



Norway's main organisation for local
Salmon River management organisations

Address:	Postboks 9354 Grønland N-0135 Oslo, Norway
Office:	Hollendergata 5, Oslo
Phone:	+47 22054870
E-mail:	post@lakseelver.no
Org number:	971281693
Web:	https://lakseelver.no/

Svandis Svavarsdottir

Minister of Food, Agriculture and Fisheries

Iceland

samradsgatt@stjornarradid.is

Issue: Public comment on the proposed Icelandic fish farming bill

Your ref;

Our ref; 01-24

Oslo; 09.01.24

Norwegian Salmon Rivers (Norske Lakseelver) represent 123 local river management organisations in Norway. We strongly recommend the Icelandic Government to take into consideration the experiences from 50 years of salmon aquaculture in open net pens in Norway and impose a strict management regime in the new bill.

It is worth noting that in December 2023, the wild salmon was added to the International Union for Conservation of Nature (IUCN) updated list of endangered species. In 2021, the salmon was placed on the Norwegian red list for species, with the status of 'near threatened'. According to the Norwegian Scientific Advisory Committee for Atlantic Salmon¹ (VRL), the greatest negative impact comes from the aquaculture industry.

On this background we would like to inform you about the most important experiences from Norway that are relevant for the management of aquaculture of salmon in Iceland.

Escapes from open net pens in Norway

When the Quality Standard for Wild Populations of Atlantic Salmon² was established in Norway, the Norwegian Institute for Nature Research (NINA) and the Institute of Marine Research (HI) were tasked with calculating the extent to which escaped farmed salmon have interbred with wild salmon populations.

In 2016, 125 salmon populations were classified with regard to genetic interbreeding of farmed salmon in wild salmon. Three subsequent reports have classified respectively 175, 225, and 239 wild salmon populations, including all National Salmon Rivers.

¹ <https://vitenskapsradet.no/Medlemmer>

² <https://lovdata.no/dokument/SF/forskrift/2013-09-20-1109>

In a new report (2024)³, NINA and HI have classified the degree of genetic changes in 250 salmon populations. Together, these populations represent 95% of the wild salmon in Norway. The data consists of salmon caught in rivers, after escaped farmed salmon have been weeded out through scale analyses.

Significant genetic changes detected in 31% of the populations The genetic status in 250 wild salmon populations is distributed across four condition classes as follows (Figure 1):

Green (condition very good or good): No genetic changes observed - 82 populations (32.8%) Yellow (condition moderate): Weak genetic changes indicated - 70 populations (28.0%)

Orange (condition poor): Moderate genetic changes detected - 21 populations (8.4%)

Red (condition very poor): Significant genetic changes detected - 77 populations (30.8%).

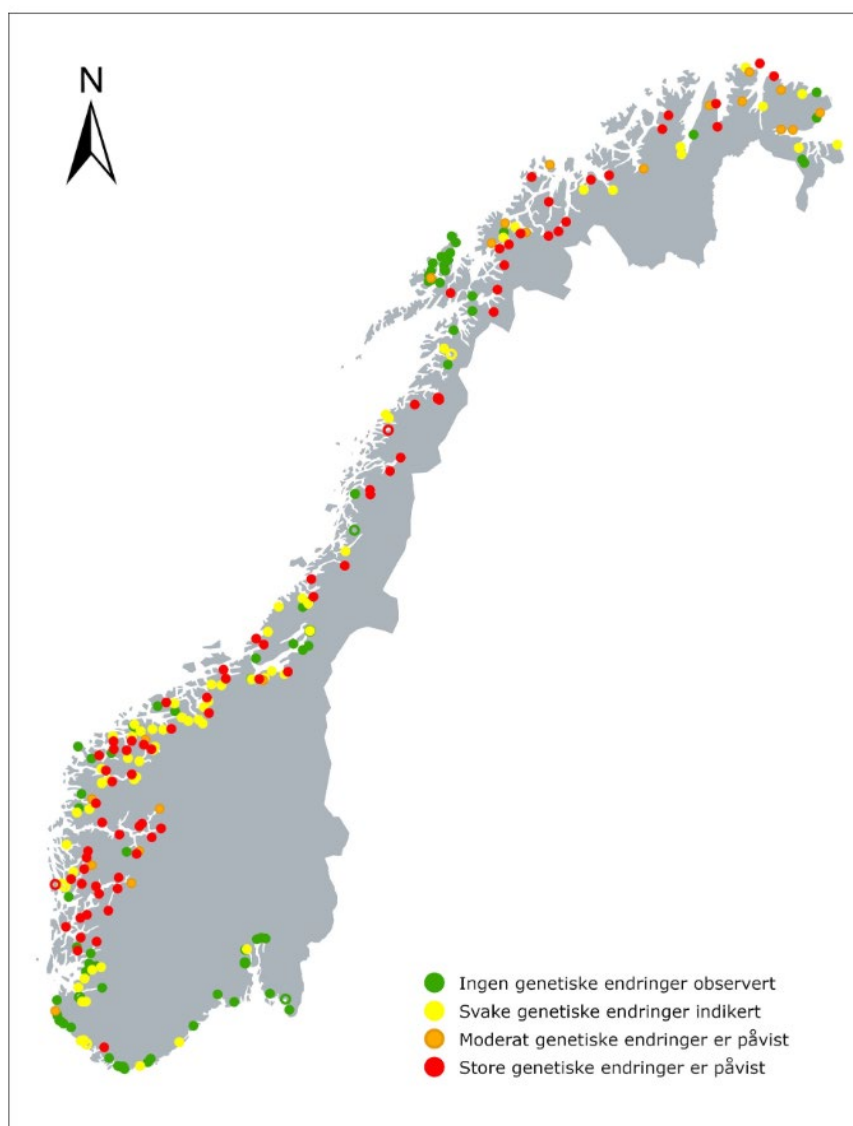


Fig 1. Map from the report: *Genetisk påvirkning av rømt oppdrettslaks på ville laksebestander – oppdatert status 2023*. For a translation of the Norwegian explanation of the colours, see text above the map.

³ <https://brage.nina.no/nina-xmlui/handle/11250/3108558>

It is clear that the more salmon produced in an area, the bigger is the risk for genetic destruction of the wild stocks. With regards to Iceland, it's also important to note that although there are relatively few salmon farms in the far north of Norway (Troms and Finnmark counties), the genetic interference is strong. This is because the phenotype of the salmon in this part of Norway differs the most from the phenotype used to breed salmon in aquaculture in Norway. The phenotype in the wild Icelandic salmon is also very different from the farmed salmon in Iceland.

Relevance in regard to the proposed Icelandic bill

The aquaculture industry in Norway has had a "Zero vision" on escaping salmon since 2011. But as long as the production is in open net pens in the fjords, accidents will happen, and salmon will escape. The result is clearly visible in the map in Fig. 1.

Based on the Norwegian experience, Norwegian Salmon Rivers support NASFs demand:

"Consequences for escapes must include a tangible and strict restriction on total production to be effective. Penalties for escapes should not be limited to farmed salmon that are caught in rivers. A certain number of fish is put into a net pen, a certain number dies off in the farming process, and then a certain number is harvested. Any counting discrepancy thereafter indicates fish escape, and penalties should be linked to such instances."

For genuine adherence to their "zero tolerance" stance on escapes, the ministry should enforce stricter penalties and provide stronger incentives for salmon farming companies to prevent escapes. Consequences should be impactful, and a mandatory tagging or marking system for all salmon entering open net pens should be implemented to facilitate the retrieval of escaped farmed salmon from rivers.

Furthermore, a mandatory marking of farmed salmon has been ordered from the Norwegian ministry of Fisheries in 2022 and is currently under development. Iceland should not impose any lesser strict legislation.

Norwegian Salmon Rivers also support NASFs demand that only infertile triploid salmon should be allowed as long as open net pens salmon farming is still allowed in Iceland. This is in line with exercising the precautionary principle.

Salmon lice

We enclose a page from the latest report from Norwegian Scientific Advisory Committee for Atlantic Salmon⁴

4

<https://vitenskapsradet.no/Portals/vitenskapsradet/Status%20of%20wild%20Atlantic%20salmon%20in%20Norway%202023.pdf>

Major threats to Norwegian wild salmon

The committee has developed a classification system to rank different anthropogenic impacts to Norwegian Atlantic salmon (figure 1, Forseth et al. 2017). Assessments according to this system are updated annually by the committee.

Salmon farming

Salmon lice and escaped farmed salmon were identified as the largest threats to wild salmon (figure 1), to a large extent impacting wild populations negatively. Salmon lice and escaped farmed salmon are regarded as expanding population threats, which means they affect populations to the extent that populations may be critically endangered or lost in nature, and that there is a high likelihood they will cause even further reductions. Current mitigation measures are insufficient to hinder expansion of negative impacts in the future.

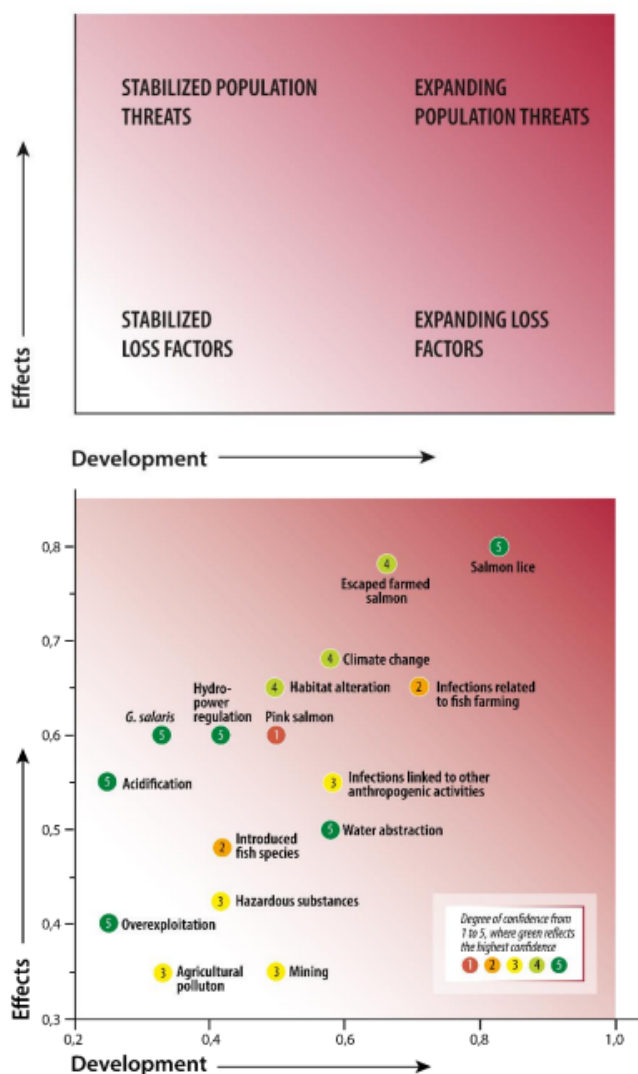


Figure 1

Upper graph: The classification system developed to rank different anthropogenic impacts to Norwegian Atlantic salmon populations along the effect and development axes. The four major impact categories are indicated, but the system is continuous. Dark background colour indicates the most severe impacts. The effect axis describes the effect of each impact factor on the populations, and ranges from factors that cause loss in adult returns, to factors that cause such a high loss that they threaten population viability and genetic integrity. The development axis describes the likelihood for further reductions in population size or loss of additional populations in the future.

Lower graph: Ranking of 16 impact factors considered in 2022, according to their effects on wild Atlantic salmon populations, and the likelihood of a further negative development.

Confidence for the assessment of effect by each threat is indicated by the color of the markers, where green indicates the highest confidence level and red the lowest.

As you can see from the report, salmon lice are considered the biggest threat to wild Atlantic salmon in Norway. In some areas, up towards 50% of the ocean bound smolts that swim out of the rivers in the spring, is killed by the sea lice produced by farmed salmon in open net pens⁵. This destroys the

harvestable surplus of many Norwegian rivers, and world-famous salmon rivers like The Lærdal and The Vosso is now closed for fishing due to this.

According to NASF, the Icelandic bill lacks specific values for the permissible number of lice and the corresponding penalties for exceeding these limits. Iceland recently experienced one of the most severe sea lice outbreaks in the history of the salmon farming industry. This situation demands a serious approach with no concessions. Norwegian Salmon Rivers urge the Icelandic government to adopt NASCO standards concerning sea lice. If the sea lice exceed those stipulated numbers, it should lead to a permanent reduction in production.

Mortality

In Norway the current situation is this: Today's treatment regime against salmon lice leads to significant animal welfare challenges for the farmed fish, and the salmon lice do not seem to be combated with today's delousing methods. The extent of treatment in recent years is reported to be around 3000 treatment weeks per year. It cannot continue like this. Prevention must be prioritized over treatment.⁶

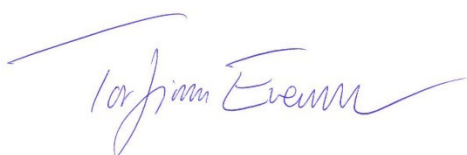
Based on this experience, we urge the Icelandic government to include a section stating that a mortality rate exceeding 10% should be deemed unacceptable, and elevated mortalities in open net pen salmon farming should result in a permanent reduction in the production.

A final remarke

Based on a recognition of the environmental impacts from aquaculture in open cages, more and more farmers and aquaculture organizations in Norway have advocated a transition to closed technology. Iceland should use this opportunity to set a clear example in its legislation.

Norwegian Salmon Rivers propose a transformative shift in aquaculture practices towards closed pen technologies. This shift is crucial to prevent the spread of salmon lice in the open waters of the Icelandic fjords, minimize the risk of fish escape, and facilitate the collection and reprocessing of sludge and waste. Such technology not only aligns with environmental sustainability goals but also presents opportunities for innovative waste management. This proposal would also enable Iceland to meet the commitment it has made to NASCO and the international community to eliminate the impacts of escapes and sea lice on wild Atlantic salmon.

Sincerely



Torfin Evensen

Secretary General

Norwegian Salmon Rivers

⁶ <https://kudos.dfo.no/dokument/32487/fiskehelse rapporten-2022-veterinaer instituttet-rapportserie-nr-5a2023>