

Environment, Climate Change and Land Reform Committee

Environmental impacts of salmon farming

Written submission from Susan Osborn

“4.5.6 Bioaccumulation and food chain transfers”

Very little direct information on bioaccumulation and food chain effects is available from the literature.”

Unless a lot of new research is done into accumulations of toxins in Salmon flesh and their effects on human health, claims for the benefits of eating farmed Salmon should not be made.

The risk/benefit ratio to human health of eating farmed salmon is poor. Expansion of this industry will accelerate this problem. Each solution has brought with it new risks to human health. There is very little evidence gathering on the risks to human health of bioaccumulation. Claiming there is little evidence is not the same as finding there is no problem. The industry can do as much harm as the regulators allow.

Farmed Salmon has been promoted as a good source of essential omega 3 fatty acids to the human diet. Wild fishing to provide omega 3 for salmon feed has reached its limits so can no longer increase. Farmed salmon will have to be fed an increasing amount of poultry and pig by products and plants if this industry is allowed to expand. Salmon feed will have to contain less and less omega 3 therefore farmed salmon will contain Less.

There is no labeling required on the amount of omega 3 in farmed salmon, so the industry is free to reduce it further without consumers knowing. The health benefits of farmed Salmon are decreasing and set to decrease further.

Farmed Salmon contains three times more fat than wild salmon, while less and less of this fat is omega 3.

There are risks to human health of a build up of toxins in salmon flesh. Some of these toxins are in the salmon feed.

Fish meal has to be transported half way across the world. In order to keep it stable, an antioxidant called **Ethoxyquin** has to be used. (in fact insurers refuse to allow fish meal to be transported unless it contains this substance). This substance is so toxic it is not allowed in food for humans or dogs.

This chemical is so toxic that the livers of farmed salmon cannot break it down and get rid of it, so it accumulates in the flesh. “These EQ residues may have higher toxicological effects for human consumers than the parent compound and therefore need to be studied in more detail.” (1)

The EC know EQ needs to come out of the food chain, but have not yet banned it. Substitutes are being trialled, but are either not effective enough or are just as dangerous.

Banning it will make salmon feed expensive so they are under pressure to delay.

Butylated hydroxytoluene (BHT) and butylated hydroxyanisole (BHA) are also used. “..however, a 300 g portion of farmed Atlantic salmon would contribute up to 75% of the ADI (acceptable daily intake) for BHT.” (2)

Chemicals that are used regularly on salmon farms have to be toxic enough to kill sea lice. These lice are adapting rapidly to survive the chemicals, so the industry are always looking for new and more powerful solutions. Farms with cleaner fish and thermolicers are still using a cocktail of toxic chemicals.

Emamectin (contained in the medicated feed “slice” among others)

Only a few fish are tested for this chemical. Of the few many contain surprising quantities of this. Here are two conclusions from Veterinary Medicine Directorate reports:-

“Although the withdrawal period for Slice is zero days, this company has customers from the USA and has a company policy of a 60 day withdrawal in place.... The investigating officer concluded that the cause of this residue is most likely due to difficulties in treating aquaculture animals in general because of variations in weight and appetite with populations, making administering exact doses of an oral medicine difficult.”

The USA do not want emamectin in farmed salmon and demand a withdrawal period of 60 days before harvest. Why are salmon farmers allowed to sell salmon treated with emamectin in Scotland with no withdrawal period?

Administration of an exact dose of medicine is impossible in sea cages, yet

It is my opinion that the most likely cause of the sample testing above the MRL is due to the difficulties involved in treating aquaculture animals in general. There is always a natural variation in fish weight in populations, which makes calculation of biomass problematic and therefore the administration of an exact dose of medicine impossible. There will also be variations in appetite between fish in a cage, making it extremely difficult to administer an exact dose of an oral medicine. It was recommended that the company submit a suspect adverse reaction report.

anti-sea louse medicine is only needed in open net sea cages.

PCBs

When these are found (3.4 µg/kg and 5.1µg for example), the Veterinary Medicine Directorate reported :-

“No investigation required. The FSA have advised that a commission decision is imminent which will set an action level of 75 µ/kg for PCB in fish.”

Raising the bar on how much pollution we should allow does not make us or the environment any safer. The precautionary principal should be taken far more seriously in regulating and policing this industry.

(1)Food and Chemical Toxicology 2007-05-01

Hepatic metabolism, phase I and II biotransformation enzymes in Atlantic salmon (*Salmo Salar*, L) during a 12 week feeding period with graded levels of the synthetic antioxidant, ethoxyquin.

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(2)Levels of synthetic antioxidants (ethoxyquin, butylated hydroxytoluene and butylated hydroxyanisole) in fish feed and commercially farmed fish.

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