



http://www.davidsuzuki.org/Oceans/Aquaculture/Salmon/Escapes.asp Go

DEC FEB MAR Close

60 captures

13 Oct 04 - 3 Feb 10

2009 2010 2011

Help



David Suzuki Foundation

About Us Contact Site Map

Search Go

- Solving Global Warming
- Protecting Human Health
- Conserving Our Oceans

Conserving Our Oceans

[Email Page](#) [Print](#) [BOOKMARK](#) [f](#) [t](#) [...](#)



Escaping farmed salmon pose risks

When farmed salmon escape, they pose several problem to wild species:

- Escaped salmon can be carriers of disease and parasites, which pose a threat to wild salmon populations.
- When the species farmed is native to an area there may still be an impact from escaped farmed salmon breeding with populations of wild salmon that are genetically adapted to specific streams.
- In British Columbia there is a greater danger arising from the fact that most of the salmon farmed are Atlantic salmon. Evidence exists that escaped Atlantic salmon can breed in BC's wild streams. The potential negative consequences of this could be dramatic.

How Many Farmed Salmon Escape ?

The reported escapes of farmed salmon in BC between 1987 and 2001 fluctuates from one year to the next with the average being about 90,000 escapes per year for the period 1990-2000. Since the 1980's, salmon farms in BC have switched from farming pacific species to mainly Atlantic salmon. This is reflected in the escape figures, which are now predominantly made up of Atlantic salmon.

Of the 88 escape events that are known to have occurred, there is only one occasion where the farm operator attempted to recover the escaped fish, with limited success. Usually it is other members of the public that report their capture of any feral Atlantic salmon. The total number of marine Atlantic salmon captured in BC to date is 18,251. With 87 per cent of these being caught mainly by fishermen in the Broughton Archipelago, on the north east coast of Vancouver Island. There have also been an additional 1,295 caught or sighted in fresh water streams and lakes.

Once they have escaped their netpens, farmed salmon can travel great distances. A total of 556 Atlantic salmon have been caught in Alaskan waters to date. No salmon farms exist in Alaska and the nearest BC farm is over a thousand kilometers to the south. One Atlantic salmon was even caught in the Bering Sea.

The most disturbing catches and sightings of Atlantic salmon in BC have been those of freshwater juveniles produced by escaped Atlantic salmon breeding in the wild. On the north-east coast of Vancouver Island, a recent study found 153 such juveniles between 1998 and 2000. These were in the Adam, Amor de Cosmos and Tsitika rivers. The evidence that these juveniles did not escape from farms came from lab analysis of their scales. The rate of growth for the scales is related to how the salmon eat. On farms, where feeding is regular, scales grow at a more regular rate than in the wild where feeding is more random. In a fashion similar to the seasonal growth rings for a tree, the scales of wild or feral salmon also show growth rings. The lab results showed that the above juvenile Atlantic salmon had been born and bred in the wild. The above study, the first of its kind, states that they were only able to look at about one per cent of potential salmon rearing habitat. The total number of Atlantic salmon that could be breeding in BC's wild rivers is impossible to know at this time.

The Causes of Escapes

Growing salmon in marine open netcages exposes the farm operation to certain risks that can lead to escapes. The netpen system can be damaged due to storms, persistent sea mammals such as seals and sea lions that try to get at the fish, industrial accidents, and even sabotage. Farm operators must report the cause of the escape if they can, and more recently the BC government has decided to investigate the cause of escapes so that recommendations can be made to try and prevent others from happening.

At the moment, government data on the causes of the escapes is only available to us from 1988-1996. During that time, 1,078,368 farmed salmon escaped in B.C., and of these, the exact cause of escape was known for 1,021,702. The causes can be categorized as follows:

- 49 per cent due to weather - mostly from a severe storm in 1988;



David Suzuki

[Events Calendar](#)
[Science Matters](#)
[Biography](#)

Quicklinks

[Volunteer](#)
[Take Action](#)
[Publications](#)
[FAQs](#)

Join us on...



- [Healthy Oceans](#)
- [PNCIMA](#)
- [Sustainable Fisheries](#)
- [Wild Salmon](#)
- [Aquaculture](#)
- [Salmon](#)
- [Pollution](#)
- [Drugs](#)
- [Escapes](#)
- [Net Loss](#)
- [Solutions](#)
- [Sea Lice](#)
- [Shellfish](#)
- [Offshore Oil Drilling](#)
- [Freshwater](#)
- [Recipes](#)
- [Marine Scene Newsletter](#)
- [Take Action](#)
- [Publications](#)
- [Links](#)

- Promoting Global Conservation
- Building A Sustainable Economy

- [Nature Challenge](#)
- [Home](#)
- [Take Action](#)
- [About Us](#)
- [Publications](#)
- [Links](#)
- [Site Map](#)
- [Blog](#)

- 32 per cent due to industrial accidents - human error or equipment malfunction;
- 16 per cent due to vandalism;
- 5 per cent due to predators - seals, sea lions and dogfish tearing the farmed salmon's netcage

To be clear, the above breakdown is given with respect to the number of salmon that have escaped, not the number of escape events. The more salmon escape, the greater their impact on the environment. In terms of environmental impact then, the two most important causes of escape are weather and industrial accidents. When ranking the causes of farmed salmon escapes, authors will not always specify whether their ranking is with respect to number of salmon or number of events. Numbers given with respect to number of events do not accurately reflect the level of environmental impact.

Trends in Number of Escaped Salmon

In a recent B.C. government press release, the following comparison was made:

"In 1999, 0.3 per cent of farmed salmon were reported to have escaped, compared with 3.7 per cent in 1990. This decline can be attributed largely to the development of improved containment and harvesting technology and to better farm practices."

What wasn't made clear in the press release is that the percentage quoted refers to the tonnes of salmon escaped compared to the total tonnage produced that year. It wasn't mentioned that between 1990 and 1999, farmed salmon production in B.C. tripled. So the percentage quoted for 1999 tells us very little about any change in the total number of individual salmon that escaped from farms between those two years. In terms of environmental impact, the more individual farmed salmon escape, the greater the impact. The numbers quoted by government are perhaps more of an issue in terms of economic impact to the industry.

One must be careful when trying to determine if the number of farmed salmon escaping has been going up or down over the years. As we saw in the previous section, many of the causes of escapes have an unpredictable nature to them. Any interpretation of trends, therefore, can only be reliable if looked at over a number of years. In 1990, 165,000 farmed salmon escaped compared to 35,730 in 1999, a five-fold reduction (not 12-fold as indicated in the government press release). But from 1993 to 2000 the number of escaped salmon almost doubled, from 22,113 to 40,617. Simply picking any two years and looking at the numbers is not very instructive.

In terms of the impact that escaped farmed salmon have on the marine environment, any improvement in containment and farms practices have been negated by the fact that the industry has expanded. If the goal is to eliminate the escape of farmed salmon, then improvements have not kept up with industry expansion.

Escape Regulations:

Since 1989, the Aquaculture Regulations section of the BC Fisheries Act has dealt with farmed salmon escapes by 'prohibiting the release of fish from a salmon aquaculture facility unless the release is authorized by the aquaculture license.' It also required a farm operator to 'take reasonable precautions to prevent accidental escape of farmed fish.' The term 'reasonable precautions' was never defined.

In 1993, the federal and BC provincial governments adopted a discussion paper entitled 'Wild/Farmed Salmonid Interactions.' One of the paper's recommendations was to develop a Code of Practice within the provincial government regulations that would focus on minimizing escapes. It wasn't until October 2000 that a 'Standards of Practice' was included in BC's Aquaculture Regulations that addressed escape prevention and response. Each salmon farm operation must now submit plans describing measures they are taking to prevent escapes and how they will respond should one occur. In addition, the BC Ministry of Agriculture, Food and Fisheries will investigate an escape and make recommendations on whether charges should be laid against the company, as well as on how to prevent similar escapes from occurring.

Since new escape regulations were put in place in October 2000, there have been two escapes of Atlantic salmon in BC. An estimated 13,500 salmon escaped in June 2001 from an Omega Foods facility, as a result of a rip in the netpen. On August 17, 2001, a yet-to-be specified number escaped from a Pacific National Aquaculture facility in Clayoquot Sound.

Despite the many farmed salmon escapes that have occurred, no company has ever been convicted under the pre-amended Aquaculture Regulations. Since the amendment, there have been two escapes. Both incidents are currently under investigation and whether charges will be laid has not been determined. A charge was also laid recently for an escape that occurred in 2000, but the case is still in the courts.

Whether the new regulations will work remains to be seen. Although the stated goal of the BC government is to eventually eliminate escapes, no clear timeline has been given for reaching such a goal. The new regulations may result in reducing the number of escapes, but eliminating them is another matter. As we saw in the previous section, with respect to number of farmed salmon that escape, improvements to farming practices may be offset if the industry continues to expand.

Salmon farming in BC is currently conducted in open netcages in the marine environment. By allowing such facilities, it will be difficult to create foolproof regulations that will foresee and prevent escapes due to all circumstances of severe storms, industrial accidents and persistent predators. A zero-tolerance policy to escaped farmed salmon may invariably require that farming facilities be enclosed, land-based systems, as people many have suggested.

References

1. Paone, S. Farmed and Dangerous: The Risk of Disease Transfer from Farmed Salmon to Wild Salmon. A report prepared for the Friends of Clayoquot Sound, April, 2000.
2. In 'Speaking for the Salmon Workshop Proceedings: Aquaculture and the Protection of Wild Salmon. Edited by Patricia Gallagher (Continuing Studies in Science, Simon Fraser University), and Craig Orr (Watershed Watch Salmon Society), 2000.
3. Volpe, J. P. , et. al. Evidence of natural reproduction of aquaculture escaped Atlantic salmon (*Salmo salar*) in a coastal British Columbia river. Conservation Biology, Vol. 14(3): pp. 899-903, 2000.
4. Atlantic Salmon Watch Program. Jointly managed by Fisheries and Oceans Canada and B.C. Fisheries. Data available on website at <http://www-sci.pac.dfo-mpo.gc.ca/AQUA/PAGES/ATLSALM.HTM>
5. B.C. Environmental Assessment Office. Salmon Aquaculture Review, Volume 3, Part B, 1996.
6. B.C. Environmental Assessment Office. Salmon Aquaculture Review, Volume 1, page 22, 1996.

Copyright © 2009 David Suzuki Foundation

