

Escapes from Norway's fish farms threaten wild salmon

by Wilfred Vuillaume

Hundreds of thousands of salmon escape from Norwegian fish farms each year carrying parasites that pose a serious threat to wild salmon, a growing phenomenon that has fish farmers, environmentalists and authorities worried.

Some 790,000 salmon and trout slipped through the nets last year, compared to 722,000 the previous year.

This despite the fact that the salmon are continuously monitored. Underwater cameras and divers are constantly on the lookout for small holes in the nets of the aluminum cages that lie 35 meters (115 feet) under the surface.

The escapes are "a crime against the environment", Peter Gullestad, the head of the Norwegian Directorate of Fisheries, told AFP, adding: "Norway is facing its biggest ecological challenge."

The fish that escape from Norway's 1,000 fish farms, located in fjords and rivers along the 21,347 kilometers (13,264 miles) of coastline, threaten the maritime ecosystem.

"Salmon lice is the biggest threat" to stocks of wild salmon in the long term, explained Espen Farstad, a spokesman for the Norwegian hunting and fishing association NJFF.

The lice, which live in salt water and are known by the Latin name *Lepeophtheirus salmonis*, bite the salmon until they bleed, feeding off of the fish's mucus and causing the least resistant fish to die.

Most susceptible are young wild salmon swimming in the fjords and rivers before they head off to the open sea, as their immune systems are not yet fully developed.

The lice is a problem at all salmon farms around the world. In Norway, it poses a particular problem since fish is the country's second-largest natural resource export after oil and gas.

Also, as farmed salmon increasingly mix with wild salmon, the genetic composition of the latter changes.

"In the future, the entire genetic system of the wild fauna could be modified," Farstad warned.

"We are doing everything we can to prevent salmon from escaping from their cages and infecting the nearby rivers," insisted Bernt Wictor Haugen, a fish farmer in the Finnmark region in Norway's far north.

The industry is using frogmen, anti-lice baths, antibiotics, vaccines, and any other methods available to help fish farms and commercial fishing co-exist in harmony.

But for environmental organizations, not enough is being done.

"The fish farmers are not taking the problem seriously enough. The farms at fault should be punished," said Maren Esmark of the Norwegian branch of WWF.

She wants authorities to introduce severe sanctions on the fish farms. The complaints filed to the police are seldom followed up, according to Gullestad.

The fisheries ministry meanwhile says that the fish farm escapes are a top priority, as Norway has a reputation as a world leader to defend.

In 2006, fish farm exports totaled 18.7 billion kroner (2.2 billion euros, 2.9 billion dollars), up 24 percent from a year earlier, according to the Norwegian fisheries export committee EFF.

The increase is due primarily to rising demand for salmon and the arrival of cod and halibut farms.

Norway is Europe main's supplier of fish, both farmed and wild, with a market share of 62 percent in 2006.

And last year, fish farm exports for the first time exceeded exports from the traditional fishing sector, reaching 17 billion kroner.

In July, a special committee was set up by the fisheries ministry to improve security at the fish farms.

"Now all fish farm equipment has to be certified by the committee. A very strict inspection takes place once a year," said Rune Bildeng, an advisor to the fisheries ministry.

In order to meet the new demands, Norway's fish farms are slowly being turned into ultra-modern fortresses, resembling less and less the traditional fish farms.

"But a well-monitored salmon will always be better on the plate," insisted fish farmer Bernt Victor Haugen.

Current Event Questions

- 1.) What is the focus of the news story?

This article focuses on the threat that fish farming has on the wild population of salmon off of the coast of Norway. Here salmon are being raised by around 1,000 fish farms in aluminum cages. The problem arises due to nearly 800,000 of the farm raised fish that escape their artificial homes. The escapees at first glance would not seem to be that large of a threat, but the farm raised salmon are a carrier of parasites and can transfer the parasites to wild fish in the area. The parasite most concerned about is Salmon Lice. Salmon Lice bites the fish until they bleed, lives off the leaking mucus, and kills those that are least resistant (mostly those that are young). A second threat to the wild salmon is an alteration of genetics. Breeding of wild fish with farm raised salmon could cause the “system of the wild fauna” to be modified.

Although fish farmers say they are doing everything they can to stop the farm raised salmon from getting out, numerous organizations refuse to see their efforts as enough. The fisheries ministry has put this issue as their top priority and want to approve all fish farm gear before being put to use.

- 2.) How is this story related to fish ecology?

Fish ecology is the study of fish and their interaction with both biotic and abiotic counterparts. This story is related to fish ecology because it describes effects that humans have as a biotic counterpart on the wild salmon population off

of the coast of Norway. In order to meet the demand of a growing human population, people are raising fish in denser quantities than would normally be found in the ocean. In these tight quarters, fish are more susceptible to disease and viruses. When nearly 800,000 of the farm raised fish escape in a given year, there is bound to be negative consequences to the wild salmon population. An introduction of so many fish carrying disease to the wild population is surely a biotic factor of the wild salmon habitat and falls in the realm of fish ecology.

3.) Who are the main human and nonhuman “players” in this story?

Although an extremely large base of humans may be indirectly affected by the events in this story, the main human players would include fish farmers, individuals in the commercial fishing industry who make a living off of the wild salmon population, environmental organizations, and the Norwegian Government. The primary nonhuman players of this story include wild salmon and farm raised salmon off of the coast of Norway

4.) What socioeconomic issues are embedded in this story?

The Norwegian fish sector accounts for 62% of all fish exported out of Europe bringing a number of jobs and around 5.5 billion dollars to the country. Both the farmed and wild fish contribute nearly 50% of this total and it is necessary for both commercial fishing and fish farming to survive.

5.) Does the reporting of this story appear to be accurate and unbiased?

The reporting of this story does appear to be unbiased and relatively accurate although it seems that necessary proof is missing. The writer gives information from both the environmentalist and fish farmer view and allows the

reader to see where both sides are coming from. Missing however is data on the clear link between raised wild fish deaths with larger numbers of escapees, and proof of genetic alteration in the wild population due to the farmed fish. This information would better prove to me that the farmed fish are in fact hurting the wild fish.

6.) What kind of fish-ecology knowledge would help in this situation?

In this situation, it would help to know more about a number of fish-ecology topics including fish parasites and diseases, salmon breeding habits, and salmon behavior in confined spaces. With this information it may be possible to reduce spread of disease from farm-fish to wild fish, monitor and genetic change over the wild salmon population, and reduce the number of salmon that actually escape the cages in the first place.

7.) What could/should a fish ecologist do to help resolve this issue?

First of all, it is necessary to collect data to prove that the farm raised salmon escaping the cages are affecting wild salmon in a negative way. Once this has been done, recommendations on helpful actions to resolve the situation can be made. These recommendations may include limiting the number of cages used for the fish farming process, making regulations in the design of fish cages so as to limit the number of fish that escape, or punishing farmers for those fish that escape in some economic way to promote more attention to the issue.