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Norwegian Seafood Council
Information about Norwegian Salmon relating to the report in Envoyé Spécial, "Fish: farming in murky waters"

In anticipation of the report in Envoyé Spécial "Fish: farming in murky waters" scheduled for this Thursday, 7th of November at 8.45 p.m., here are a few suggested responses to the topics that should be addressed in the report.

All the following information is based on **fundamental principles** within Norwegian aquaculture: a **transparent, regulated and controlled** activity, guaranteeing safe and healthy products. The consumer can obtain information at any time:

- All tests on Norwegian farmed salmon are made public on the NIFES (National Institute of Nutrition and Seafood Research) site: http://www.nifes.no/sjomatdata/?lang_id=2
- The Norwegian Seafood Council is available to answer consumer questions via the following e-mail address: norge.fr@seafood.no
- In France, ANSES (*Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail* - French Agency for Food, Environmental and Occupational Health & Safety) has also published a recommendation for consumers concerning fish and seafood. It is recommended to eat 2 portions of fish per week, whereof one portion of fatty fish such as salmon, mackerel, sardine, herring, smoked trout…
  http://www.anses.fr/fr/content/manger-du-poisson-pourquoi-comment
  http://www.anses.fr/fr/content/poissons-et-produits-de-la-p%C3%AAche-synth%C3%A8se-des-recommandations-de-l%E2%80%99agence

1. On traceability

How can we be sure where the fish comes from?

- All farmed fish imported into the EU zone must carry a label providing information on the species and on the origin of the product. These regulations therefore also apply to Norwegian salmon marketed in France. Traceability information on Norwegian salmon also provides all information on the spawning stock, the company and the farm location, the salmon feed, any treatments and health monitoring, where the salmon are slaughtered and processed, the packaging, etc.
- Once it reaches France, the fish is inspected under the French monitoring and control plans for food safety (PSPC): http://agriculture.gouv.fr/dispositif-surveillance-controle-securite-sanitaire-aliments-564

2. On the use of antibiotics

In what circumstances are antibiotics administered to farmed salmon?

- **No medication or antibiotics are administered as a precaution in salmon feed, and no trace of antibiotics have ever been found in Norwegian farmed salmon intended for consumption.**
- The use of antibiotics in Norwegian salmon farming has thus plummeted by 99% since the 1990s whereas salmon production over the same period has increased from 50,000 tons to one million tons. **In 2012, less than one percent of the salmon received veterinary treatment by antibiotics.**
- The use of antibiotics is strictly monitored: they may only be administered as a last resort and with veterinary clearance. Treated salmon must be **placed in quarantine** until their organism shows no further trace of antibiotics. **Norwegian salmon is controlled according to EU**

regulations for veterinary residues. Recent results document that Norwegian salmon is perfectly safe and healthy to eat.

- **It is the emergence of vaccines that has considerably reduced the use of antibiotics to treat the main infections affecting salmon.** They are used to prevent epidemics whilst **having no effect on human health**.

3. On the use of other veterinary medicines

3.1 What is diflubenzuron? Given its classification as a pesticide in agriculture, why is it used in the aquaculture industry?

- **Diflubenzuron is occasionally used under strict limits and only as prescribed by a veterinary to treat salmon for sea lice.**
- **Statistics show that the use of diflubenzuron is low, and that other means to control sea lice are preferred.** The treatment most used involves introducing a "cleaning fish" (called Ballan Wrasse) into the pens. Cleaner fish eat the lice off the salmon's skin.
- **It has been approved by the EU for controlling sea lice in salmon farms.** The sea louse is a parasite that is found naturally in a marine environment. It lives on salmon skin mucus and may affect both wild and farmed salmon.
- A major monitoring programme of farmed fish has been conducted by the Norwegian Food Safety Authority, in accordance with EU regulations, since 1994 to ensure food safety. **NIFES carries out 11 000 tests every year, and diflubenzuron residue has never been detected in Norwegian farmed salmon beyond the limits approved by the Norwegian and European authorities.**

3.2 Why can traces of endosulfan, a pesticide banned by the EU, be found in Norwegian salmon?

- The use of endosulfan as a pesticide is banned within the European Union and in Norway, and it is not applied in any way in salmon farming.
- Due to the limited access to marine raw materials and the wish to find more sustainable feed resources, the aquaculture sector uses vegetable ingredients in the salmon feed. **Pesticide residues in raw materials purchased in South American and Asian countries, where the use of endosulfan is not yet banned, can be found in animal feeds used in the EU and Norway.**
- However, **the EFSA (European Food Safety Authority) and the European Commission have concluded that the endosulfan in salmon feed is not a risk factor for human health or for animal welfare.** (Source: http://www.efsa.europa.eu/en/efsajournal/pub/236.htm)
- The consumption of 300 g of salmon containing the highest concentration measured in farmed salmon fillets (0.00636 mg/kg) represents about 0.5% of the acceptable daily intake of a person weighing 70 kg.

4. On fish feed and the use of processed animal protein (PAT)

Salmon feed is made up exclusively of **fish and vegetable protein. The other ingredients are fish oil, vegetable oils**, antioxidants, vitamins and minerals.

4.1 PROCESSED ANIMAL PROTEINS

Following the new authorisation of Processed Animal Proteins (PAP) in farmed fish feed for the European Union countries, what is Norway's position?

- **For information:**
  - **The use of PAPs in farmed fish feed is currently not authorised in Norway.** As European legislation on PAPs falls under agreements between the European Economic Area and Norway, Norway will ultimately have to align its regulations with those of the EU.
  - **There are currently, and have not been, any PAPs in fish feed used for aquaulture in Norway.**
  - PAPs are potentially a third source of protein for the fish. They represent a possiblity to reduce the reliance on fishery resources and increase the effectiveness of food production by reducing food waste (environmental/sustainability concern).

4.2 ADDITIVES

Why are additives such as astaxanthin used in fish feed?

- The carotenoid astaxanthine is part of the salmon's natural diet and gives the fish its red/pink coulour. Wild salmon get this essential nutrient by eating small crustaceans.
- Because it is an **essential nutrient** for the salmon's immune system, astaxanthin is added to farmed salmon feed.
- Salmon that do not receive these carotenoids suffer from poor health.
- **Astaxanthin is not a hazard and no unfavourable effect on health has been noted when consumed.**

What is ethoxyquin? Is it hazardous for consumer health?

- **Ethoxyquin is an antioxidant, used as an additive to preserve feed given to animals, including fish.**
- European Regulation 2316/98 authorises the use of antioxidants such as ethoxyquin (EQ) in animal feed. **Their maximum limit alone or in combination is set at 150 mg/kg per foodstuff.**
- In Norway, the content of these antioxidants in farmed fish feed is monitored every year. The most recent results by the official Norwegian control programme on **fish feed and fish fillets showed that ethoxyquin levels were well below the limits set by the EU .**

5. On mercury pollution and PCBs

5.1 DIOXINS AND PCBs

For information:

- Several alarming articles were published in June 2013 on **the presence of POPs (persistent organic pollutants) in Norwegian farmed salmon.** They were based mainly on allegations by doctors on the assumed health risks, mainly for young women and pregnant women, without new research or tests confirming the truth of these anxiety-inducing statements. These remain isolated opinions that are not recognised by food safety authorities or the independent research institutes who monitor Norwegian salmon on behalf of the Food Safety Authorities in Norway.

- Following these articles, the Norwegian Health Directorate clarified its recommendation on fish consumption for young women and pregnant women. **The recommendation is to eat two to three portions of fish per week, of which a maximum of two should be fatty fish such as salmon or mackerel. It is the same recommendation that already existed and which is valid for the entire population[1]. Even Norwegians, who eat a lot of seafood, are generally far from reaching this limit, even when each individual consumes 8 kg of salmon per person per year.**
- The French Agency for Food, Environmental and Occupational Health & Safety **(ANSES) recommends eating fish at least twice a week, combining one Omega-3-rich fish, such as Norwegian farmed salmon, with a lean fish.**

Should we be concerned about the POP level in Norwegian farmed salmon?

- POP levels - including dioxins and PCBs - in Norwegian salmon are **well below all the European limit values (less than 1 ng TEQ/kg for a limit value of 8 ng TEQ/kg** - source: NIFES[2])
- The Norwegian authorities control the entire supply chain to ensure compliance with these limits. The results of various tests are public and accessible on the NIFES (National Institute of Nutrition and Seafood Research[3])website . **NIFES carries out over eleven thousand tests a year on Norwegian salmon, and POP levels in Norwegian farmed salmon have never exceeded the European limit values.**
- NIFES has confirmed that **the POP levels found in Norwegian farmed salmon are steadily decreasing and have dropped by two thirds since 2004.**

5.2 MERCURY AND HEAVY METALS

Are there traces of mercury and heavy metals in Norwegian farmed salmon?

- **Traces of mercury and heavy metals are found in all fish, farmed or wild**, as these elements are found in seas and rivers.
- **ANSES concluded that the average rate found in the flesh of fish is lower than the tolerable daily intake, i.e. what can be ingested every day by the consumer without adverse effect on health**, as defined by the World Health Organisation.
- Norwegian farmed salmon is in no way among the most contaminated fish (sharks, lampreys, swordfish, spearfish and siki) or likely to be highly contaminated (monkfish, angler fish, Atlantic wolffish, skipjack, eels and elvers, top snails, grenadiers, Atlantic halibut, skate, sea bream, tuna, etc.).
  (Source :http://www.anses.fr/fr/content/consommation-de-poissons-et-exposition-au-m%C3%A9thylmercure)
  Lastly, NIFES recorded a rate of 0.016 mg/kg in the flesh of Norwegian farmed salmon in 2012, whereas the European authorities authorise up to 0.5 mg/kg.

[1] http://www.norvege.no/News_and_events/policy/Les-autorites-sanitaires-norvegiennes-ne-mettent-pas-en-garde-contre-la-consommation-du-saumon-delevage/#.UnpA7vnmO5w
[2] http://www.nifes.no/sjomatdata/?lang_id=2
[3] http://www.nifes.no/index.php?page_id=126&article_id=3390&lang_id=2