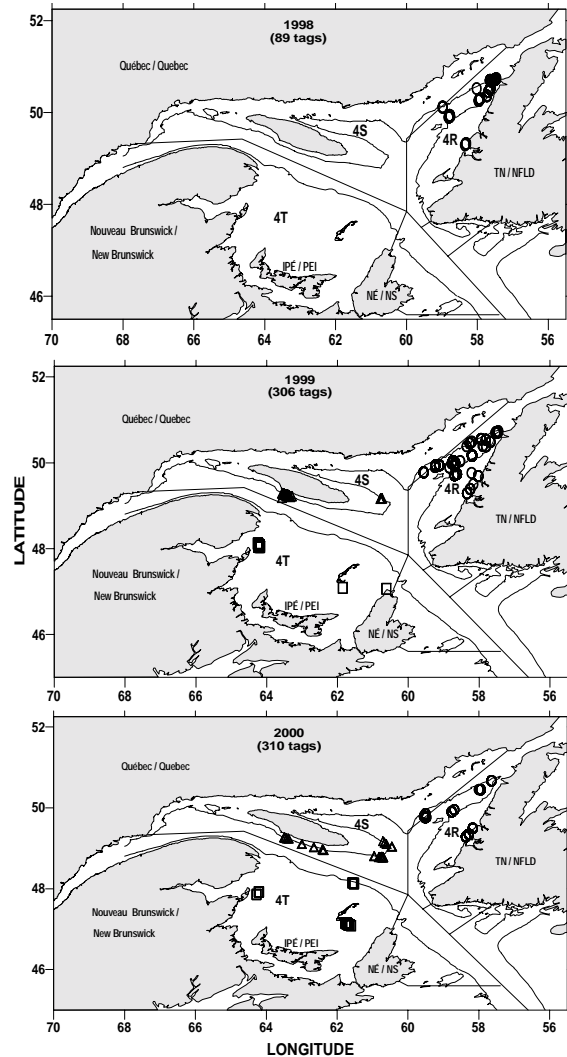


Figure 4. Location of halibut tagging activities in 1998-2000, in three traditional commercial fishing grounds for Atlantic halibut in the Gulf (circle: west coast of Newfoundland; triangle: Anticosti Island; square: southwestern Gulf).

Although the distance between tagging and recapture sites was as far as 175 km (Table 2), the tagging-recapture data suggest that the Gulf stock is sedentary, and is present in each of the three traditional fishing grounds. Furthermore, an analysis of these data does not reveal any significant statistical relationship between the length of time between tagging and recapture and the distance between the tagging and recapture sites, nor between the size of the fish at tagging and the distance travelled. Also, some of the length data measured at recapture appear to be aberrant, suggesting that fish were smaller than they were when tagged or that growth rates were exceptionally high during the study period. This type of error has already been observed

before in several other tagging programs; si in many cases, length at recapture is estimated visually or is not measured using the same criteria used during tagging.

Resource Status and Outlook

In terms of the outlook for the stock, the last stock status report (DFO, 2000) indicated that :

“Although landings in the last few years have been higher than those recorded in the early 1900s, the Atlantic halibut stock of the Gulf still appears to be at a very low level if fishery data going back over a longer period are considered.”

Current data show that the stock is at a very low level. Although an examination of

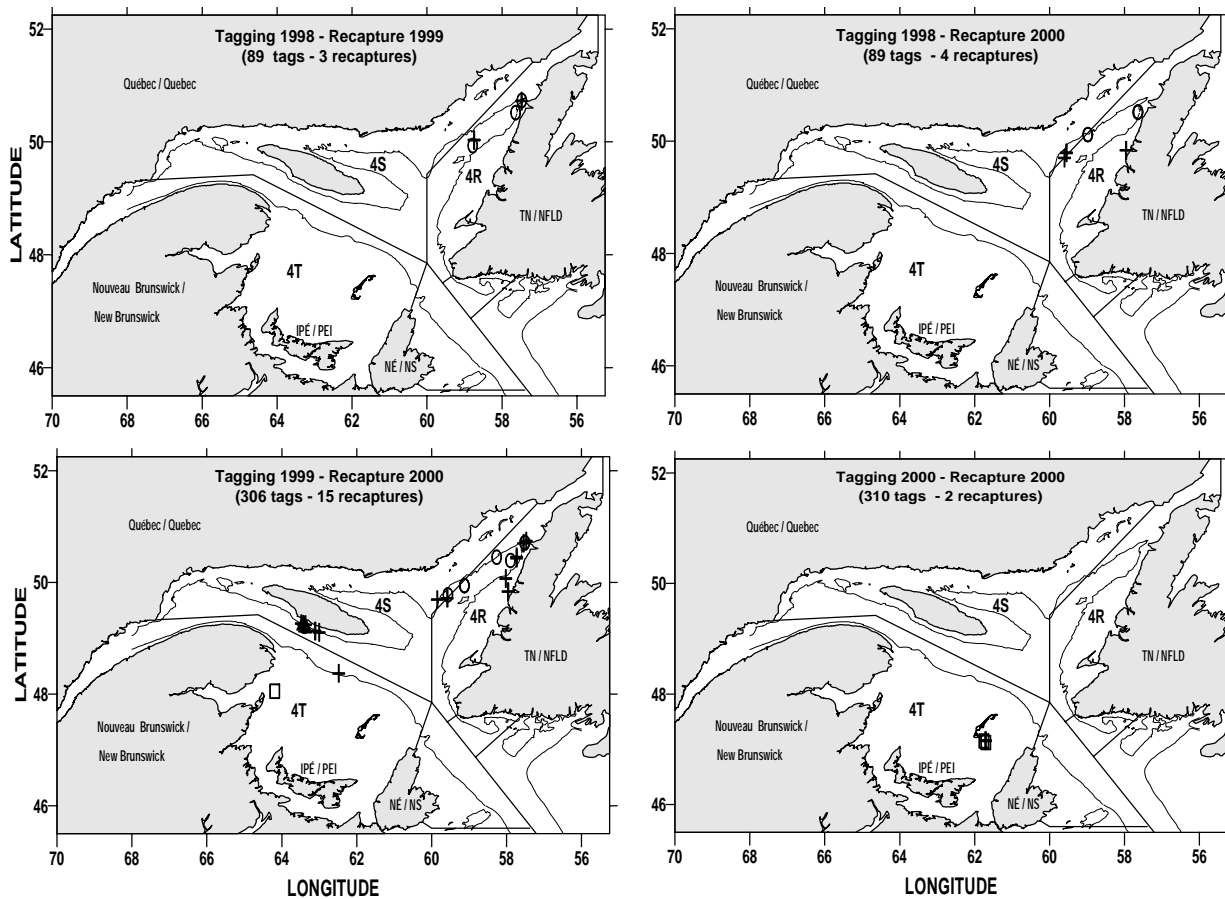


Figure 5. Recapture sites, 1998-2000, in the three traditional fishing grounds for Atlantic halibut in the Gulf (circle: west coast of Newfoundland; triangle: Anticosti Island; square: southwestern Gulf; open symbol: tagging site; cross: recapture site).

Table 2: Overview of 1999-2000 recaptures of Atlantic halibut.

Tag	Tagging		Recapture			
	Date (YY-MM-DD)	Length (cm)	Date (YY-MM-DD)	Days at sea (N)	Distance travelled (km)	Length (cm)
West coast of Newfoundland						
602	98-09-26	78	99-06-13	260	119.6	82
609	98-10-11	75	99-08-27	320	127.8	101*
1224	98-10-18	80	99-06-28	253	95.5	85
921	98-10-14	71	00-04-17	551	64.5	66*
924	98-10-14	71	00-04-27	561	54.6	82
1201	98-09-26	70	00-07-?	-	78.1	91
1225	98-10-18	73	00-04-27	557	159.0	82
618	99-05-10	66	00-07-15	432	178.4	-
633	99-09-11	76	00-06-21	284	12.2	74*
637	99-?-?	?	00-04-18	-	-	82
642	99-07-19	77	00-06-21	338	37.2	81
828	99-09-24	80	00-07-21	301	4.2	86
839	99-09-28	77	00-07	-	102.1	91*
1107	99-05-07	75	00-07-21	441	58.7	83
1112	99-05-07	64	00-08-12	463	80.2	71
Anticosti (4S)						
1601	99-07-20	56	00-04-28	283	30.3	64
1621	99-07-28	75	00-06-15	323	-	-
1655	99-07-18	46	00-06-25	343	0.1	50
1661	99-07-18	58	00-06-28	346	7.5	62
1664	99-07-18	62	00-07-04	352	31.7	66
1666	99-07-13	59	00-06-28	351	5.0	65
Southwestern Gulf (4T)						
1735	99-07-29	51	00-04-18	264	132.0	55
1907	00-07-11	62	00-09-21	72	3.0	66
1991	00-08-12	66	00-08-29	17	3.6	-

*Aberrant data

landings of the last two years shows comparable values to those observed during the 1990s, annual landings remain below the 1000 t level that was more commonly recorded during the first half of the twentieth century.

The last report (DFO, 2000) also stated that :

“The size structure derived from commercial catch data, notably fixed gear landings, still indicates a broad range, which means that the fish can still live to be quite old.”

The size distribution observed in 2000 in fixed gear commercial catches remains equally broad, encompassing both individuals of small size (70-90 cm) and of large size (over 120 cm). These elements seem to indicate that, even under current harvesting rates, the Gulf halibut stock is maintaining some degree of stability, with good recruitment potential and the potential of attaining quite old ages.

Lastly, the report (DFO, 2000) stated that :

“The lack of recent data on sexual maturity for the Gulf’s halibut stock makes it impossible to confirm whether the minimum legal size of 81 cm is adequate to protect the spawning stock.”

The gathering of information on the gonads of fish caught in the commercial fishery and during research activities, initiated several years ago, will allow us eventually to determine the size at which 50% of halibut of each sex reach sexual maturity. With these data, we will be in a better position to determine if the minimum legal size of 81 cm ensures the adequate protection of the spawning stock.

In conclusion, the new information presented here does not appear to signify any change from the last year’s outlook.

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