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Briefing for the Public Petitions Committee

Petition Number: PE1598

Main Petitioner: Guy Linley-Adams on behalf of Salmon & Trout Conservation Scotland

Subject: Protecting wild salmonids from sea lice from Scottish salmon farms

Calling on the Scottish Parliament to urge the Scottish Government to strengthen Scottish legislative and regulatory control of marine fish farms to protect wild salmonids of domestic and international conservation importance.

Sea lice reporting in Norway

The Committee asked for further information on the system for reporting on sea lice at salmon farms in Norway. All salmon farming sites in Norway report the numbers of salmon lice on the fish weekly when the temperature is >4°C. This is reported together with fish biomass and number of individual salmon per cage (reported each month) to the Norwegian Food Safety Authority (Taranger et. al 2015). The Fish Health Section of the Norwegian Food Safety Authority has developed an interactive map that shows indicators of fish health status of aquaculture. The map provides a weekly overview including sea lice, action against lice, and diseases. There is also information about the companies and what kind of permit they have. The online service shows updated data as they come in daily, with the ability to scroll backwards per week until 2012. Information for the service obtained from the Norwegian Food Safety Authority, the National Veterinary Institute and Ministry for Fisheries. (translated from Norwegian on this page using Google Translate). The online map is available here:
https://www.barentswatch.no/fiskehelse/2016/25

Additional information

The Canadian Senate's Committee on Fisheries and Oceans published a report on the regulation of aquaculture in 2015. As part of their inquiry the Senate Committee visited Norway and Scotland and the 2nd volume of their report contrasts the aquaculture sector in each country. On sea lice the report contains the following information:

“In Norway, each grow-out site must count sea lice on a sampling of fish at least twice per month in accordance with specific instructions; the findings must be reported to the NFSA. If the sea lice count at a particular site exceeds a maximum allowable limit, the operator is obliged to perform a delousing treatment within 14 days. Over the last decade, the aquaculture industry has mostly relied on two methods of treatment – emamectin benzoate (SLICE®, which is delivered orally) and pyrethroids (pest control products delivered in a bath treatment) – for treating fish against sea lice. However, sea lice along the Norwegian coastline have developed a resistance against these products.New national regulations came into effect in 2009 to address this problem. Measures included:

- Mandatory reporting of all suspected or confirmed cases of reduced sensitivity or resistance of sea lice to any of the available treatments;

- Powers provided to the NFSA to demand a prompt reduction in biomass at any given grow-out site and, if necessary, slaughtering of all the fish in a given site where operators are found unable to maintain the sea lice levels under the maximum allowable levels (that year, the maximum was set at 0.5 adult female lice per fish); and

- Powers provided to the NFSA to propose and implement zone regulation in limited geographical areas that could include mandatory extension periods for fallowing, a ban against new smolt entries into the area and a ban against the use of a specific sea lice compound where resistance had been documented.

Also in 2009, the Norwegian Seafood Federation (FHL), the organization that represents the aquaculture industry (as well as the commercial fisheries sector), published a set of guidelines for sea lice treatment. In 2011, the use of closed tarpaulins during sea lice management was made mandatory to mitigate the risk of resistance-development. In addition, Norway has implemented an integrated pest management strategy for sea lice whereby all grow-out sites in selected areas are required by law to participate in a synchronized delousing treatment program. The program is mandatory along the Norwegian west coast. The primary objective is to minimize the sea lice infestation levels on Atlantic salmon during the wild smolt migratory window in the spring and early summer.

In recent years, there has been an increased interest in the use of wrasse (a cleaner-fish) as a biological delousing agent. Wrasses have initially been captured in the wild and introduced into the cages together with the fish. However, it is recognized that the wild stocks of these fish cannot supply the amount the aquaculture industry needs for sea lice management. Recent developments in experimental culture of wrasse show promising results. Lumpsucker, another species of cleaner-fish, is also used with success in salmon aquaculture for the same purpose. Another option being considered to minimize the spreading of sea lice between cages is the establishment of a minimum distance between different grow-out sites.

In June 2014, the Ministry of Trade, Industry and Fisheries announced stricter rules on sea lice. In accordance with these rules, aquaculture operators would be permitted to increase their maximum biomass permitted by 5% but, in turn, they would have to ensure that there are no more than 0.1 adult female lice per aquacultured fish on average on their sites. This limit, which is more stringent than the current limit of 0.5 lice per fish, would be required to be achieved by using a maximum of two medication treatments per production cycle. This policy is intended to help reduce the development of resistance against the delousing compounds used today. It is also expected that this would encourage the use of non-medicinal methods. Stricter requirements regarding sea lice would be followed up through increased control, especially from the NFSA. An additional 10 million NOK would be invested by government to strengthen monitoring. Any violation of these conditions would be met with predictable reactions and sanctions. The aim was for the new rules to come into force by the end of December 2014.

During the fact-finding mission in Norway, the Committee learned that the aquaculture industry has also experimented with the use of the "snorkel cage" to reduce sea lice. It was explained that sea lice primarily live at shallow depths and, accordingly, it could be possible to prevent the propagation of the parasite by placing fish in deeper waters, below the "louse zone." This new sea cage technology establishes a lice-free zone where the salmon can still thrive. A net roof is placed to hold salmon deeper than the parasite-risky surface layer. A central cylindrical passage, the snorkel, which is impermeable to parasites, allows salmon to swim to a shallower portion of the water column, where oxygen is more abundant. Senators were told the experiment showed that the use of the snorkel cage reduces sea lice infestations compared to traditional cages and that it is chemical-free.

While in Norway, the Committee had the opportunity to meet with some industry representatives who noted that salmon sea lice regulations were enforced 10 times between 2008 and 2014. These regulations were applied either nationally, to some regions only or during selected months. In their view, regulations succeeded in reducing the prevalence of sea lice on salmon, helped minimize the negative effects of lice on both wild fish and aquacultured fish, and also assisted in reducing and combating resistance to treatment. They stated, however, that there was still room for improvement and that sea lice regulations should be set by zone. In addition, they suggested that the impact of these local regulations should be subject to assessment for compliance, enforcement and goal achievement. Furthermore, it was indicated that efforts should be devoted to the eradication of sea lice on salmon, rather than mitigation efforts to reduce the presence of sea lice.

According to the Norwegian Veterinary Institute, sea lice – more particularly extensive delousing treatment and increased resistance to treatment – remains one of the most significant challenges for the aquaculture industry in Norway."

Tom Edwards

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18 August 2016

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