

Atlantic Salmon Chaleur Bay SFA 15

Background

Salmon Fishing Area (SFA) 15 includes northern New Brunswick; major rivers are the Restigouche, Nepisiguit and Jacquet.

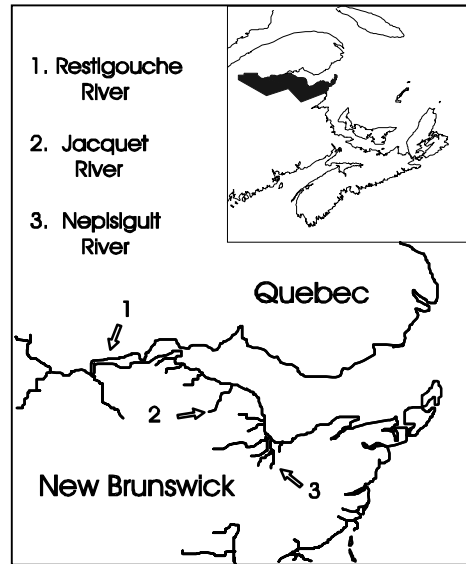
Juvenile salmon generally remain in fresh water for two to three years. Adult stages consist of small salmon (fork length <63 cm) and large salmon (fork length \geq 63 cm). Most small salmon spend one year at sea before returning to spawn. Most large salmon returning to the Nepisiguit and Jacquet rivers have spent two years at sea. The Restigouche River stock has components of both two- and three-sea-winter fish.

Most large salmon are female. Small salmon in the Restigouche River are >98% male.

The Restigouche stock is early-run, with most returns in June and July. Most other rivers of SFA 15 have a later run, primarily in September-October. The early run on the Nepisiguit River has been enhanced through stocking.

Salmon are angled as "bright" fish, i.e., salmon on their way to the spawning grounds, and/or "kelts" or "black salmon", i.e., salmon which have already spawned.

Conservation requirements are established based on an average egg deposition of 2.4 eggs per square metre of available habitat. Biological characteristics of each salmon stock (e.g., sex ratio, size, egg production) are used to determine the number of fish required to produce these eggs in each river.



Summary

- Large salmon returns did not meet conservation requirements in the Restigouche, Nepisiguit and Jacquet rivers in 1997 and spawning escapements were below requirements by 35-50%. Small salmon returns were average or below average.
- The outlook for large salmon returns to these rivers in 1998 is uncertain. On the basis of average small salmon returns in 1997, large salmon returns to the Restigouche River in 1998 may return to average levels, but returns to this river have fluctuated widely in recent years. The Nepisiguit River stock has been low for several years and is not expected to change in 1998. The Jacquet River stock appears to be declining. Large salmon should not be exploited in the Nepisiguit and Jacquet rivers and the level of exploitation in the Restigouche River should not be increased.
- A surplus of small salmon is expected in all three rivers in 1998.

The Fishery

Aboriginal and recreational fisheries occurred in all three major rivers. Four First Nations and the New Brunswick Aboriginal Peoples Council had fishery agreements in 1997 with DFO or with the Québec Ministère de l'Environnement et de la Faune, but not all fished. Gillnets and angling gear were used.

Recreational angling in New Brunswick (including provincial boundary waters of the Restigouche River) was regulated by seasonal (eight salmon) and daily (two salmon) limits, with no retention of large salmon. Québec waters of the Restigouche system were regulated by seasonal (seven salmon) and daily (one salmon) limits irrespective of size; but if the first fish caught in a day was a small salmon, a second fish of any size could be caught and retained. Angling of "bright" salmon was permitted in all rivers of SFA 15. All except the Nepisiguit had spring angling seasons for kelts. This was the first year since 1973 in which a kelt fishery was permitted in the Restigouche system.

River	Angling season
RESTIGOUCHE: Main river, N.B. tributaries	May 15-Sept. 30 (hook-and-release only before June 1 and after Aug. 31); Upsalquitch closed to all fishing from Sept. 10
Matapedia	June 1-Sept. 30 (hook-and-release only for large salmon after Aug. 31)
Patapedia (Qué.)	June 1-Aug. 31
Kedgwick (Qué.)	June 1-Sept. 30
NEPISIGUIT	June 1-Oct. 15
JACQUET	Apr.15-Oct. 26; above Half-way Pool, June 1-Oct. 15

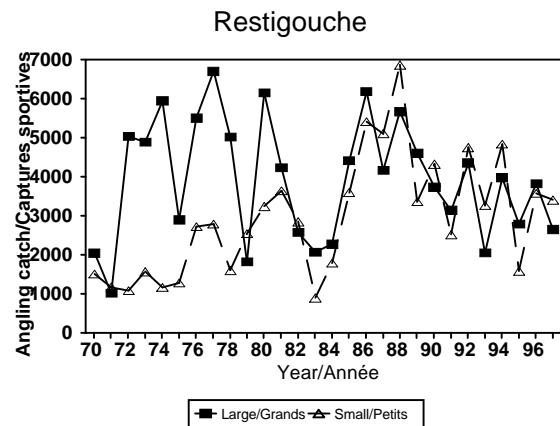
Harvests by Natives in 1997 were estimated as 1,151 large and 129 small salmon.

River	Salmon harvest	
	Large	Small
Restigouche	1151	44
Nepisiguit	0	85
Jacquet	0	0
Total SFA 15	1151	129

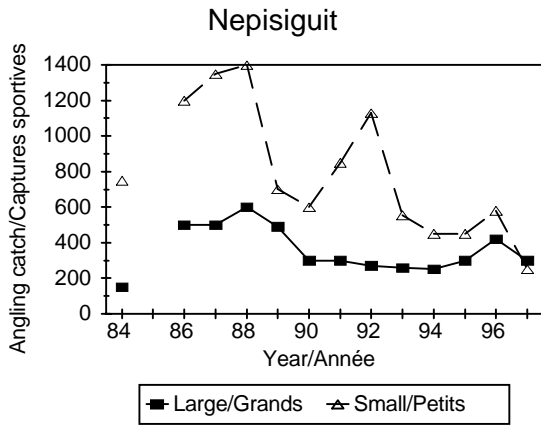
Recreational angling catches were low in 1997 in both the Restigouche and Nepisiguit rivers. No angling data were available for the Jacquet River.

River	Bright salmon catch (C=retained+released) or harvest (H=retained)		
	1997	1996	Mean 1992-96
RESTIGOUCHE			
Large	C	2649	3823
	H	729	1001
Small	C	3408	3574
	H	3079	3384
NEPISIGUIT			
Large	C	300	420
	C	250	580
Small	C	250	580
	H	200	450

Small and large salmon catches have declined since 1986-1988 in the Restigouche River.



Angling catches of both large and small salmon in the Nepisiguit River have declined since 1988.

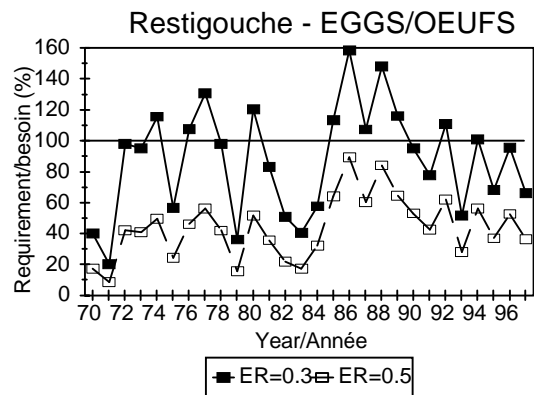


Resource Status

Restigouche River: Spawning escapement was estimated as angling catch divided by angling exploitation rate, minus removals that occurred in the river (e.g., fishery harvests, broodstock collections, assumed losses due to poaching and disease). Angling exploitation rate (ER) was assumed to be 30 to 50%.

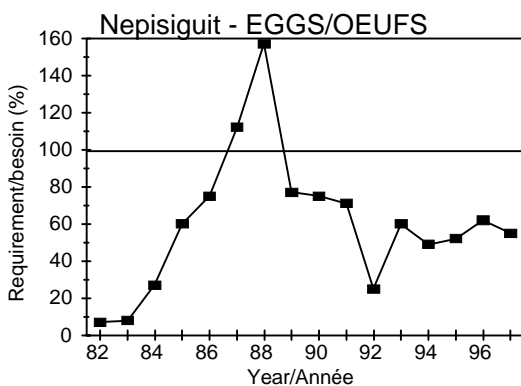
This angling-based assessment method estimated that egg deposition and large salmon escapement were about 35-64% of the conservation requirement. Visual counts by divers indicated that large salmon escapement was at least 50% of requirement and support the conclusion that small salmon spawning escapement was in excess of the requirement. Returns to counting fences on the Matapedia and Upsalquitch rivers were 36-38% below the five-year mean return of large salmon but only 5% below the mean of small salmon. Total returns of large salmon to the river did not exceed the conservation requirement.

	Large salmon	Small salmon	% of conservation
RESTIGOUCHE			
Cons. req.	12,200	2,600	
Returns	7,447-	7,944-	
	11,652	13,227	
Spawners	4,317-	3,691-	
	7,849	8,235	
Eggs	25.9-47.3 million		35-64%
NEPISIGUIT			
Cons. req.	1626	823	
Eggs			50-60%
JACQUET			
Cons. req.	571	347	
Returns	282	371	
Spawners	270	304	
Eggs	1.9 million		51%



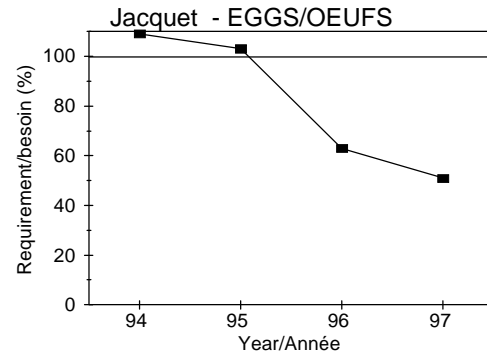
Nepisiguit River: Stock assessments of previous years were based on counts at the fence operated by Pabineau First Nation and Nepisiguit Salmon Association in collaboration with DFO, adjusted for fence efficiency using angling catch above the fence. Spawning escapement was extrapolated to the whole river based on the ratio of the number of redds above and below the fence. Due to problems in operation of the counting fence in 1997, and an extremely late arrival of much of the spawning run, assessment of the stock in 1997 was based solely on redd counts.

Redd counts were similar to those in 1996 and about 20% lower than those in 1994-1995. Egg deposition was estimated as 50-60% of the conservation requirement. Both returns and spawning escapement of large salmon in 1994-1996 were well below the required spawning escapement. Returns of small salmon in 1994-1996 exceeded spawning requirements but spawning escapement after fisheries was below the requirement. Conservation requirements have not been met since 1988.



Jacquet River: The stock assessment was based on returns to the barrier fence operated by the municipality of Belledune in collaboration with the New Brunswick Department of Natural Resources and Energy. Estimated angling mortality on bright fish and broodstock removals were subtracted from fence returns to obtain spawning escapement. Revised habitat areas (increased by 39%) were used to update the conservation requirements.

Egg depositions from the spawning escapement of large and small salmon were estimated as 51% of requirement. This is the second consecutive year in which egg deposition requirements have not been met and continues the decline from 1994. Returns of small salmon exceeded requirements but large salmon were fewer than requirements.



Environmental Considerations

Summer and autumn water levels in rivers of SFA 15 were low but water temperatures rarely exceeded 20°C at counting fences. Furunculosis, which was common in the Restigouche River in conditions of low water levels and high temperatures in 1995, was rarely observed in 1997. The first case of furunculosis was confirmed in the Jacquet River.

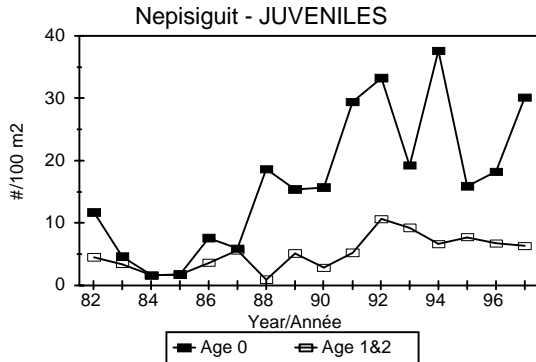
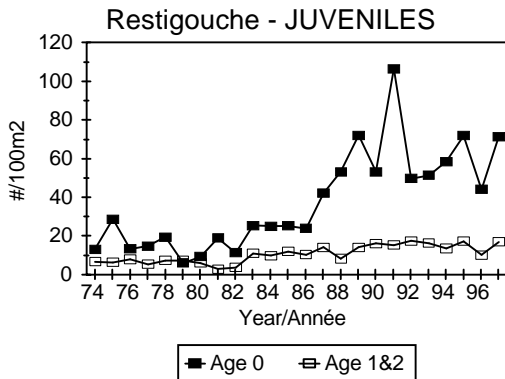
Outlook

Average 2-sea-winter salmon returns to the Restigouche River in 1998 may be expected based on: (1) a significant correlation of small salmon returns in one year to large salmon returns in the following year in the Matapedia River, and (2) average small salmon returns to the Restigouche River in 1997. However, this expectation must be regarded with caution given the low returns of large salmon in the Restigouche system in 1997 and currently low levels of marine survival.

The Nepisiguit River stock has met 50-60% of conservation requirements for the past four years, and there is no expectation of change in the near future.

Densities of all age classes of juvenile salmon have increased in both the Restigouche and Nepisiguit rivers in the past decade. Over the past five years, densities of parr have

been relatively stable, suggesting that there will be no significant change in returns to either river in the future unless marine survival improves.



Returns and spawning escapement of the Jacquet River stock have declined over the past four years. The spawning escapement of the past two years has been below the conservation requirement and this trend may well continue.

Management Considerations

Spawning escapements to all three SFA 15 rivers assessed in 1997 were well below requirements for conservation. A cautious approach to management is recommended for all three stocks. Since 1990, the Restigouche River stock has fluctuated near and below the conservation requirements. The Nepisiguit River stock has been low for several years. The Jacquet River stock appears to be declining. Large salmon

should not be exploited in the Nepisiguit and Jacquet rivers. Exploitation of large salmon in the Restigouche River should not be increased in 1998 and if possible it should be decreased. All three rivers should continue to have a surplus of small salmon returns relative to conservation requirements. However, small salmon spawning escapement (after fisheries) has been below conservation requirements for the past two years in the Nepisiguit and Jacquet rivers.

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- Locke, A., F. Mowbray and A. Madden. 1998. Status of Atlantic salmon in the Nepisiguit and Jacquet Rivers, New Brunswick, in 1997. DFO Canadian Stock Assessment Secretariat Research Document 98/43.
- Locke, A., R. Pickard, F. Mowbray, J.-P. LeBel, A. Madden and E. LeBlanc. 1998. Status of Atlantic salmon in the Restigouche River in 1997. DFO Canadian Stock Assessment Secretariat Research Document 98/42.

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