



Status of North American Wild Atlantic Salmon

Government Leadership Needed...

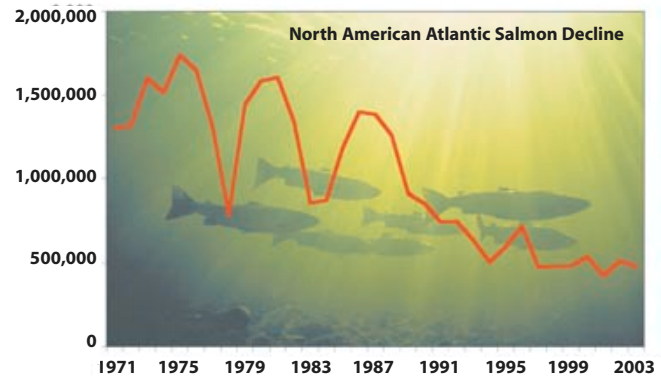
North American Salmon in Crisis

The wild Atlantic salmon has ranged the eastern coast of Canada for thousands of years, adapting to the conditions of particular rivers and different migration routes to and from ocean feeding grounds.

During the past three decades, Atlantic salmon in North America have experienced a steep decline in numbers. Despite voluntary conservation programs of First Nations and anglers, and a ban on commercial harvesting in both North America and on ocean feeding grounds, the decline has continued.

In 1974, approximately 1.5 million Atlantic salmon returned each year to North American rivers, but now fewer than 500 thousand do so. In many rivers, the situation has become so critical that populations have been collected in hatcheries until such time as conditions for survival are better understood. Sadly, this "gene-banking" is the last line of defense for many salmon runs facing extinction.

Especially worrisome is the continued alarming decline of the larger salmon that are for the most part female and carry large numbers of eggs. The number of salmon that winter and feed for two years off Greenland expected to return to North American rivers in 2004 is fewer than 100,000 according to recent advice to NASCO from the International Council for the Exploration of the Sea



ICES Pre-fishery Abundance Estimates 1971 – 2003. Number of wild Atlantic salmon at left of graph

(ICES). This is half the number needed to meet conservation targets in the rivers of North America. Numbers of large salmon have been in free fall since 1980 when they numbered 800,000.

Every salmon is important. We have little breathing room for error now. Coordinated, well-considered action, involving the Canadian and U.S. governments, working with other North Atlantic countries, conservation organizations, and the public, can meet the challenge of Atlantic salmon recovery. But time is limited, and the need urgent.

North America's Salmon Rivers in 2003 – 04 Latest Scientific Information

Eastern Canada

Crisis in Bay of Fundy and along Atlantic coast of N.S.

There is a zero to 45% chance that salmon returns in 2004 will meet or exceed conservation requirements among 12 assessed rivers of the Atlantic coast of Nova Scotia and southern New Brunswick.

In the inner Bay of Fundy, between Nova Scotia and New Brunswick, 32 rivers (*see p. 3*) have such diminished

populations that they have been declared endangered. While up to 40,000 once swam these rivers 30 years ago, fewer than 200 do so now. Of these rivers, 17 no longer have salmon populations. From the inner bay rivers, the salmon travel to local feeding grounds believed to be within the Bay of Fundy and Gulf of Maine, before returning as grilse to their natal rivers, and as larger repeat spawners in subsequent years. A decline in the numbers of repeat

spawners and increasing and unexplained mortality at sea are the cause of this crisis. Eleven river populations are now being gene-banked, without which some rivers will completely lose their salmon.

Outer Bay of Fundy river salmon have also dropped to critically low levels – a total of 6 wild salmon returned to the Magaguadavic River, located in the centre of the Bay of Fundy salmon farming industry, and 15 to the St. Croix. Up to a thousand salmon returned annually to the Magaguadavic in the 1980s. In the Magaguadavic, escaped farmed salmon have greatly outnumbered wild salmon, by as much as 10 to one in 1994.

The Mighty Saint John River Has Fallen

The Saint John River in New Brunswick has had declining runs since the Mactaquac Dam was built in the late sixties but since 1990, the trend downward has been acute. The runs have been so poor in the last decade that no salmon angling is permitted. The river requires 4,800 grilse and 4,800 salmon to meet minimum spawning requirements. The returns have been a fraction of that. In 2003, 1,302 grilse returned to the Mactaquac dam, down from 2,306 in 2002, and far below the 1990-95 mean of 5,486. As to the important large salmon, 751 returned, an increase from 379 in 2002, but far below the 1990-95 mean of 3,179. Despite being one of the three main systems in New Brunswick, this river's salmon runs are in jeopardy and came no where near meeting conservation targets in 2003.

Acid Rain Devastates 54 Nova Scotia Rivers

On the Atlantic coast of Nova Scotia, 14 rivers have completely lost their salmon and 40 others have suffered the impacts of acid rain coming from sources in the Ohio Valley and elsewhere. Mitigation is possible, as shown in Norway, and conservation groups are attempting to start a pilot program on the West River Sheet Harbour. Two pop-

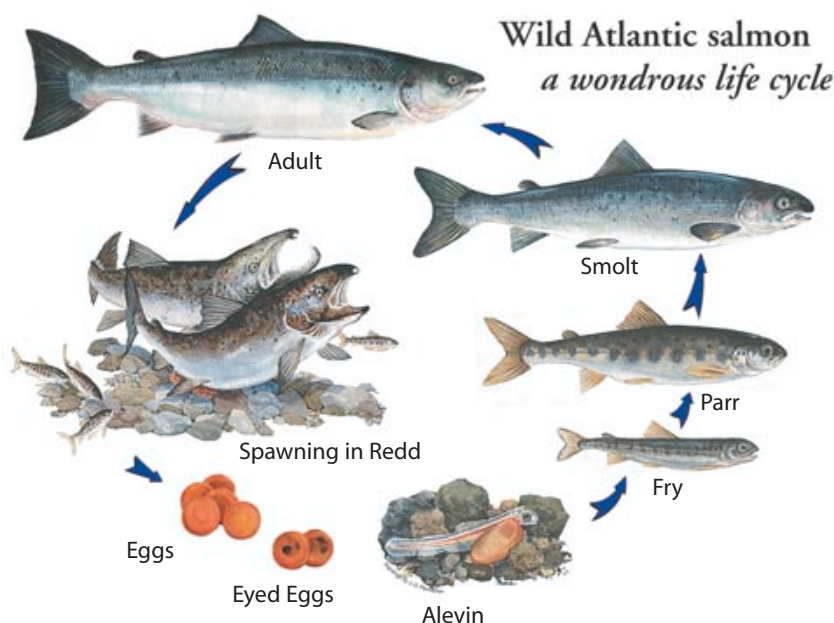
ulations have been gene banked, the St. Mary's and LaHave. The LaHave has a 20% chance of meeting spawning requirements in 2004. In 2003, 437 grilse returned to the LaHave, down from 1,134 in 2002. There were 223 large salmon in 2003, an improvement from 70 the year before. The St. Mary's experienced a considerable improvement in 2003, but still only reached 42% of the conservation requirement.

Northumberland Strait and Cape Breton Rivers Hanging On

In the rivers of Nova Scotia's Northumberland Strait and Cape Breton Island, returns of large salmon were generally improved in 2003. In 2004, the North River has a 45% chance of meeting conservation requirements and the Middle River, a 14% chance. In the Margaree River, returns in 2003 were the highest since 1998. On this river, a particular concern was the extremely low numbers of young salmon, perhaps due to high waters and flows in late March, as well as low egg deposition in 2003.

The Miramichi and Restigouche – strong producers in 2003 2004 prognosis less encouraging

The Miramichi River, North America's largest salmon-producing river, is projected to have a lower return of salmon in 2004 relative to 2003, with only a 28% chance of meeting its conservation requirement overall. As many as 20% of the wild Atlantic salmon returning to North America come back to this river, and this past year saw large salmon returns of 19,400 fish - the second highest level since 1996. Unfortunately grilse numbers dropped to 30,300 – which does not bode well for this year's 2-sea-winter salmon of the same year class. On the Restigouche, large salmon also increased to levels higher than the previous five years, while small salmon abundance was very low. Overall this meant conservation levels were likely met in 2003.



In North America, the Atlantic salmon spawns in freshwater rivers of eastern Canada and the New England states. Six-inch salmon, called smolts – undergo an incredible physiological change to leave freshwater and migrate to ocean feeding areas where they feed on sand lance and capelin.

After a year at sea, those that have survived return to the rivers of their birth, when their bodies again change to adapt to freshwater. These first-year returning fish are called grilse, and typically weigh about 2 kg. They are predominantly male. Female grilse produce fewer eggs than larger salmon that remain at sea for another year or more and grow to 5 to 20 kg. In many rivers, these large salmon are the important brood stock on which the runs depend.

**Newfoundland and Labrador,
good returns in 2003 –
2004 prognosis less encouraging**

In Newfoundland, returns of both grilse and large salmon improved in 2003. Returns of grilse to the Exploits River, for example, were among the highest recorded. But overall, numbers remain low, compared to those of the early 1990s. In addition, smolt production declined in four out of five sampled rivers in 2003, suggesting there will be reduced future returns. Labrador continues to lack enough monitoring of returning salmon to make assessments, with only four rivers being assessed. The counting fence on the English River indicates problems, with returns of large salmon down by 39% and the return of small salmon the second lowest since assessment commenced in the late 1990s. It is hoped that many Labrador rivers do not reflect this trend – but only support from Fisheries and Oceans

Canada for better monitoring can supply this information. There is no funding approved in 2004 for assessing Labrador's rivers.

**In 2004, Quebec rivers can expect
more grilse but fewer of the precious large spawners.**

Quebec, with more than 115 salmon rivers, principally relies on angling returns for assessment of its rivers. There was a 19% drop in grilse numbers in 2003, but overall an increase in large salmon in 2003. For 2004, it is projected that there will be a 15% to 25% decrease in large salmon returns. Egg deposition in many but not all rivers met conservation requirements last year. South of the St. Lawrence, most rivers (e.g. York, Matane, Cap-Chat), are expected to meet conservation requirements in 2004. However, north of the St. Lawrence, many of the rivers (e.g. Moisie, St-Jean, Natashquan) are likely not to reach this level.

Northeast United States

Counting salmon on fingers and toes

Overall, it is sobering to note that returning salmon in 2003 represent less than 5% of the spawner requirements for U.S. rivers. Salmon returns (both large and small) in 2004 are not expected to be sufficient to meet conservation requirements in any river, including those receiving hatchery stocking.

Total estimated returns of Atlantic salmon to U.S. rivers was 1,436, which was a 46% increase from 2002, but overall very low numbers compared to 10 or 20 years ago. As in other parts of North America, there was a significant (53%) decline in grilse while large salmon numbers improved. The

Penobscot River accounted for nearly 77% of the entire New England return, and a new river restoration plan, involving dam removal on that river, will have a significant positive impact, once completed. The Connecticut River, at the southern edge of the Atlantic salmon's range, accounted for only 3% of the total returns.

Eight rivers in Maine (Sheepscot, Ducktrap, Cove Brook, Narraguagus, Machias, East Machias and Dennys) are declared endangered, and to those rivers it is estimated 72 salmon returned in 2003, compared to 33 returning salmon in 2002. Gene-banking is also taking place for these populations.

Outer Bay of Fundy Rivers

- a. St. Croix R.
- b. Dennis Stm.
- c. Waveig R.
- d. Digdeguash R.
- e. Magaguadavic R.
- f. Pocologan R.
- g. New River
- h. Saint John R. system
- i. Kennebecasis R.
- j. Hammond R.
- k. Oromocto R.
- l. Nashwaak R.
- m. Nashwaak Stm.
- n. Keswick R.
- o. Nackawic R.
- p. Canaan R.

Inner Bay of Fundy Rivers

New Brunswick

1. Irish R.
2. Mosher R.
3. Big Salmon R.
4. Point Wolf R.
5. Alma R.
6. West R.
7. Shepody R.
8. Crooked Creek
9. Demoiselle Creek
10. Petitcodiac R.*
11. Tantramar R.

* Coverdale R. & Pollett R. part of Petitcodiac Watershed

Nova Scotia

12. Maccan R.
13. Rivière Hébert
14. Apple R.
15. Diligent R.
16. Parrsboro R.
17. Harrington R.
18. Economy R.
19. Bass R.
20. Portapique R.
21. Great Village R.
22. Folly R.
23. Debert R.
24. Chiganois R.
25. North R.
26. Salmon R.
27. Stewiacke R.
28. Shubenacadie R.
29. Kennetcook R.
30. St. Croix R.
31. Gaspereau R.
32. Cornwallis R.

**Bay of Fundy
Wild Salmon Rivers**

**Outer Bay of Fundy Rivers are brown
Inner Bay of Fundy Rivers are blue**

What are the Contributing Causes of the Low Numbers?

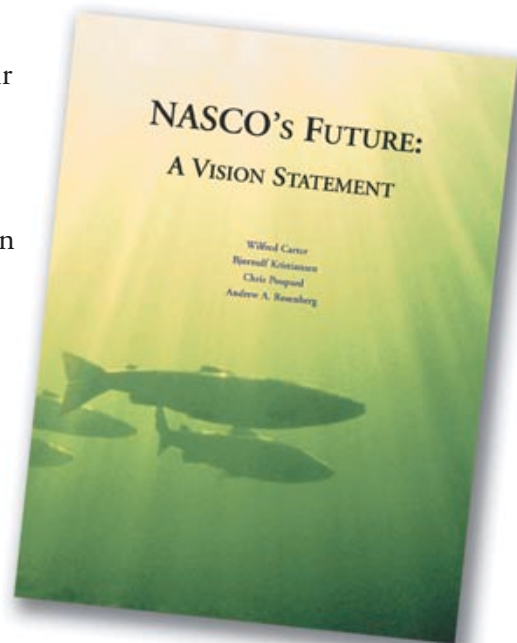
While Atlantic salmon populations fluctuate naturally, there is evidence that other factors are affecting the species.

- In a large part of Nova Scotia, acid rain from industrial sources in the U.S. Midwest and Ontario continue to kill salmon runs.
- In the past, over fishing was a major cause for the salmon's decline. Commercial harvesting of the wild Atlantic salmon's diet staples – capelin and sand lance – used for fishmeal and oil, may also have an adverse effect.
- Insecticide used to control forest pests and chemicals used in detergents may be increasing mortality.
- Salmon aquaculture poses a threat as escapees compete for food or breed with wild salmon, producing offspring less capable of surviving in the wild. Farmed salmon also pose a threat through passing epidemic infections and potentially lethal parasites, such as sea lice on to the wild salmon. As few as 10 sea lice can kill a smolt.
- Dams remain a particular problem, with relatively few adequate downstream passage facilities for smolt and upstream passage for returning spawners
- Low numbers at sea may be increasing mortality, as individual salmon attract greater predator attention.
- Inadequate in-river production remains a problem. We must continue habitat restoration and enhancement and prevent pollution.
- Poaching and illegal by-catch remain an important issue, with an estimated 40,000+ salmon killed each year.

What can be done? What must be done?

Governments must take action, both inside their borders and through international organizations such as the North Atlantic Salmon Conservation Organization (NASCO).

A detailed report on how the U.S. and Canadian Governments can take leadership at the international level to solve problems at home is outlined in *NASCO'S Future: A Vision Statement*, authored by four experts on international Atlantic salmon policy.



The Atlantic Salmon Federation (ASF) is an international non-profit organization that promotes the conservation and wise management of the wild Atlantic salmon and its environment. ASF has seven regional councils and more than 140 affiliates, representing 40,000 volunteers.

For more information contact **Sue Scott**, VP Communications at (506) 529-4581 or visit www.asf.ca