



European Economic and Social Committee
Comité économique et social européen



Catégorie "Consommateurs et Environnement" / "Consumers and Environment" Category

Poissons d'élevage: *Quels impacts pour la santé des consommateurs et l'environnement*
Farmed fish: *The impact on the health of consumers and the environment*

14.02.2014

9h30 - 12h00 | 9.30 a.m. - noon

Salle/Room VM3 | 2^e étage/2nd floor



Group II "Various Interests"
Groupe II "Activités diverses"

Van Maerlant Building
rue Van Maerlant 2, 1040 Brussels



European Parliament / **Committees**

PECH

Fisheries

Public hearing

Programme

**'AQUACULTURE IN THE EUROPEAN UNION: PRESENT SITUATION AND
FUTURE PROSPECTS'**

European Parliament Committee on Fisheries

1 October 2002, 9.00 – 13.00, Room ASP 3 E 2

European Parliament, rue Wiertz, 1047 Brussels

Mr Don STANIFORD,

Independent consultant,

Scotland

'Sea Cage Fish Farming: an evaluation of environmental and public health aspects'



European Economic and Social Committee

**Group III - Consumers and
Environment Category**

14 February 2014,

Farmed fish - their impact on consumer health and the environment

*The environmental impact of salmon-farming: the view of the NGO Protect Wild
Scotland - Don STANIFORD, director*

Five Fundamental Flaws of Sea Cage Salmon Farming

- #1 Wastes
- #2 Escapes
- #3 Diseases/Parasites
- #4 Chemicals
- #5 Feed/Food

The Fatal Flaw: #5 FEED/FOOD

- “Intensive sea cage fish farming’s dependence upon a fast diminishing and increasingly contaminated resource – namely fish meal and fish oil – threatens to blow sea cage fish farming out of the water altogether. The fifth fundamental flaw – the unresolved and unsolvable feed/food issue - will ultimately be the final fatal flaw for sea cage fish farming” (2002 to European Parliament)

Fish Farmageddon?

- “European consumers are alarmed by recent media reports which claim that aquaculture fishery products may not be safe. The environmental damage of fish farming is a further concern for European citizens. There are also claims of fish farms being accused of spreading diseases to wild fish and of discharging waste and pesticides into the sea”

Faut-il chasser le saumon de nos assiettes ?

La star des poissons gras est depuis longtemps vantée pour ses bons oméga-3. Mais des analyses réalisées pour France Télévisions montrent que le saumon contient aussi un cocktail de contaminants.



francetvinfo



Envoyée spéciale en Norvège **Marion Solletty** 

Mis à jour le 17/12/2013 | 10:46 , publié le 16/12/2013 | 17:59

Et les gros mangeurs de poisson sont en première ligne. Selon les analyses menées pour le compte de France Télévisions, pour un enfant de 30 kilos, deux portions de saumon de 200 grammes suffisent à atteindre 65% de la DHT. Elles représentent 32% de la DHT pour une femme.

DIOXINES ET PCB

*Dose contenue dans deux portions de saumon
par rapport à la dose hebdomadaire tolérable*

 | 65 %

 | 32 %

 | 26 %





ISA suspicions hit Bakkafrost shares



February 12, 2014, 9:22 am

[Undercurrent News](#)

By Aslak Berge, [iLaks.no](#)

Bakkafrost's shares took a beating after the Faroese salmon producer unveiled [suspicions on Sunday night of infectious salmon anemia \(ISA\)](#) at one of its farms.

If the disease is confirmed, it would be its first occurrence in the Faroes in nine years.

The company lost NOK 220 million in value on the Oslo [stock exchange](#) within 45 minutes of trading, reported [iLaks.no](#).

Shares [fell 5% on Monday](#), as investors fear a new ISA nightmare on the island country.

From 2003 to 2006, the Faroese salmon production plummeted by 74% due to an outbreak of an aggressive ISA virus. Strong fjord currents and weak defense strategies ensure the virus [spread](#) quickly

from site to site. The country's harvest dropped all the way to 12,000 metric tons in 2006.

Share



[Bakkafrost harvests site over ISA suspicion](#)

[Chile worried about SRS in trout on back of 2013 salmonid drop](#)

[Faroese exporter: 'No room for three pelagic plants'](#)

[Bakkafrost jumps on pelagic bandwagon with new \\$36m plant](#)

[2013 worst ISA year in Norway since 2009](#)

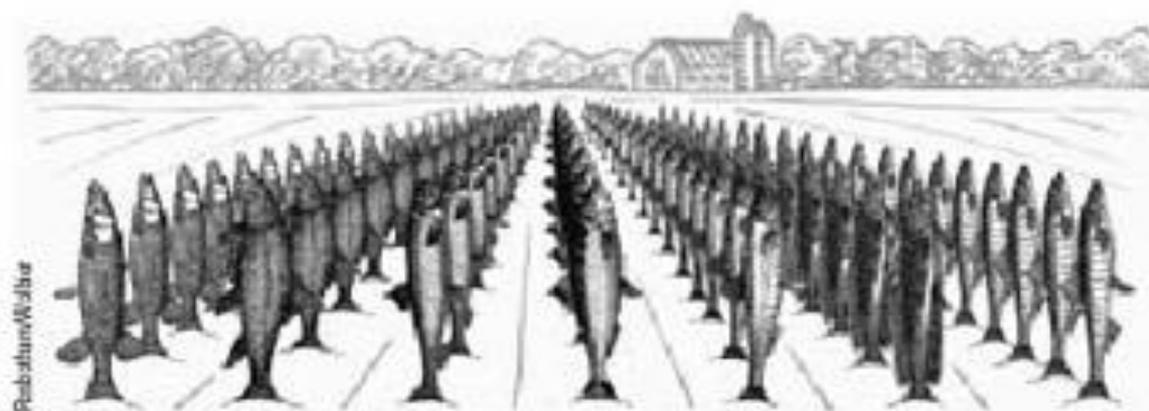
COMPASSION
in world farming



BRINGS YOU

FARMAGEDDON

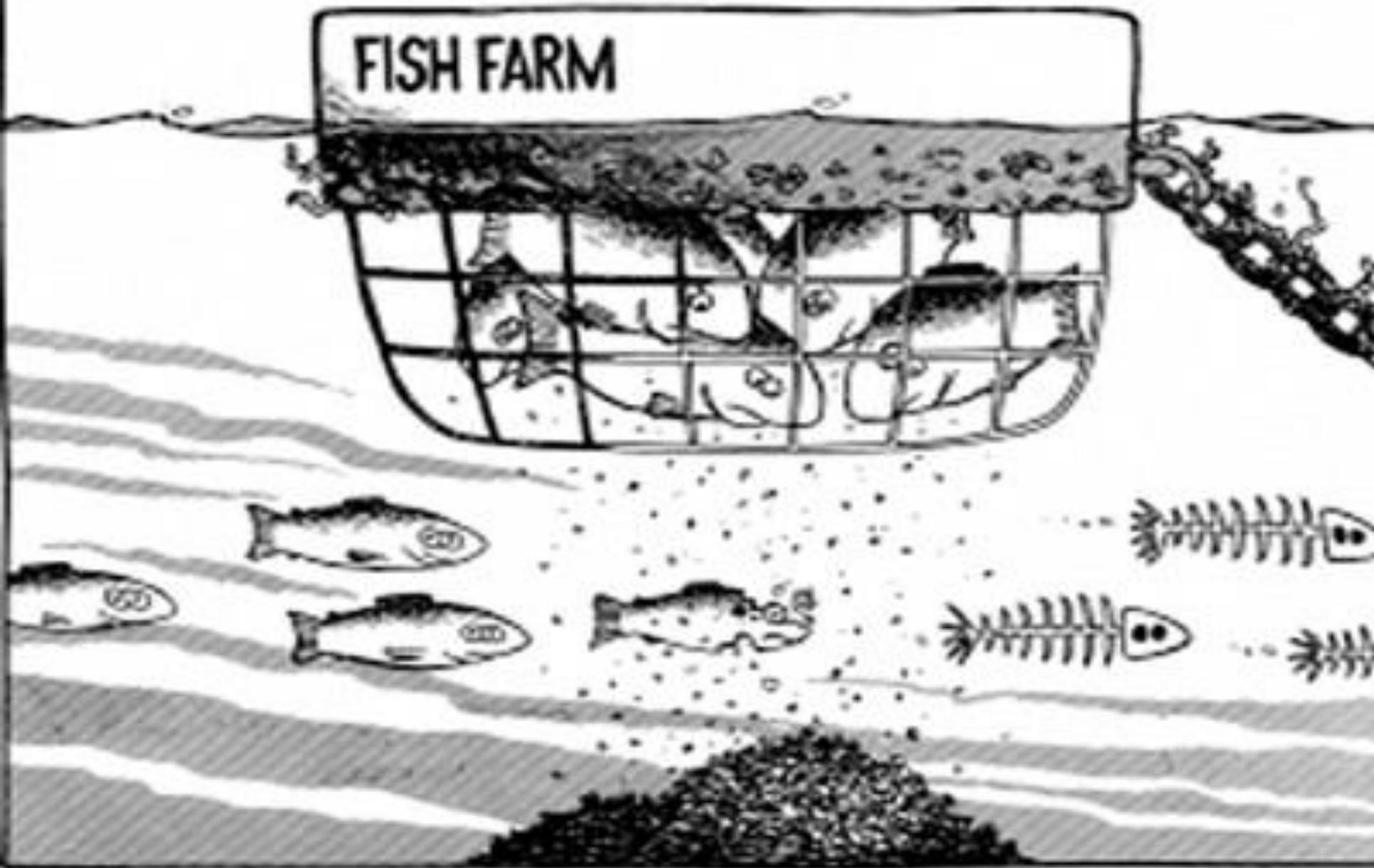
THE TRUE COST OF CHEAP MEAT



Factory-Fish Farming

THE NEW YORK TIMES

FISH FARM

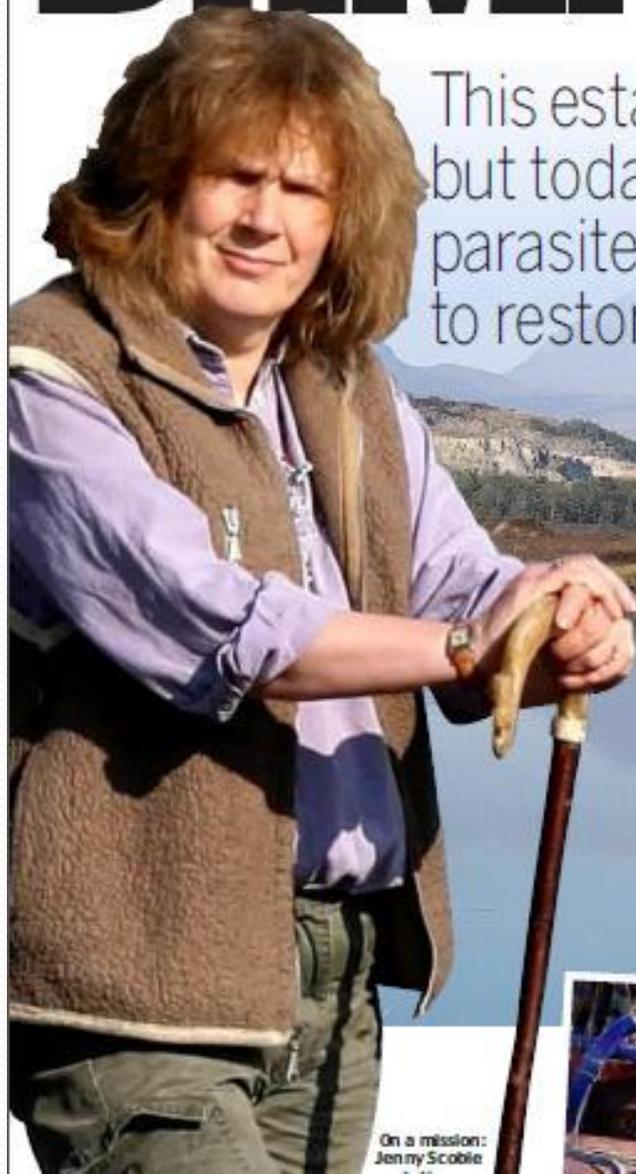


- Don Staniford
- Director of Protect Wild Scotland:
director@protectwildscotland.org
- Global Co-ordinator of the Global Alliance Against Industrial Aquaculture (GAAIA):
dstaniford@gaaia.org



DAMNED LICE

This estate once teemed with wild salmon but today they are being destroyed by parasites. Now Jenny Scobie is fighting to restore the species to its glory days



On a mission:
Jenny Scobie



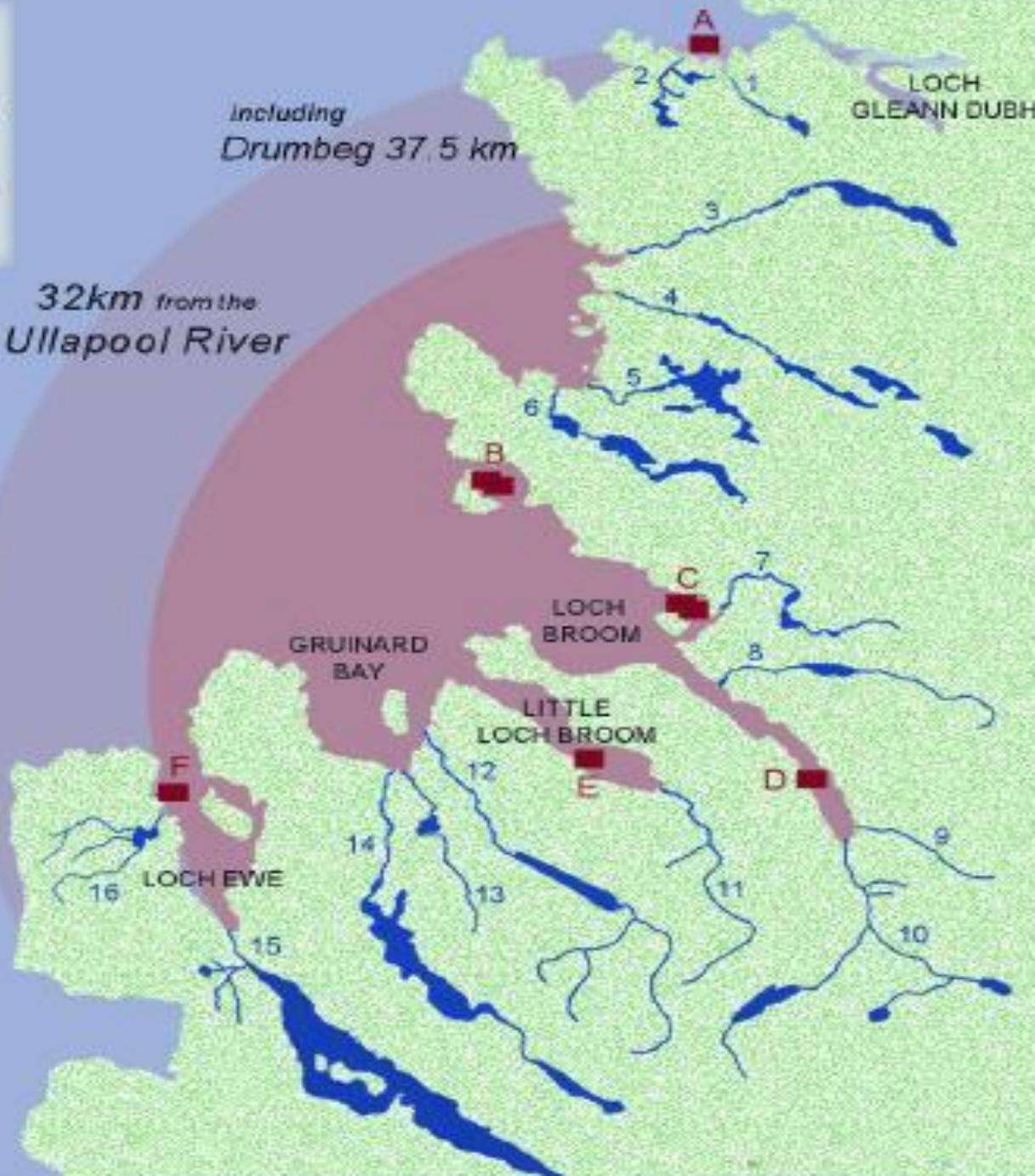
escaped, while developing better scientific understanding of interactions between farmed and wild fish.'

It is the Scottish Government that is ill informed, claims writer and naturalist Bruce Sandison. 'Fish farming is an act of vandalism,' he says, adding: 'Fish farmers act within the law, sanctioned by government and heritage bodies



*Including
Drumbeg 37.5 km*

*32km from the
Ullapool River*



SPOT THE DIFFERENCE



BEFORE



AFTER

Big Fish in Little Pond

- 5% of world's food fish in 1970
- ca. 50% in 2013 (62% by 2030)
- Consumer of 80%+ of world's fish oil
- Huge ecological footprint:
"Robbing Pedro to Pay Paul"
- Bigger & bigger farms: "Super-Size Salmon Farming"



Tror Norges Bank at banken vil kutte?



Sykkelsport livsfarlig s

Børs og finans

Aksjetips

Kvartalsresultater

Makro og politikk

Næringsliv

IT



Klart for McFreddy på McDonalds

McDonalds lanserer nytt produkt; fersk laksefilet i wrap. Laksen leveres av John Fredriksens Marine Harvest.

Norway's "Salmonopoly"



SALMONOPOLY

A Film by Wilfried Huisman and Arno Schumann

FIEBRE DE SALMON





Seafood Snapshot

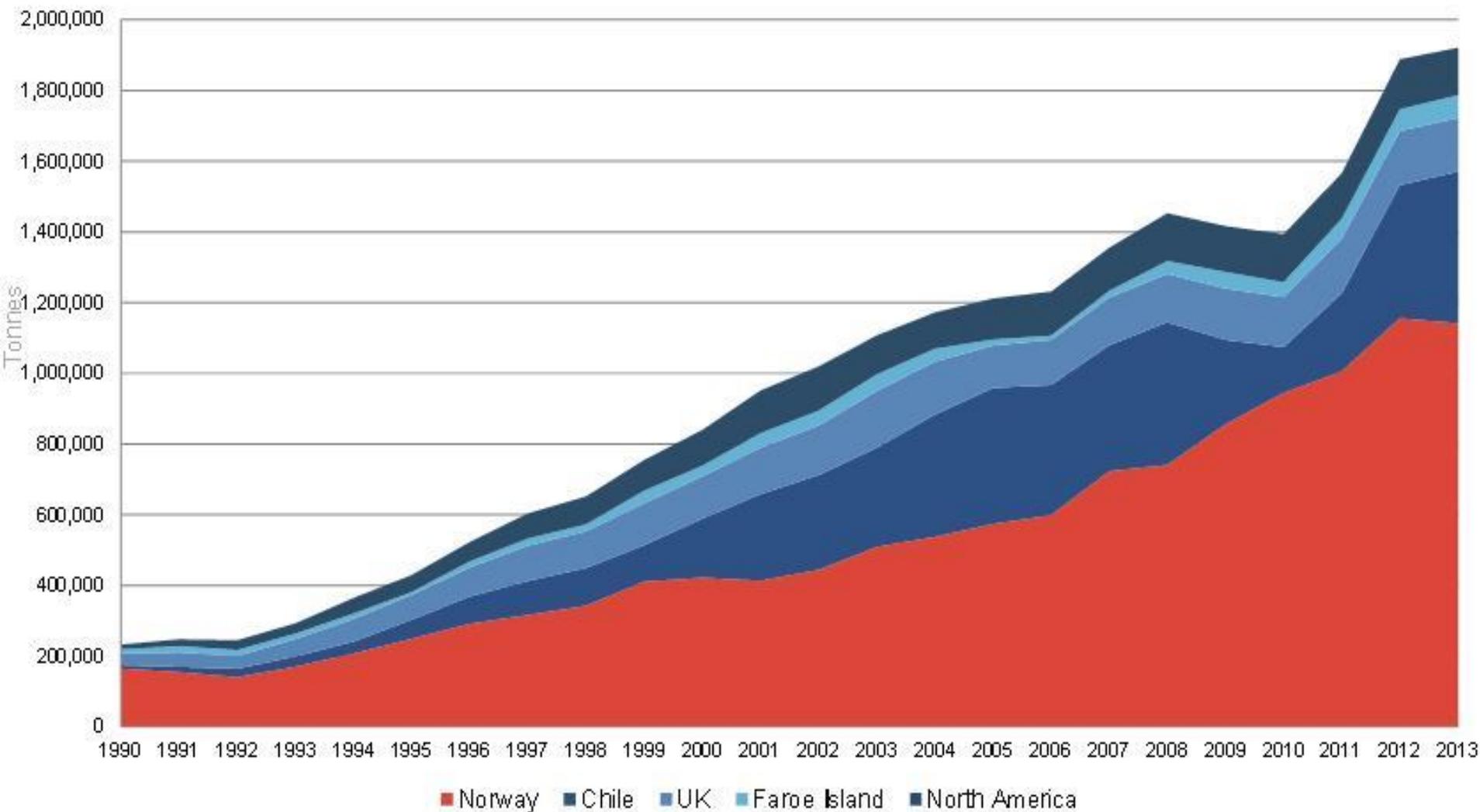
Total 2006 production

(in '000 tons)



Source: Glitnir

Salmon – growth over time!



Global trade 2010:

Farmed salmon & trout - world wide (Atl. salmon, large trout, coho & chinook in tonnes wfe)



Global volume by market

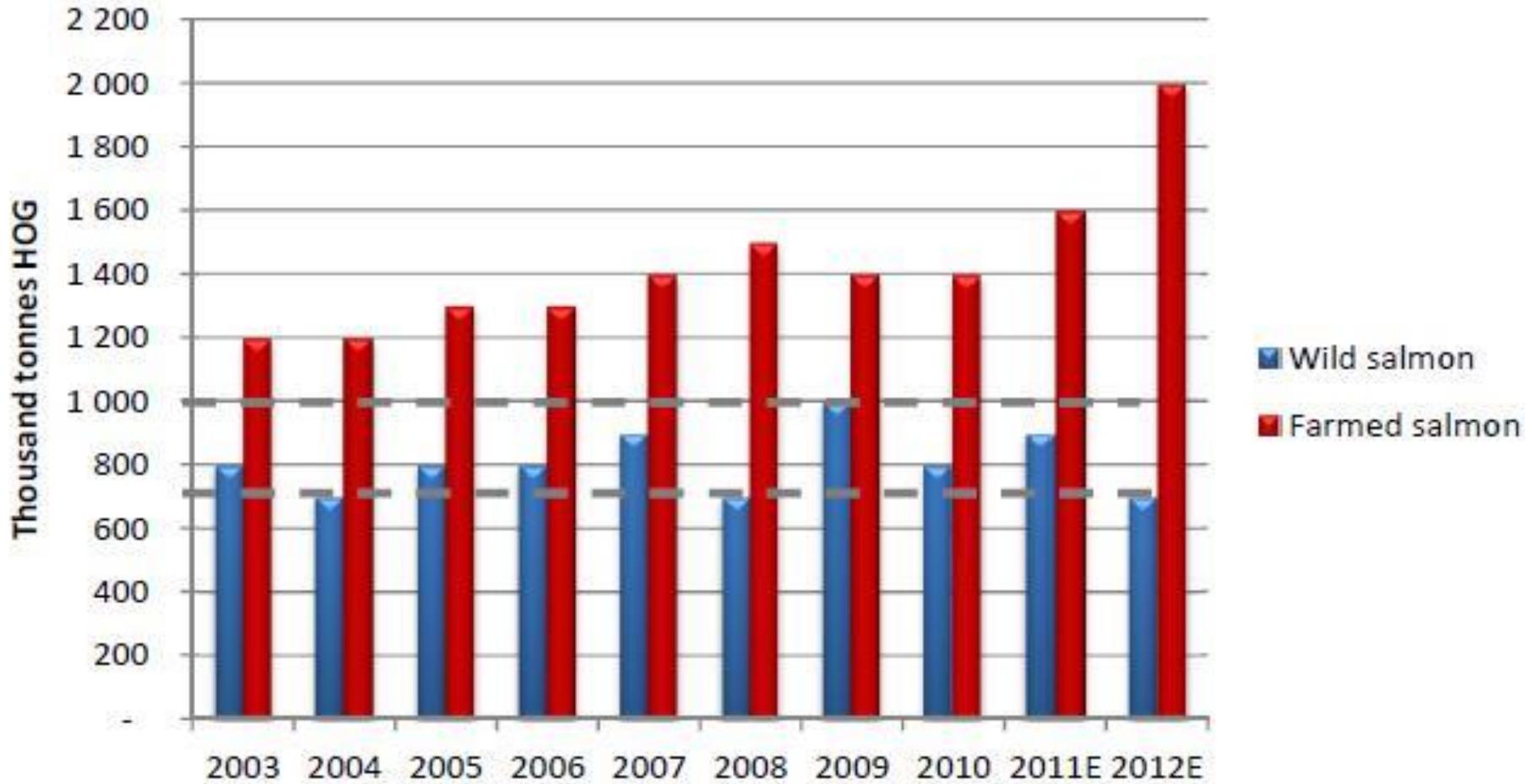
Markets	Estimated volumes		Compared to Q4 2011		Estimated volumes		12 months comparison	
	Q4 2012	Q4 2011	Volume	%	2012	2011	Volume	%
EU	234,800	215,600	19,200 ↑	8.9%	824,100	704,100	120,000 ↑	17.0%
USA	77,500	71,600	5,900 ↑	8.2%	308,300	259,600	48,700 ↑	18.8%
Russia	48,900	43,400	5,500 ↑	12.7%	155,100	114,300	40,800 ↑	35.7%
Japan	13,700	15,000	-1,300 ↓	-8.7%	56,800	41,000	15,800 ↑	38.5%
Brasil	20,800	12,800	8,000 ↑	62.5%	64,800	38,700	26,100 ↑	67.4%
China / Hong Kong	15,800	13,400	2,400 ↑	17.9%	56,100	45,500	10,600 ↑	23.3%
South Korea/Taiwan	10,000	8,000	2,000 ↑	25.0%	34,300	27,000	7,300 ↑	27.0%
Ukraina	9,300	6,900	2,400 ↑	34.8%	26,200	18,700	7,500 ↑	40.1%
Sum main markets	430,700	386,800	43,900 ↑	11.3%	1,525,700	1,248,800	276,800 ↑	22.2%
Other markets	75,800	64,500	11,300 ↑	17.5%	250,400	209,300	41,100 ↑	19.6%
Total all markets	506,400	451,400	55,000 ↑	12.2%	1,776,100	1,458,200	317,900 ↑	21.8%
Inflow to US from Europe	15,800	22,000	-6,200 ↓	-28.2%	67,000	86,200	-19,200 ↓	-22.3%
Inflow to EU from Chile	8,500	4,100	4,400 ↑	107.3%	24,300	15,500	8,800 ↑	56.8%

Source: Kontali

- Strong increase in Europe at significantly higher prices
- Limited stimulation of US end demand despite very low prices
- Strong growth in most other markets
- Still limited shipments from Chile to Europe

Supply of farmed and wild salmonids

Historical supply of farmed and wild salmon











Biological Agent NOT Indicator of Pollution

- Shellfish farming traditionally viewed as a biological indicator of pollution (i.e. canary in the coalmine)
- Salmon farming now viewed as a biological agent of pollution (i.e. self-pollution; “salmon harming”)

Problem Not Panacea

- Salmon farming is part of the problem; not a panacea for the world food problem or crisis in world fisheries
- Salmon farming drains the world's oceans
- Salmon farming bio-accumulates contaminants
- Farmed salmon should be labelled as hazardous waste not healthy food!
- Salmon farming should be banned!

Science Has Spoken



SPECIES

PLACES

THREATS

OUR WORK

Salmon Aquaculture Dialogue "State of Information" Reports

Disease report

Sea lice report

Benthic impacts report

Escapes report

Feed report

Nutrient loading/carrying capacity report: English/Spanish

Chemical inputs report: English/Spanish

Social report: English/Spanish

Weight of Scientific Evidence

VIRUSES:



VIROLOGY JOURNAL

Abstract

Background

*Piscine reovirus (PRV) is a newly discovered fish reovirus of anadromous and marine fish ubiquitous among fish in Norwegian salmon farms, and likely the causative agent of heart and skeletal muscle inflammation (HSMI). HSMI is an increasingly economically significant disease in Atlantic salmon (*Salmo salar*) farms. The nucleotide sequence data available for PRV are limited, and there is no genetic information on this virus outside of Norway and none from wild fish.*

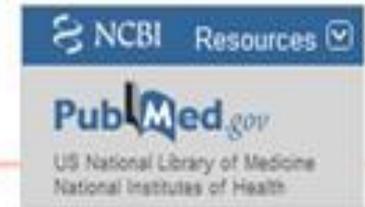
SEA LICE:



Abstract

*Rather than benefiting wild fish, industrial aquaculture may contribute to declines in ocean fisheries and ecosystems. Farm salmon are commonly infected with salmon lice (*Lepeophtheirus salmonis*), which are native ectoparasitic copepods. We show that recurrent louse infestations of wild juvenile pink salmon (*Oncorhynchus gorbuscha*), all associated with salmon farms, have depressed wild pink salmon populations and placed them on a trajectory toward rapid local extinction.*

CONTAMINANTS:



Findings

Analysis of salmon fillets from about 700 farmed and wild salmon produced in eight major farmed salmon producing regions and purchased in 16 large cities in North America and Europe found significantly higher concentrations of contaminants in farmed salmon than in their wild counterparts.

La Norvège reconnaît que son saumon peut être dangereux pour la santé

[Sophie Caillat](#) | Journaliste [Rue89](#)



Tweeter



J'aime

51

Aa - +



Le saumon, ruine écologique de la Norvège

Sophie Caillat | Journaliste Rue89

  +1  Tweeter  J'aime <2,7k

Aa - + 

Une association norvégienne a transmis à Rue89 les résultats catastrophiques de son étude sur l'impact environnemental de l'élevage, question ultra-sensible à Oslo.



Salmon health risks debated in Norway

Friday, 21 June 2013 | Written by Pete Bevington

  Tweet < 9  Recommend  Share < 40



Dr Anne-Lise Birch Monsen and Professor Bjorn Bolann warning about farmed salmon - Photo Marcus Husby

A FIERCE row has broken out in Norway over the past week about the health risks of eating farmed salmon, with some supermarkets alleged to be threatening to ban products from their shelves.

The media furore began last week when two senior hospital clinicians told *Norwegian tabloid VG* that pregnant women, children and teenagers should limit their consumption of the fish.

Senior consultant Anne-Lise Birch Monsen and professor of medicine Bjorn Bolann of Haukeland University Hospital, Bergen, raised concerns about harmful chemicals that find their way into fish feed.

The Norwegian government responded by advising pregnant women and children to restrict their consumption

to just two portions a week, advice that ties in with the UK's Food Standards Agency (FSA).

NORGES MEST LESTE AVIS

VVG

Nr. 154
Mandag
10. juni
2015
196 s. 24
Kr. 15,00

Leger og professorer om oppdrettsfisk:

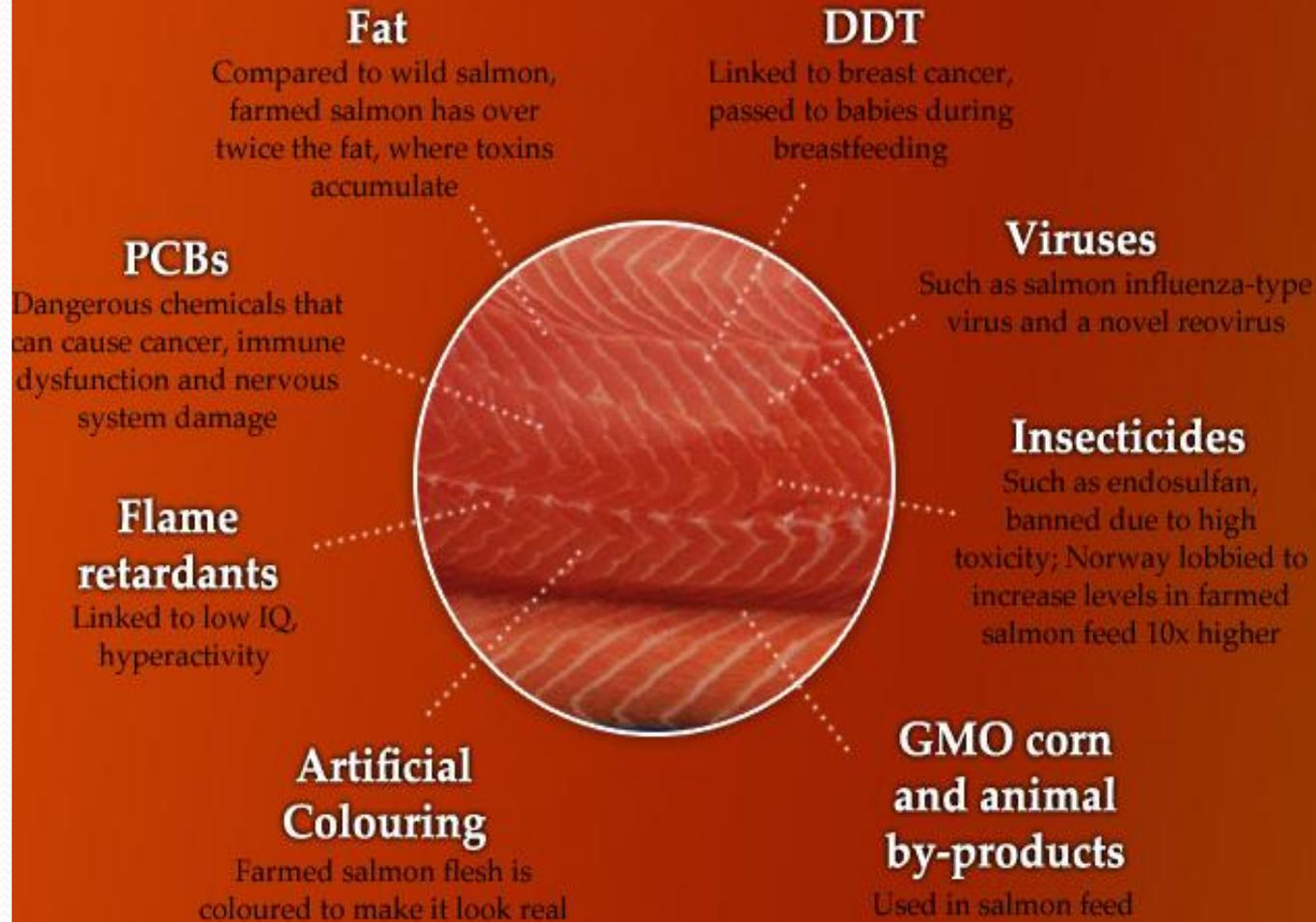
IKKE GI LAKS TIL BARN

EKSPERTER:
**Kan gi
hjerne-
skade**

MATTILSYNET:
**Uenige
- spis
fisk**

What's in farmed salmon?

FACT: THESE TOXINS ACCUMULATE IN OUR BODIES AND MOTHERS RELEASE UP TO 94% OF THESE TOXINS THROUGH PREGNANCY AND BREASTFEEDING



"One should avoid farmed salmon like the plague."

- DAVID CARPENTER, AUTHOR OF PAPER ON FARMED SALMON TOXINS IN SCIENCE

Norway Issues Warnings About Health Dangers of Farmed Salmon

“ I do not recommend pregnant women, children or young people eat farmed salmon. It is uncertain in both the amount of toxins salmon contain, and how these drugs affect children, adolescents and pregnant women... The type of contaminants that have been detected in farmed salmon have a negative effect on brain development and is associated with autism, ADD / ADHD and reduced IQ. We also know that they can affect other organ systems in the body's immune system and metabolism.

~ Dr. Anne-Lise Birch Monsen

Scientists warn against eating farmed salmon

- Aftenposten, June 10, 2013 (translated)

“

*After yesterday's debate on the danger of eating farmed salmon due to high levels harmful pollutants, it was revealed Norwegian authorities have lobbied in EU to allow more toxin level in salmon. According to Aftenposten's report, Norway has for years tried to get the EU to allow 10 times more toxin [**Endosulfan** - a bioaccumulative toxin] in salmon than previously allowed. Now, Norway has received approval in the EU.*

The consultation document from the FSA shows that there are economic reasons why Norway is eager to raise the limit. "The limit value for the concentration of endosulfan in feed for salmonids is of great economic importance for the aquaculture industry in the short and longer term," stated the letter. Endosulfan was previously forbidden to use in feed for all salmonids, but research has shown that fish can withstand poison through better feed than by being exposed to it in the water.

Norway Lobbied to Raise Toxin Level in Salmon Feed

- Oct.6, 2013 – The Nordic Page

07/11/2013 / POISSONS : ÉLEVAGE EN EAUX TROUBLES

03. nov. 2013



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FORSIDEN

NYHETER

PENGER

LIVET

MOTOR

REISE

FOTBALL

VIDEO

Norske forskere gambler med folks helse

En ekspert på sjemat og helse mener norske forskere jukse i dokumentasjon for å beskytte kommersielle interesser fremfor folks helse. Flere forskere støtter hennes påstander om fabrikkering av data

Tekst: Stele Ove Karselløkken
Torsdag 22.06.2006, kl. 16.02

Facebook



Dr. Claudette Bethune, som ble sparket fra sin stilling som seniorforsker i Nasjonalt institutt for ernærings- og sjemad forskning (NIFES), påstår at norske forskere lyver om tungmetallinnhold i



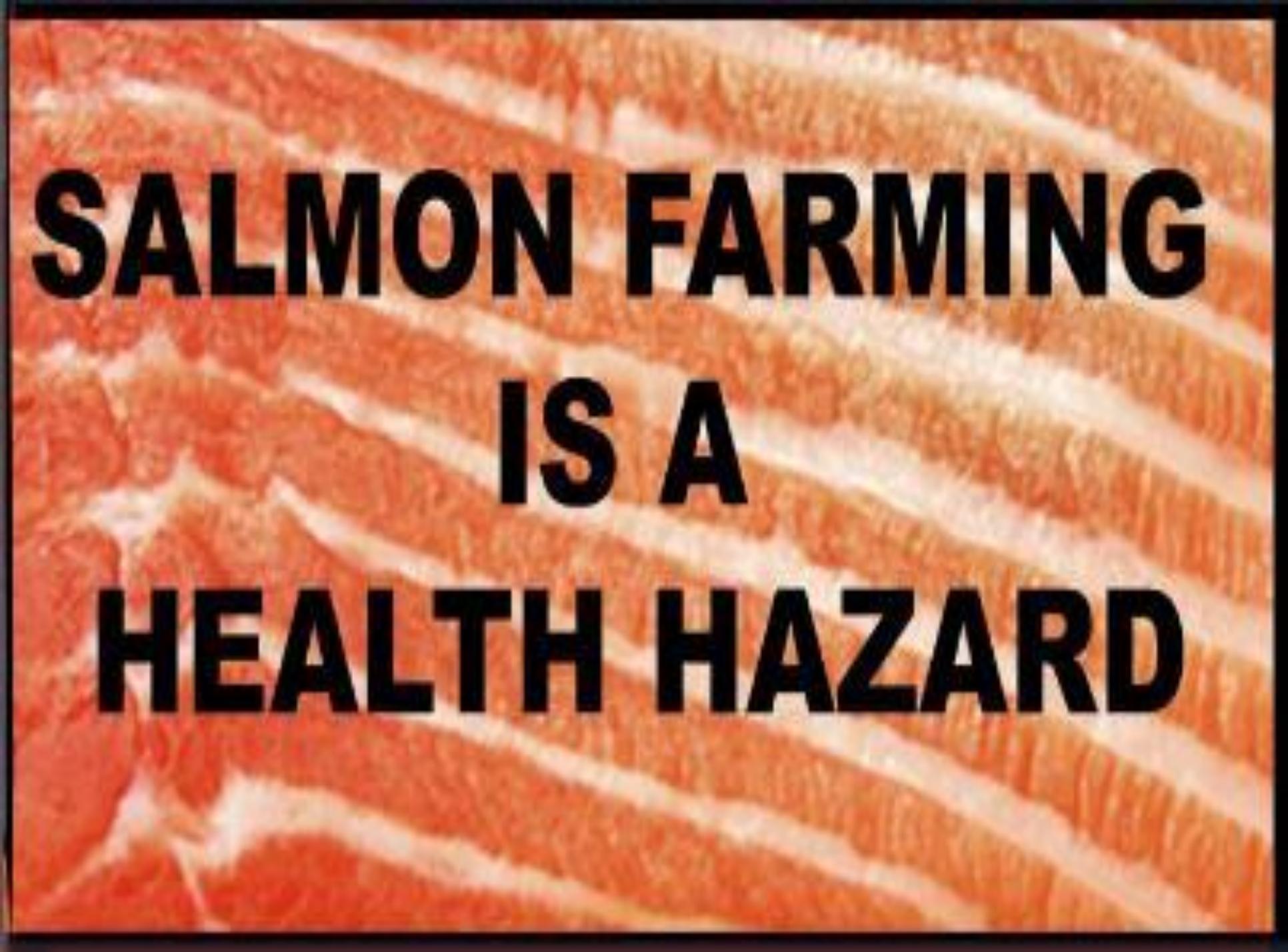
Le saumon d'élevage norvégien peut contenir trop de cadmium

Cette affirmation vient de la Russie, qui a cessé d'importer sur saumon norvégien depuis la fin de l'année dernière. Les Russes avaient trouvé des taux élevés de cadmium et de plomb dans les poissons.



Dr Claudette Bethune

- “Farmed salmon is a toxic dump site where the most toxic forms of fat soluble pollutants accumulate”



**SALMON FARMING
IS A
HEALTH HAZARD**

HEALTHY?



NOT



- Hazardous substances fit everywhere. We get it to us whether we want it or not. But it's about making eating the least amount of it, says Eijon Bolann, physician and professor of medicine. PHOTO: Bjørn-Erik Mørke

Scientists warn against eating farmed salmon

Women, children and adolescents should avoid eating farmed salmon. The mean both more Norwegian doctors and international experts. The reason is that salmon feed contains harmful pollutants.

Food Safety News

Breaking news for everyone's consumption

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Foodborne Illness Outbreaks

Food Recalls

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Events

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About

Salmonella in Smoked Salmon Sickens Nearly 1,000 in Netherlands

BY GRETCHEN GOETZ | OCTOBER 19, 2012

At least 950 people in the Netherlands are now known to have fallen ill in a *Salmonella* Thompson outbreak linked to salmon. Three elderly victims have died.

The outbreak was first reported October 1 after more than 200 *Salmonella* illnesses were linked to smoked salmon sold by Netherlands-based Foppen. Subsequent environmental testing revealed the presence of the outbreak strain of the bacteria in one of the company's manufacturing plants in Greece.



Now the outbreak has grown to include almost 1,000 Dutch victims, three of whom have died, reported the Netherlands' National Institute for Public Health (RIVM) Thursday, according to [MedicalXPress](#).

~~Farmed Salmon
2 for £4.99~~

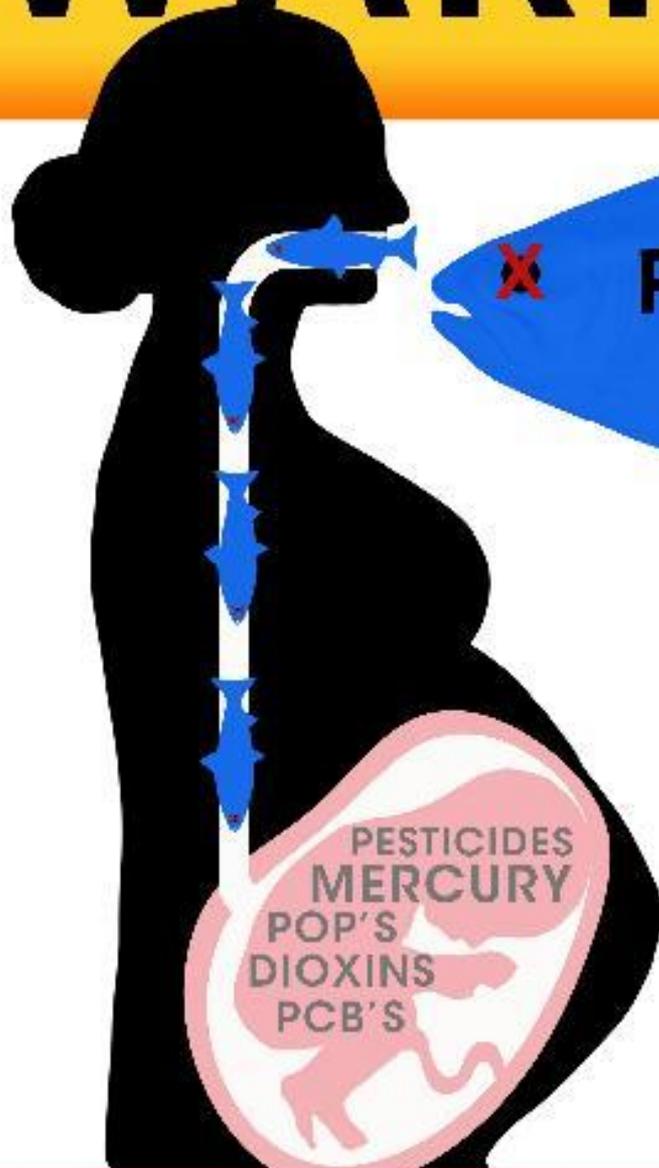


**The real price of
Farmed Salmon**



WWW.NOSALMONFARMSATSEA.COM

WARNING



X PESTICIDES
POP'S & PCB'S
MERCURY
DIOXINS

PESTICIDES
MERCURY
POP'S
DIOXINS
PCB'S

NOTICE

EATING
FARMED SALMON
MAY AFFECT
YOUR BABY

Farm salmon is now most contaminated food on shelf

from [Sunday Herald, 20 October 2002](#)

Farmed salmon is the most contaminated food sold by British supermarkets, according to a new [analysis](#) by government advisors.

Among 100 different worst-case examples of fruit, vegetables, meat and other foodstuffs polluted by pesticides over the past five years, salmon comes out bottom. Every sample of farmed salmon in the batch tested by scientists was found to contain at least three toxic chemicals.

The new [analysis](#) of pesticide contamination was carried out by the government's [Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment](#). The committee's 18 experts were asked to investigate the health implications of mixtures of different chemicals in food because of growing concern over possible "cocktail effects".

Their report, published last week, listed all the "worst-case occurrences of pesticide residues" in all the food sampled by scientists between 1997 and 2001. Salmon was the only food in which every sample, from a batch tested in 1997, contained three pesticides: DDT, dieldrin and hexachlorobenzene.

The 2001 [survey](#) also detected hexa chloro benzene in 23 samples of farmed salmon and chlordane in 11 samples, as well as pesticides in two samples of organic salmon. Contaminated salmon were sold at all the major supermarket chains, though most of the samples came from Tesco, Asda, Sainsbury's and Safeway.

Pollutants concentrate in farmed salmon because they are fed fish pellets and oils that are themselves contaminated. The salmon-farming industry is experimenting with alternative foods, such as plant oils and proteins.

Environmental & Public Health WARNING!

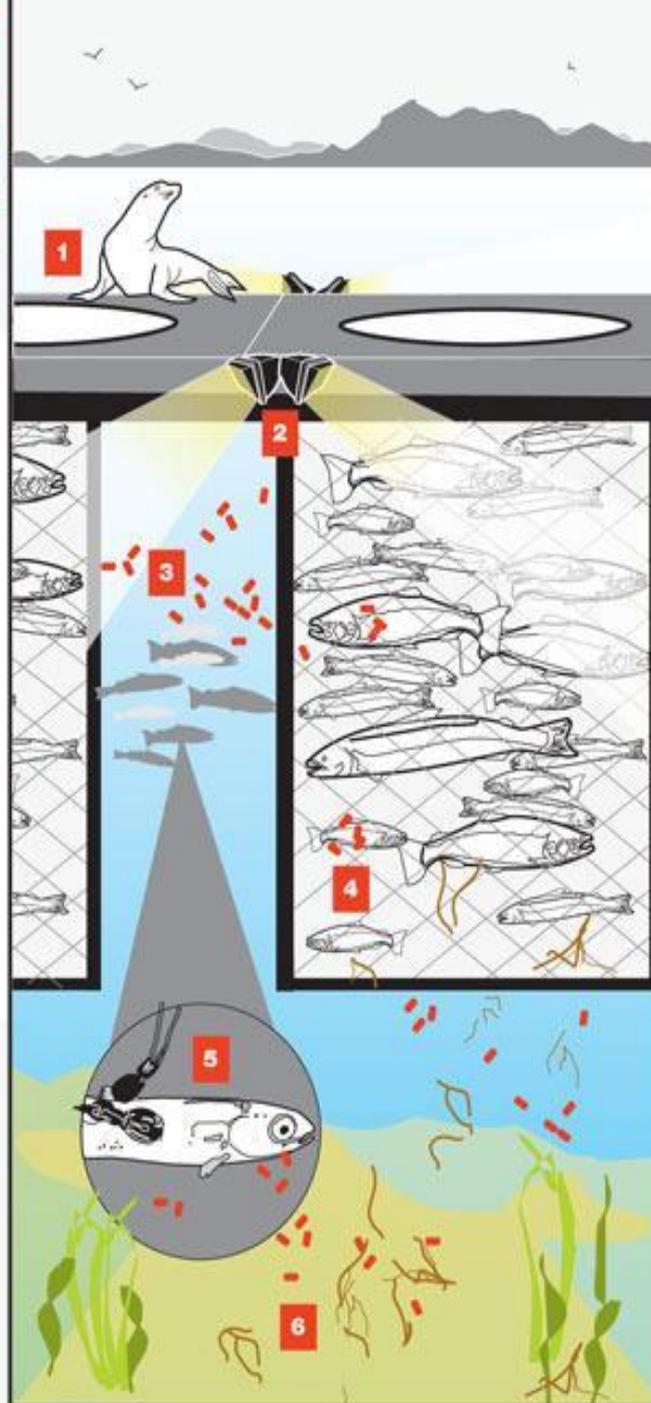


Factory Farm

Norwegian multinationals own most of the world's salmon farms, which are speeding up the collapse of the world's fisheries. Here's a look at what makes them so destructive.

- 1 Wildlife** ■ Confining millions of salmon in the wild attracts eagles, killer whales, and other predators. Farmers are given permits to shoot seals and sea lions.
- 2 Lights** ■ These attract juvenile wild salmon, which are eaten by the foreign Atlantic farmed salmon.
- 3 Pellets** ■ American taxpayer dollars subsidize soy and make it a cheap ingredient for salmon fish meal. Soy makes the farmed fish much higher in inflammatory omega-6s than wild salmon. High omega-6 consumption can lead to a host of human health problems such as heart disease, depression, cancer, and Alzheimer's. Farmed salmon also need an astonishing, unsustainable four pounds of wild-caught fish to grow one pound of flesh. The feed is spiked with pesticides (to kill sea lice; see below), and artificial colorants (to make the flesh of the fish pink).
- 4 Net pens** ■ The actual net is often breached by the nonnative farmed salmon, which can outcompete wild salmon.
- 5 Sea lice** ■ Salmon farms attract sea lice, which then infect wild stocks (see photos above). A single louse can kill a juvenile fish.
- 6 The seafloor** ■ Feces mixes with uneaten feed pellets to make the ocean floor ecosystem uninhabitable for shrimp and small fish.

THE FINAL PRODUCT ■ Farmed salmon contain up to 10 times more persistent organic pollutants—dioxins, PCBs, and so on—than wild salmon (see graphic at top of page).



Five Fundamental Flaws of Sea Cage Salmon Farming

- #1 Wastes
- #2 Escapes
- #3 Diseases/Parasites
- #4 Chemicals
- #5 Feed/Food

1 Wastes/Effluent

- “Solution to Pollution is NOT Dilution”
- Scottish salmon farming = wastes equivalent of 10 million people (Scotland’s population is 5 million)
- Norwegian salmon farming – waste equivalent of 70 million people (14 x Norway’s population!)
- NOT a drop in the ocean

Impact of fish farms on maerl beds in strongly tidal areas

Jason Hall-Spencer^{1,*}, Nicola White², Ewan Gillespie³, Katie Gillham⁴, Andy Foggo¹

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*Email: jhall-spencer@plymouth.ac.uk

ABSTRACT: In Scotland, Atlantic salmon *Salmo salar* cages are being moved out of areas with slow water movements, to disperse wastes and reduce impacts on benthic communities. This first study of the effects of fish farms on maerl beds (red algal coralline gravels of high conservation importance) demonstrated major impacts on the benthos, even in strongly tidal areas. SCUBA surveys of 3 fish farms located over maerl revealed a build-up of waste organic matter and 10 to 100-fold higher abundances of scavenging fauna (e.g. *Necora puber*, *Pagurus bernhardus*) than on 6 reference maerl beds. Visible waste was noted up to 100 m from cage edges, and all 3 farms caused significant reductions in live maerl cover, upon which this habitat depends. Near-cage infaunal samples showed significant reductions in biodiversity, with small Crustacea (ostracods, isopods,

Mariculture: significant and expanding cause of coastal nutrient enrichment

Lex Bouwman^{1,2}, Arthur Beusen^{1,2}, Patricia M Glibert³,
Ciska Overbeek⁴, Marcin Pawlowski⁵, Jorge Herrera⁶, Sandor Mulsow⁷,
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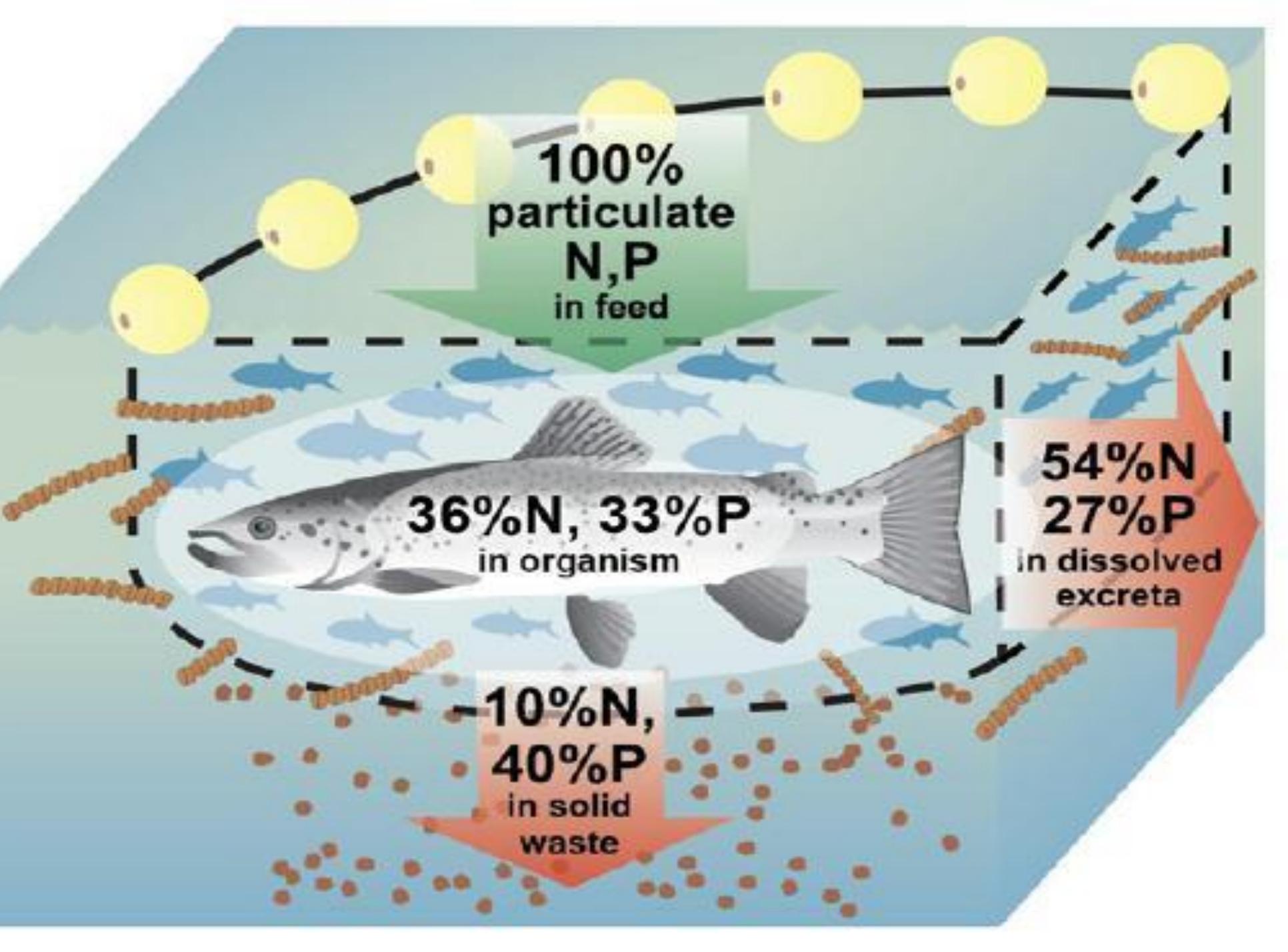
Published 7 November 2013

Online at stacks.iop.org/ERL/8/044026

Abstract

Mariculture (marine aquaculture) generates nutrient waste either through the excretion by the reared organisms, or through direct enrichment by, or remineralization of, externally applied feed inputs. Importantly, the waste from fish or shellfish cannot easily be managed, as most is in dissolved form and released directly to the aquatic environment. The release of dissolved and particulate nutrients by intensive mariculture results in increasing nutrient loads (finfish and crustaceans), and changes in nutrient stoichiometry (all mariculture types). Based on different scenarios, we project that nutrients from mariculture will increase up to six fold by 2050 with exceedance of the nutrient assimilative capacity in parts of the world where mariculture growth is already rapid. Increasing nutrient loads and altered nutrient forms (increased availability of reduced relative to oxidized forms of nitrogen) and/or stoichiometric proportions (altered nitrogen:phosphorus ratios) may promote an increase in harmful algal blooms (HABs) either directly or via stimulation of algae on which mixotrophic HABs may feed. HABs can kill or intoxicate the mariculture product with severe economic losses, and can increase risks to human health.

Keywords: aquaculture, mariculture, fish, shellfish, eutrophication, nitrogen, phosphorus, harmful algal blooms





#2 Escapes

- Genetic Pollution Via Interbreeding
- “Extinction Vortex” in Wild Salmon
- 25% of Scottish ‘wild’ salmon are of Norwegian origin (i.e. Farmed)
- Escapees = 90%+ of ‘wild’ fish in some Norwegian rivers
- 2 million escapees in Scotland since 2002
- 2.5 million in Norway EVERY YEAR!

Incidence and impacts of escaped farmed Atlantic salmon *Salmo salar* in nature

Eva B. Thorstad, Ian A. Fleming, Philip McGinnity, Doris Soto, Vidar Wennevik & Fred Whoriskey



Fitness reduction and potential extinction of wild populations of Atlantic salmon, *Salmo salar*, as a result of interactions with escaped farm salmon.

[Philip McGinnity](#), [Paulo Prodöhl](#), [Andy Ferguson](#), [Rosaleen Hynes](#), [Niall O Maoiléidigh](#), [Natalie Baker](#), [Deirdre Cotter](#), [Brendan O'Hea](#), [Declan Cooke](#), [Ger Rogan](#), [John Taggart](#), and [Tom Cross](#)

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Abstract

The high level of escapes from Atlantic salmon farms, up to two million fishes per year in the North Atlantic, has raised concern about the potential impact on wild populations. We report on a two-generation experiment examining the estimated lifetime successes, relative to wild natives, of farm, F(1) and F(2) hybrids and BC(1) backcrosses to wild and farm salmon. Offspring of farm and "hybrids" (i.e. all F(1), F(2) and BC(1) groups) showed reduced survival compared with wild salmon but grew faster as juveniles and displaced wild parr, which as a group were significantly smaller. Where suitable habitat for these emigrant parr is absent, this competition would result in reduced wild smolt production. In the experimental conditions, where emigrants survived downstream, the relative estimated lifetime success ranged from 2% (farm) to 89% (BC(1) wild) of that of wild salmon, indicating additive genetic variation for survival. Wild salmon primarily returned to fresh water after one sea winter (1SW) but farm and 'hybrids' produced proportionately more 2SW salmon. However, lower overall survival means that this would result in reduced recruitment despite increased 2SW fecundity. We thus demonstrate that interaction of farm with wild salmon results in lowered fitness, with repeated escapes causing cumulative fitness depression and potentially an extinction vortex in vulnerable populations.

Salmon Farm Escapees Threaten Wild Salmon Stocks

James Owen in England
for National Geographic News
June 16, 2003

A recent study in Norway suggests that wild salmon lose out to sexually precocious fish-farm invaders when breeding in rivers.

It's the first time scientists have shown that escapees from salmon farms can out-compete native populations, heightening fears conservationists have for the future of wild stocks.

Invasion of the Viking salmon

Scotland's wild stocks 'tainted' by Norwegian strains used in fish farms, writes Mark Macaskill

AS MANY as one in four wild Atlantic salmon from Scotland has been genetically "tainted" by Norwegian fish, a study suggests. Analysis of almost 1,500 wild salmon from the west coast found 369 possessed genetic markers unique to the Scandinavian fish.

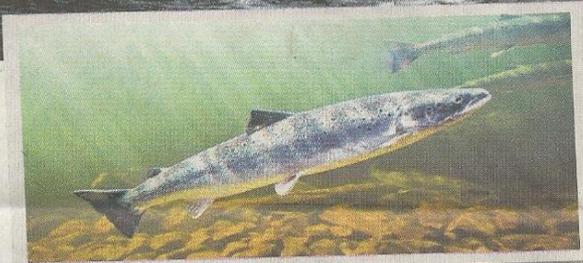
The findings have provoked a fresh row between environmentalists and Scotland's aquaculture industry.

Opponents argue fish farmers, who depend heavily on imported eggs from Norway to build up stocks, are primarily to blame — millions of escapees over the past decade are thought to have "polluted" the gene pool by cross-breeding with their wild cousins.

Last night, however, the Scottish Salmon Producers' Organisation (SSPO) said there was no evidence fish farming was responsible.

It is known, for example, that Norwegian fish have been used to boost salmon stocks in east coast rivers such as the Spey and the Shin. It is possible, said SSPO, that these fish have migrated and bred with west coast populations.

For the study, carried out by Rivers and Fisheries Trusts of Scotland (Rafts), 1,472 Atlantic salmon across more than 50 locations, including rivers such as the Awe, Lochy and



A salmon farm on Loch Linnhe; inset, a wild Atlantic salmon

Laxford, were sampled between 2005 and 2011.

A particular set of genetic markers unique to Norwegian fish enabled scientists to identify hybrids but it was not possible to determine if a Scottish salmon had bred with a wild fish from Norway or a farmed one. Nevertheless, it found much higher levels of hybridisation than expected in wild salmon on the west coast, home to more than 400 fish farms. Since 2002, according to Scottish government figures, about 2.4m farmed Atlantic salmon have escaped into the sea.

"Most sites had a signature

of hybridisation that was significantly higher than expected by chance," states the study. "Across all sites, 369 out of 1,472 (25.1%) individuals were identified as hybrids, which is significantly higher than that seen for the east coast 'wild' baseline."

Callum Sinclair, from Rafts, added: "The main focus of the report is the detection of introgression between Norwegian aquaculture strains and Scottish fish. [It] indicates significant levels of hybridisation of wild Scottish salmon in the West Highlands and Islands with genetic strains com-

monly in use in the Norwegian-owned salmon aquaculture industry."

Salmon are known to travel vast distances. A study that tracked the movements of fish released from a Scottish fish farm in 2007 found them as far afield as Norway and Sweden.

It is conceivable that farmed and wild fish from Norway have made the same trip to Scottish waters and bred successfully with native Atlantic salmon. However, Tony Andrews, chairman of the Atlantic Salmon Trust, said there was a "prima facie case" for salmon farming's role in creating hybrid fish.

A spokesman for SSPO said: "It is disappointing that so much public money has been spent on this non-peer-reviewed project that revealed no real differences between wild and farmed fish."

You are here [News](#) > [Environment](#)

news.scotsman.com

Fish farms are 'wiping out Scotland's wild salmon'



It is believed that escaped farmed fish are interbreeding with wild fish and weakening their genetics and survival chances. Picture: Getty

By JULIA HORTON
Published on Monday 4 March 2013 12:05

TOP STORIES

#3 Diseases/Parasites

- Sea Lice
- Infectious Salmon Anaemia (ISA)
- Amoebic Gill Disease (AGD)
- Heart & Skeletal Muscle Inflammation (HSMI)
- Pancreas Disease (PD)
- Salmonella
- Listeria

THE NEW YORK TIMES

FISH FARM

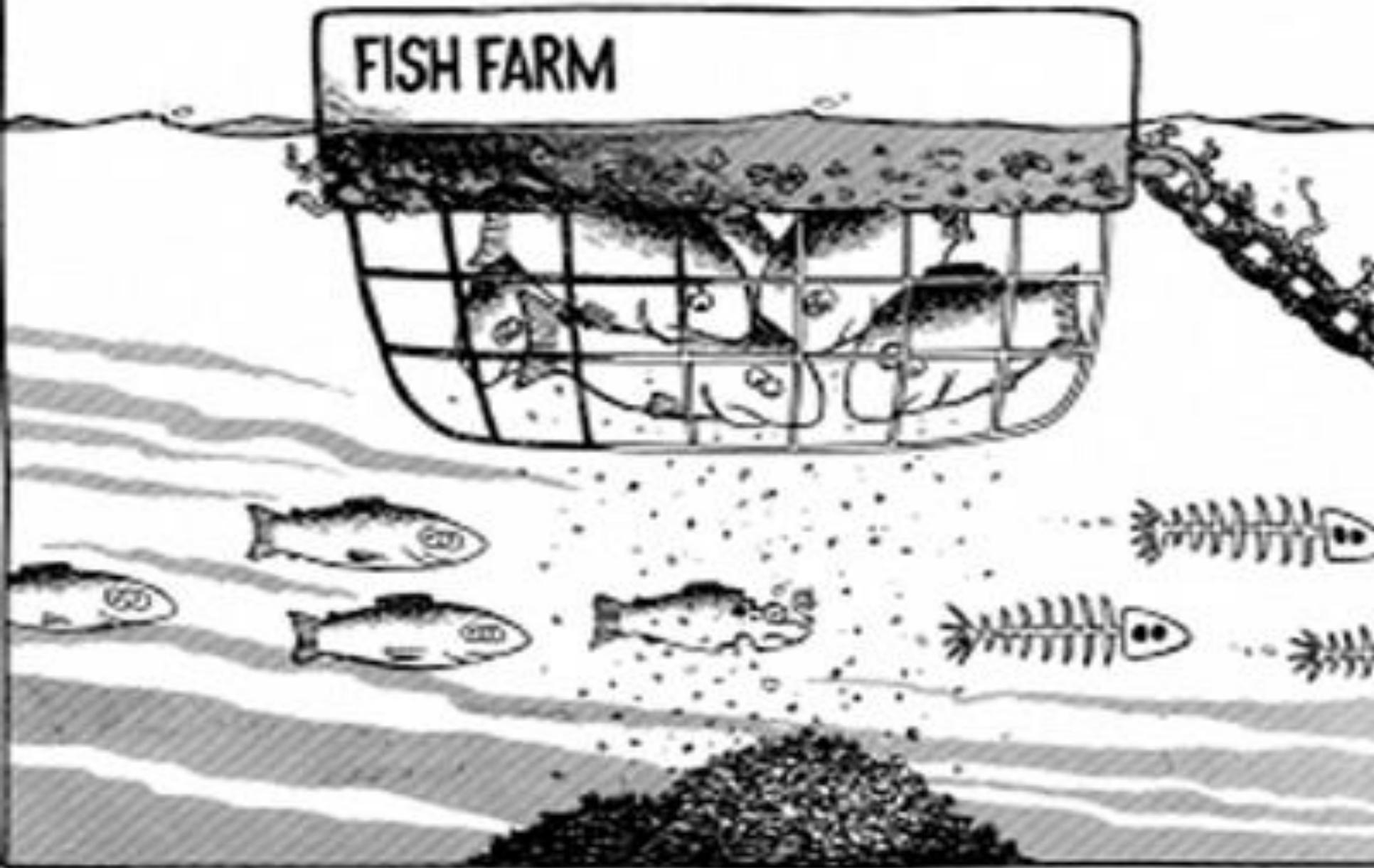




Photo: Sea Lice From Fish Farms May Wipe Out Wild Salmon



Lice From Fish Farms Killing Wild Salmon

John Roach
for National Geographic News
October 2, 2006

Clouds of sea lice billowing from fish farms infect and kill up to 95 percent of the wild juvenile salmon that swim past the farms on the way out to sea, according to a new study.

The finding is further evidence that aquaculture—the practice of raising fish in underwater cages or nets or in tanks—is dangerous to wild fish populations, according to the researchers.

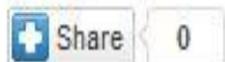


The fish-farming industry has kept a steady supply of cheap salmon on supermarket shelves as wild salmon populations have crashed in recent decades from overfishing.

(Related: "Salmon Farm Escapees Threaten Wild Salmon Stocks" [June 16, 2003].)

'No debate' that fish farms kill wild salmon, says B.C. scientist

CBC News Posted: Oct 20, 2006 10:39 AM PT | Last Updated: Oct 20, 2006 10:34 AM PT



There's no question that sea lice from salmon farms kill wild salmon, says one of B.C.'s leading critics of open-net fish farming.

Marine ecologist Dr. John Volpe of the University of Victoria told the legislature's sustainable aquaculture committee on Thursday that the science is clear, the results have been vetted and the conclusions are not in doubt.

"The independent scientific community speaks with a single voice with regards to sea lice and their impact on wild salmon. Salmon farms kill wild salmon. There's no debate around that. It's been known and acknowledged in Europe for more than a decade."

Volpe and a team of other researchers published a paper a couple of weeks ago that says sea lice from fish farms kill up to 95 per cent of juvenile salmon that pass by.

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Impact of parasites on salmon recruitment in the Northeast Atlantic Ocean

Martin Krkosek, Crawford W. Revie, Patrick G. Gargan, Ove T. Skilbrei, Bengt Finstad and Christopher D. Todd

Proc. R. Soc. B published online 7 November 2012
doi: 10.1098/rspb.2012.2359

Flesh-eating lice spread by fish farms kill 39 per cent of wild salmon



Sea lice 'threaten Scottish wild salmon'



Scotlands wild salmon could be threatened by the creatures. Picture: Ian Georgeson

by **CLAIRE GARDNER**

wild salmon will become as rare in Scotland as the giant pandas in Edinburgh Zoo because they are being threatened by sea lice, according to magazine *CountryLife*.

Published on the

03

February
2014
00:00

FEATURE ARTICLE



Salmon lice infection on wild salmonids in marine protected areas: an evaluation of the Norwegian 'National Salmon Fjords'

R. M. Serra-Llinares^{1,*}, P. A. Bjørn¹, B. Finstad², R. Nilsen¹, A. Harbitz¹, M. Berg²,
L. Asplin¹

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²Norwegian Institute for Nature Research, PO Box 5685, 7485 Trondheim, Norway

Marine Protected Areas Need to Be Bigger!

- “We found a clear correlation between lice levels on wild salmonids and lice production in nearby salmon farms....The capacities of the smallest fjords of withstanding lice infection from fish farms are probably limited. It is therefore reasonable to assume that the protection of large areas contributes best to ensure the protection of wild salmon”

Norwegians Concede a Role in Chilean Salmon Virus

By ALEXEI BARRIONUEVO

Published: July 27, 2011

SÃO PAULO, Brazil — A virus that has killed millions of salmon in [Chile](#) and ravaged the fish farming industry there was probably brought over from [Norway](#), a major salmon producer has acknowledged.

 [Enlarge This Image](#)

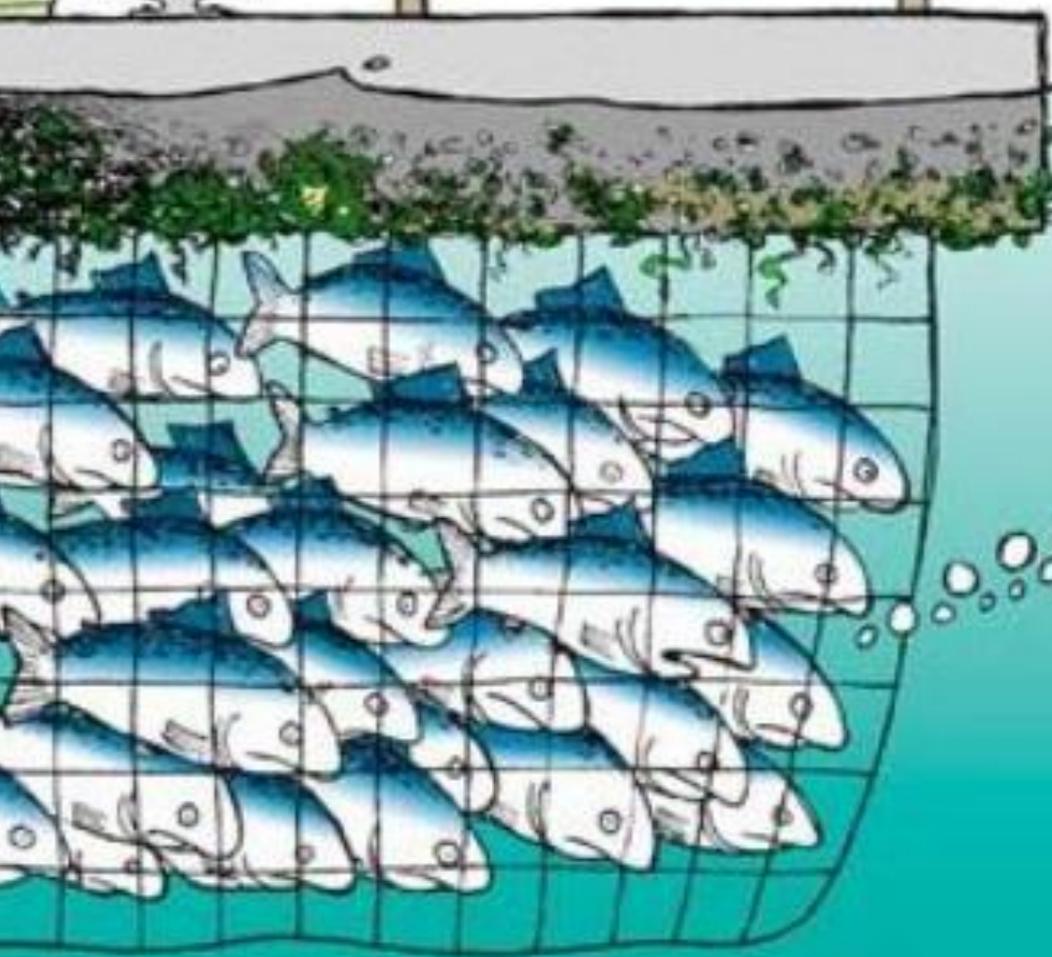


Victor Ruiz Caballero/Reuters

Workers pack salmon pieces at a plant in Puerto Chacabuco in Chile in 2009.

Cermaq, a state-controlled Norwegian aquaculture company that has become one of the principal exporters of salmon from Chile, has endorsed a scientific study concluding that salmon eggs shipped from Norway to Chile are the “likely reason” for the outbreak of the virus in 2007, according to Lise Bergan, a company spokeswoman.

FISH FARM
QUARANTINED



TELL THE WORLD
WHAT'S HAPPENING
HERE!



WALSLEY
2008

#4 Chemicals

- Antibiotics (e.g. Oxytetracycline)
- Antiparasitics (e.g. Azamethiphos)
- Artificial Colourings (e.g. Canthaxanthin)
- Antifoulants (e.g. Copper)
- Feed Ingredients (e.g. Ethoxyquin)
- Feed Contaminants (e.g. DDT, PCBs, Toxaphene, Dioxins, Chlordane, Dieldrin, Cadmium, Lead etc)

Chemical Culture

- Chemical Resistance/Arms Race: The Drugs Don't Work!
- Increasing Use/Older Toxic Chemicals
- Synergistic/Cocktail Effect
- "Marine Pollutants"
- Carcinogenic/Mutagenic
- Sea-Bed Contamination
- "Silent Spring of the Sea"

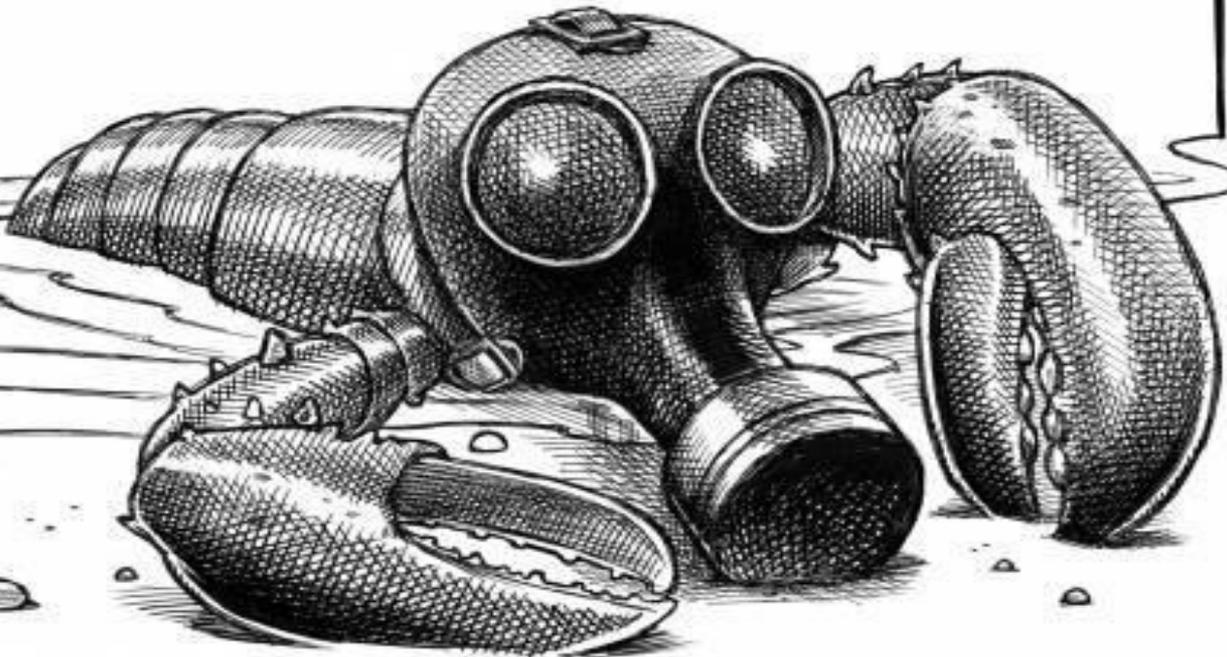
In Norway, official figures reveal that the use of Teflubenzuron and Azamethiphos in the Norwegian salmon farming industry sky-rocketed in 2009 due to sea lice resistance. In fact, chemical use (which also included use of Diflubenzuron) increased 34-fold between 2005 and 2011 (read [online here](#)).

Tabell 2. Midler mot lakselus (kg aktiv substans)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
azametifos							66	1884 ¹⁾	3346	2437
cypermetrin	62	59	55	45	49	30	32	88	107	48
deltametrin	23	16	17	16	23	29	39	62	61	54
diflubenzuron	-	-	-	-	-	-	-	1413	1839	704
emamektin	20	23	32	39	60	73	81	41	22	105
teflubenzuron	-	-	-	-	-	-	-	2028	1080	26
Totalt	105	98	104	100	132	132	218	5516	6454	3374
hydrogen-peroksid (tonn)								308	3071	3144 ²⁾

MACKENZIE
2002

SALMON
FARM





Brussels, 27 January 2002

Brighter eyesight or brighter salmon? Commission decides new rules on colouring feed additive

Canthaxanthin is a pigment used as a feed additive to colour food, particularly adding a reddish colour to salmon, egg yolks and poultry products. Following scientific assessments establishing a link between high canthaxanthin intake and eyesight problems, the Commission adopted today a Directive to reduce the authorised level of canthaxanthin in animal feed. This Directive was agreed recently by the Member States in a vote in the Standing Committee on the Food Chain and Animal Health.

Commissioner David Byrne welcomed the decision, saying “Scientific assessments have shown that a high intake of canthaxanthins produces an accumulation of pigments in the retina, affecting the sight. The use of this feed additive is purely cosmetic, to colour food, and reduced levels of the additive will not adversely affect the taste or quality of our food – which is why I wholeheartedly welcome today’s decision to reduce the authorised levels of canthaxanthins.”



> Nyheter

Fredag 31. mai 2013,



Kreftfremkallende tungmetall i krabber ved fiskeriministerens oppdrettsanlegg

Five Fundamental Flaws

- Wastes - “solution to pollution is not dilution”
- Escapes - “genetic pollution” and “extinction vortex”
- Diseases – sea lice, ISA, Piscine Reovirus etc
- Chemicals – toxic “marine pollutants”
- FEED/FOOD – depleted and contaminated

#5 Feed/Food

- Net Loss of Protein
- 5 tons of wild fish = 1 ton of farmed salmon
- “Biological Nonsense”/“Tiger of Sea”
- “Robbing Pedro to Pay Paul”
- Myth of “Feeding the World”
- “The Greed of Feed”
- Land Animal Protein & GM Feed

What may be in a pellet today?

OILSEED PRODUCTS

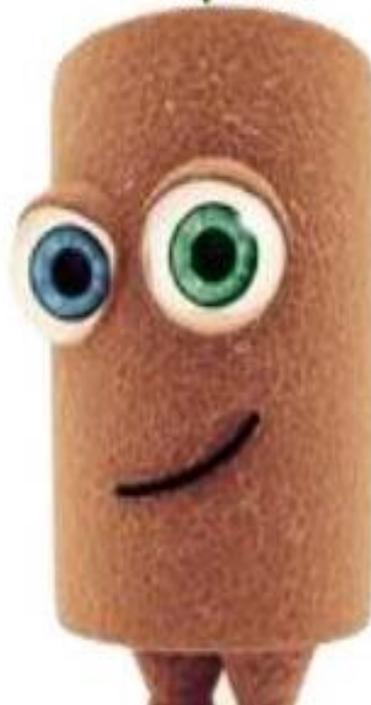
Canola,
soybean, flax,
sunflower
meals,
concentrates
and oils

MARINE PRODUCTS

Fishmeals, oil,
by-products

TERRESTRIAL ANIMAL PRODUCTS

Poultry meal, oil,
feathermeal, meat
meal, bloodmeal,
gelatin



CEREALS & GRAINS

Wheat, barley,
corn, potato,
concentrates

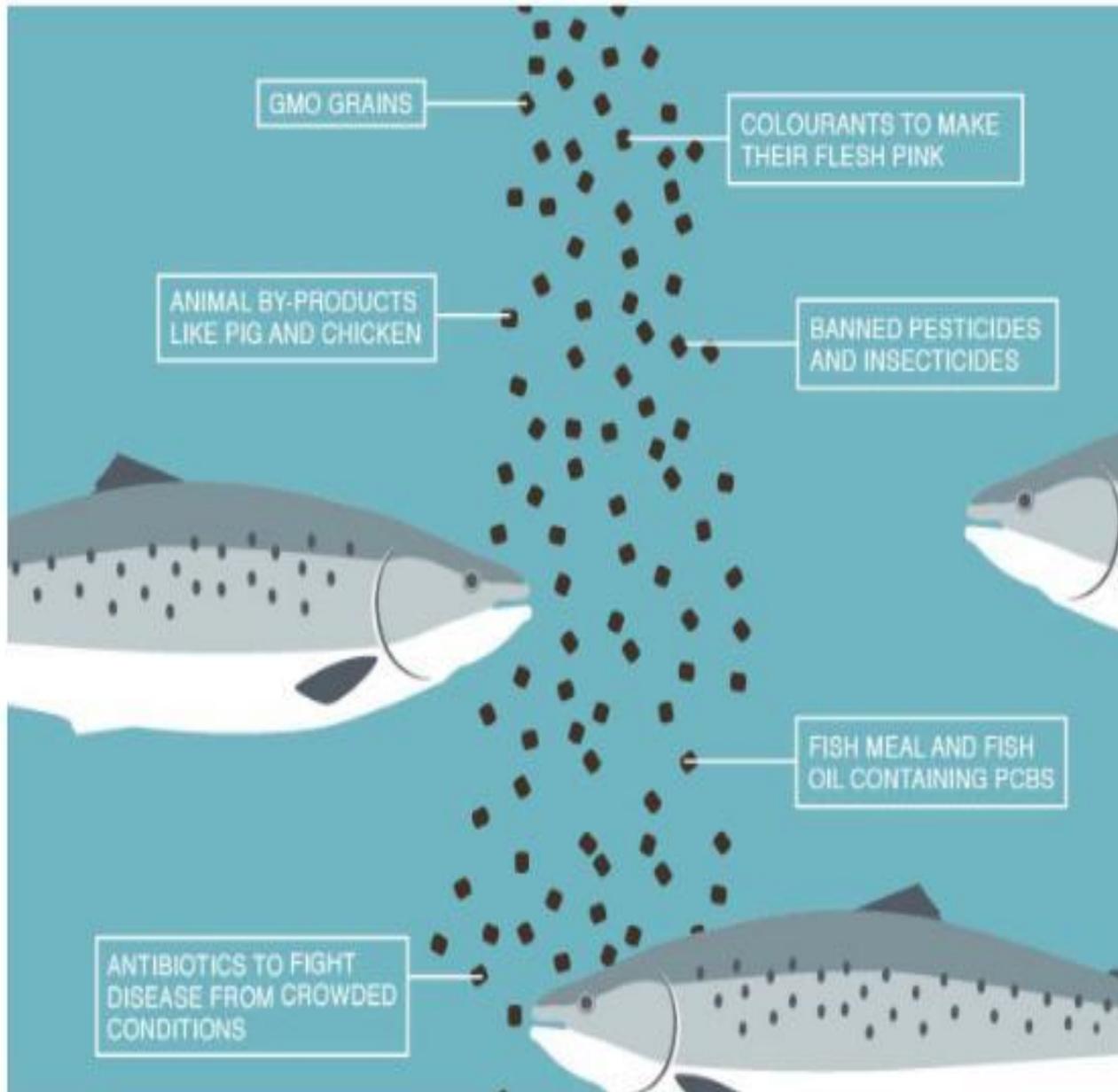
LEGUMES & VEGETABLES

Peas, beans, native and
concentrates

MICRO INGREDIENTS

Amino acids, vits, mins,
functional nutrients

FARMED SALMON – TOXINS IN TOXINS OUT



BETTY FORD CLINIC FOR SUBSTANCE ABUSE



I SEE...
AND HOW LONG
WERE YOU IN THE
FISH FARM?

PAUL
1985
© 1985 GIBBLEGUTS
LONDON, ENGLAND

Fish Feed:

Depleted & Contaminated

- Aquaculture already uses over 80% of the world's fish oil: now even krill in Antarctica
- DG SANCO: Fish from the Northern Hemisphere 8 x more contaminated than Southern Hemisphere
- **Salmon Farming is Unsustainable & Unhealthy**

Between the Devil & the Deep Blue Sea - Contaminated Feed Vs Genetically Modified



*Between the Devil
& the Deep Blue Sea*



IT'S ALIVE,
MASTER!!
BUT IS IT SAFE
FOR PEOPLE
TO EAT?

PUT IT IN THE
MARKETS, AND
WE'LL FIND OUT IN
5 OR 10 YEARS!

Genetically
Altered
Salmon (and
other foods)
Research

GM Salmon & GM Feed

- AquaBounty trials in Scotland in the 1990s
- Approval by the US & Canada
- GM soya & maize in Chilean salmon farming
- GM feed in Norwegian salmon farming?
- GM vegetables with Omega 3s

Fishing Down Food Chain

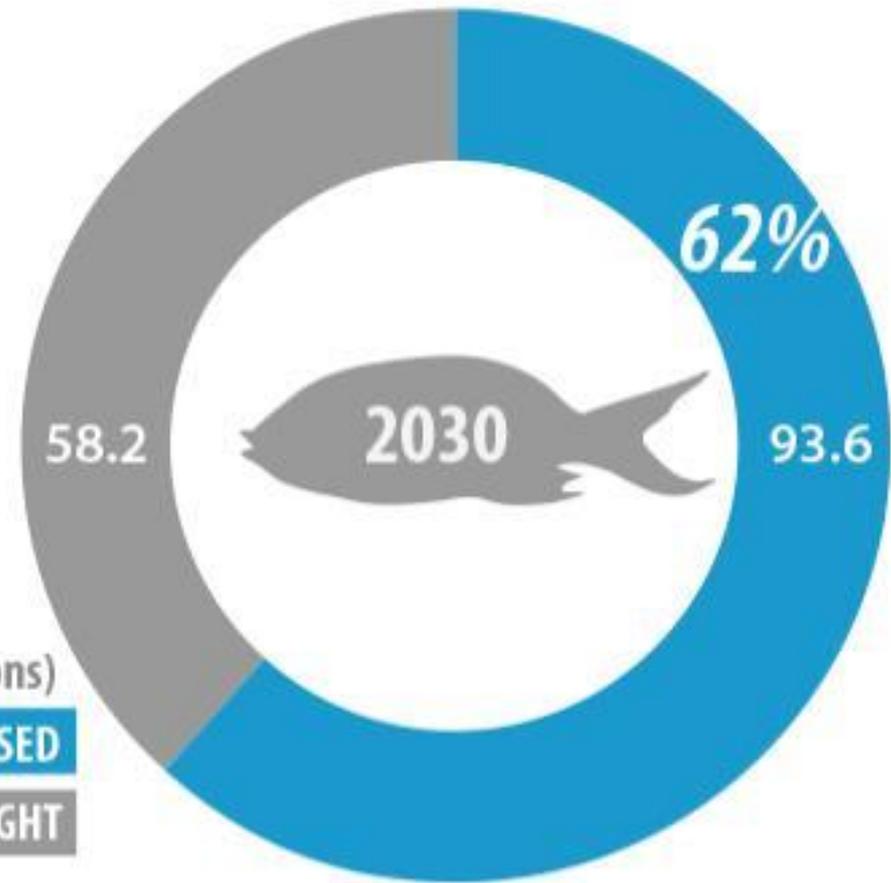
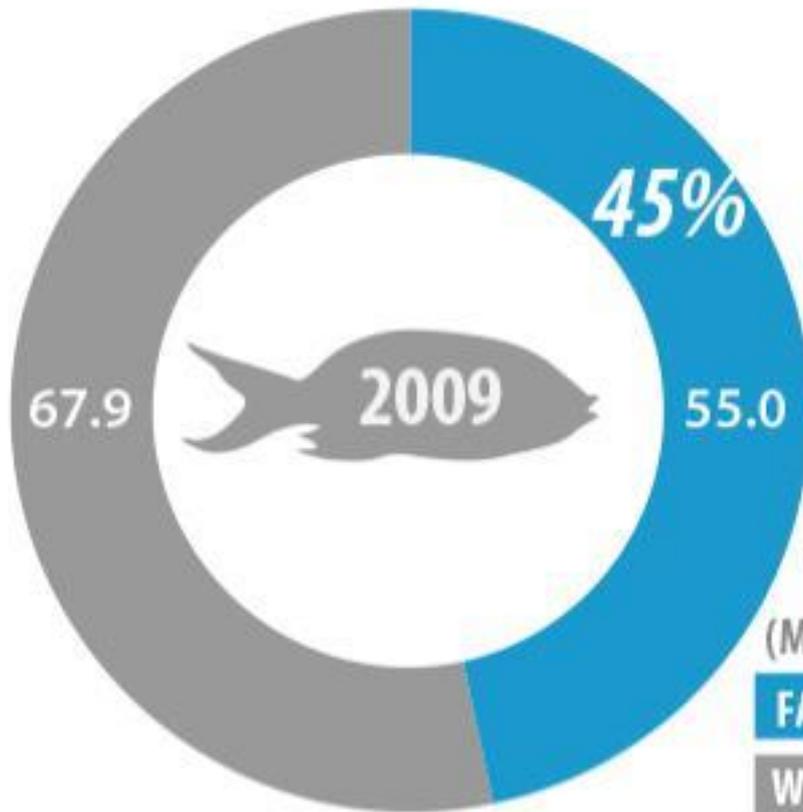
- Dr Daniel Pauly of University of British Columbia: "We are going to farm the fish we need. But there is a hitch: salmon and many other farmed fish are carnivorous, and farming them involves feeding them with animal flesh, just as farming mountain lions would. In this case, the animal flesh, supplied in the form of pellets, consists of ground up sardines, anchovies, mackerels and other edible fish caught mainly - you guessed it - in developing countries. About 3-4 pounds of ground up small fishes are required to produce one pound of farmed salmon. Thus, the more farmed fish we produce, the less fish there is. This is akin to robbing Pedro to pay Paul"

GLOBAL SEAFOOD CONSUMPTION

NOW

VS

FUTURE



(Million tons)

FARM RAISED

WILD CAUGHT

Sources: FAOSTAT (2014) // *Fish to 2030* (2013)

#Fish2030



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Time for a sea change in ocean management – FAO Director-General

New approach to marine resources needed to safeguard world food security, promote sustainable development



The world's marine resources cannot be treated as infinite.

20 January 2014, Abu Dhabi - Major changes in how the planet's marine resources are managed and used are needed to safeguard global food security and ensure the wellbeing of coastal and island countries, FAO Director-General José Graziano da Silva told a group of high level policymakers meeting here today.

"We cannot keep using marine and aquatic resources as if they were endless. And we cannot keep using our oceans as a waste pool," he said in remarks made at the Blue Economy Summit (19-20 January, Abu Dhabi), attended by heads of state, environment and fisheries ministers, and other key stakeholders.

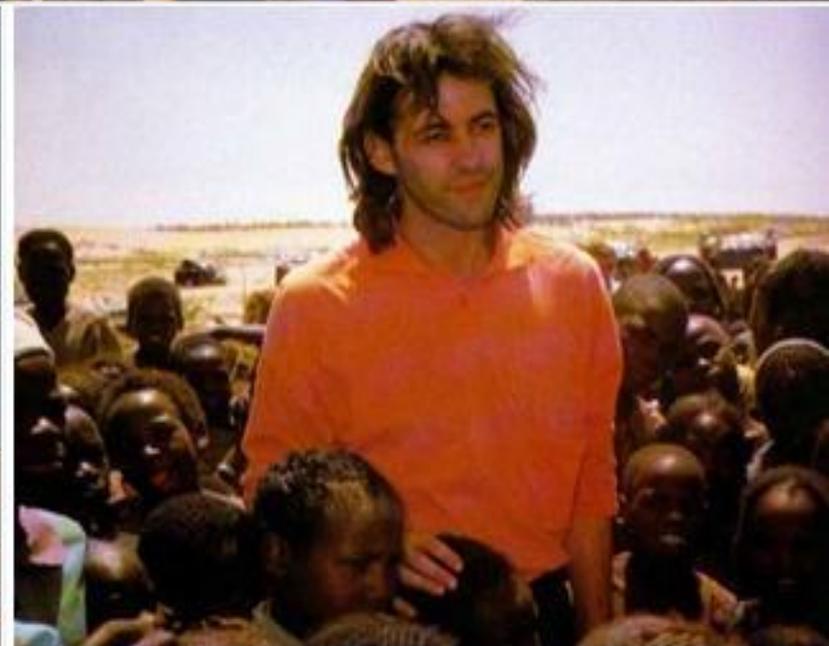
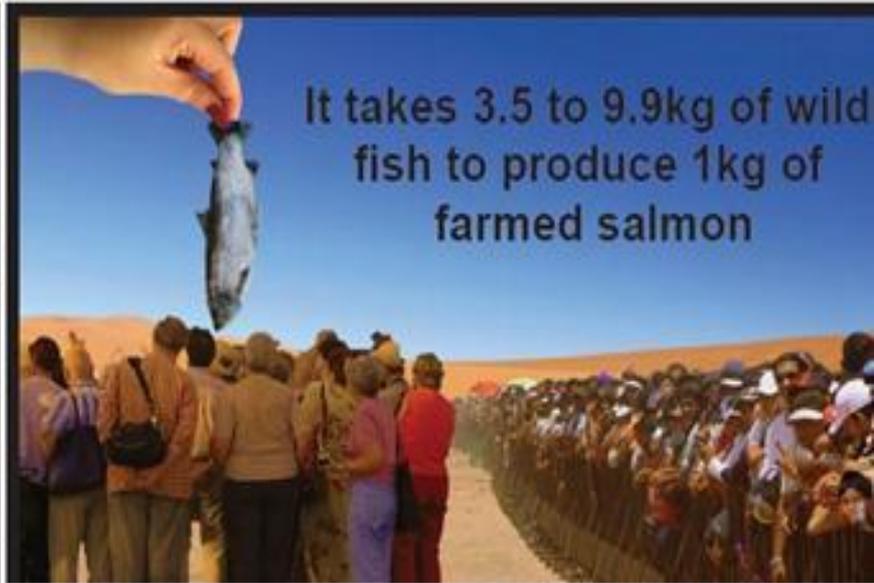
“Feeding aquaculture in an era of finite resources” (2009)

- “The ratio of wild fisheries inputs to farmed fish output has fallen to 0.63 for the aquaculture sector as a whole but remains as high as 5.0 for Atlantic salmon”

Morally & Ethically Bankrupt

- Salmon Farming Steals Precious Protein Away from Poor & Hungry
- Moral: Direct Consumption of Wild Fish (e.g. Anchovies) in Latin America & Africa
- Immoral: Farmed Salmon Consumed by Rich in Europe, USA & Asia

Farming Salmon is Stealing Food from Poor People!





Norwegian Owned



SALMON FARMING



IS A NET LOSS



Norwegian Owned



SALMON FARMING DRAINS OUR OCEANS



Norwegian Owned



Salmon Farming



Increases Global Food Shortages

Global Assessment of Organic Contaminants in Farmed Salmon

Ronald A. Hites,^{1*} Jeffery A. Foran,² David O. Carpenter,³
M. Coreen Hamilton,⁴ Barbara A. Knuth,⁵ Steven J. Schwager⁶

The annual global production of farmed salmon has increased by a factor of 40 during the past two decades. Salmon from farms in northern Europe, North America, and Chile are now available widely year-round at relatively low prices. Salmon farms have been criticized for their ecological effects, but the potential human health risks of farmed salmon consumption have not been examined rigorously. Having analyzed over 2 metric tons of farmed and wild salmon from around the world for organochlorine contaminants, we show that concentrations of these contaminants are significantly higher in farmed salmon than in wild. European-raised salmon have significantly greater contaminant loads than those raised in North and South America, indicating the need for further investigation into the sources of contamination. Risk analysis indicates that consumption of farmed Atlantic salmon may pose health risks that detract from the beneficial effects of fish consumption.

Cancer warning over Scottish farmed salmon

Levels of cancer-causing toxins in Scottish farmed salmon are so high that consumers are being advised not to eat more than one portion every two months to safeguard their health.

Some scientists were so alarmed by the findings that they believe that young girls and women of child bearing age would be advised not to eat Scottish salmon at all for fear of causing birth defects and brain damage in their unborn children.



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Consumption advisories for salmon based on risk of cancer and noncancer health effects[☆]

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Received 23 March 2005; received in revised form 17 August 2005; accepted 22 August 2005



Carry-over of dietary organochlorine pesticides, PCDD/Fs, PCBs, and brominated flame retardants to Atlantic salmon (*Salmo salar* L.) fillets

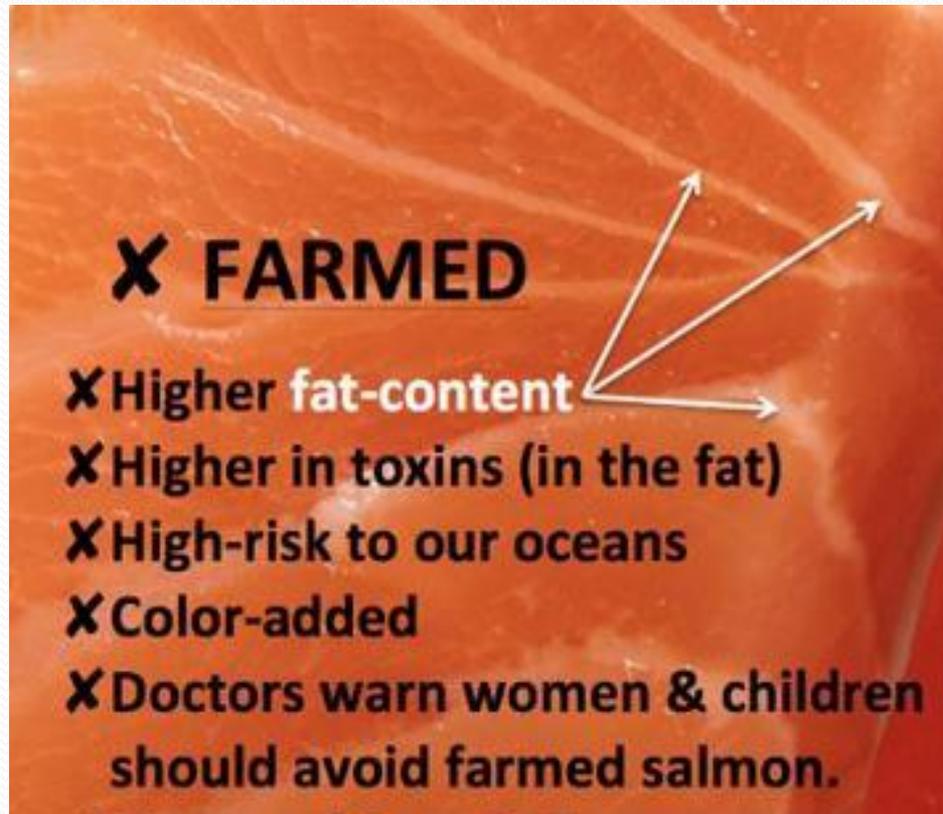
Marc H.G. Berntssen  , A. Maage, K. Julshamn, B.E. Oeye, A.-K. Lundebye

Abstract

Information on carry-over of contaminants from feed to animal food products is essential for appropriate human risk assessment of feed contaminants. The carry-over of potentially hazardous persistent organic pollutants (POPs) from feed to fillet was assessed in consumption sized Atlantic salmon (*Salmo salar*). Relative carry-over (defined as the fraction of a certain dietary POP retained in the fillet) was assessed in a controlled feeding trial, which provided fillet retention of dietary organochlorine pesticides (OCPs), dioxins (PCDD/Fs), polychlorinated biphenyls (PCBs), and brominated flame retardants (BFRs). Highest retention was found for OCPs, BFRs and PCBs (31–58%), and the lowest retentions were observed for PCDD/Fs congeners (10–34%). National monitoring data on commercial fish feed and farmed Atlantic salmon on the Norwegian market were used to provide commercially relevant feed-to-fillet transfer factors (calculated as fillet POP level divided by feed POP level), which ranged from 0.4 to 0.5, which is a factor 5–10 times higher than reported for terrestrial meat products. For the OCP with one of the highest relative carry-over, toxaphene, uptake and elimination kinetics were established. Model simulations that are based on the uptake and elimination kinetics gave predicted levels that were in agreement with the measured values. Application of the model to the current EU upper limit for toxaphene in feed ($50 \mu\text{g kg}^{-1}$) gave maximum fillet levels of $22 \mu\text{g kg}^{-1}$, which exceeds the estimated permissible level ($21 \mu\text{g kg}^{-1}$) for toxaphene in fish food samples in Norway.

Fatty Farmed Salmon!

- 15% total fat (more than chicken or pork), with 75 mg of cholesterol in just 100 grams!



What's in Farm Salmon?*

Toxins in farmed salmon



DDT: A banned pesticide,
Risk: Carcinogenic.

Emamectin: A sea louse repellent.
Risk: Low toxicity to humans

Pentachlorobenzene: In the chlorine family.
Risk: Nervous system damage.
Banned in Europe.

Gamma-HCH: Insecticide.
Risk: Nervous system damage. Now banned in Europe.

Trans-nonachlor: Insecticide.
Risk: Nervous system damage. Banned in Europe

Toxaphene-62: Insecticide.
Risk: Negative effect on nervous system and carcinogenic. Banned in most of the world.

PCB: One of the most dangerous pollutants.
Risk: Damages immune function, nervous system damage, liver cancer, reduced fertility of the fetus.

Alfa-HCH: Insecticide.
Risk: Nervous system damage. Banned in Europe.

Cis-nonachlor: Insecticide.
Risk: Nervous system damage. Banned substance.

Mirex: Insecticide.
Risk: Nervous system damage, carcinogenic.
Banned due to environmental impact.

Toxaphene 26: Insecticide
Risk: Nervous system damage, carcinogenic. Banned substance.

Cadmium.
Russian authorities took action against Norwegian salmon when cadmium was found in farm salmon in the 2006. Risk: Damage to brain, kidney, testes, placenta, bones, lungs, a Group 1 carcinogen

HCB: Seed fungicide.
Risk: Nervous system damage, Banned substance

Cis-Chlordane: Pesticide.
Risk: Nervous system damage. Banned substance

Toxaphene 50: Pesticide.
Risk: Nervous system damage, carcinogenic. Banned substance.

Brominated flame retardants (PBDE7).
Used in products to reduce flammability
Risk: liver damage, reduced and impaired fertility hormone system.

Dioxins.
Risk: Carcinogenic. Can also harm the fetus.

Alfa Endosulfan: Insecticide.
Risk: Nervous system damage, carcinogenic.

Toxaphene 40-41: Insecticide.
Risk: Nervous system damage, carcinogenic. Banned substance.

Mercury
Risk: Weakens the immune system, fetal abnormalities, impaired learning in children.

Isodrin: Insecticide.
Risk: Nervous system damage. Banned substance.

Trans-Chlordane: Insecticide.
Risk: Nervous system damage. Banned substance.

Toxaphene 42: Pesticide.
Risk: Nervous system damage, carcinogenic.
Organic pesticides that are now banned.

Isodrin: Insecticide.
No set upper limit. Risk: negative effect on nervous system.
Banned substance.

Dieldrin: Insecticide.
Risk: Nervous system damage. Banned substance.

Beta-Endosulfan: Insecticide.
Risk: Nervous system damage, carcinogenic.

Oxy-chlordane: Chlorinated pollutants.
Risk: Nervous system damage. Banned substance.

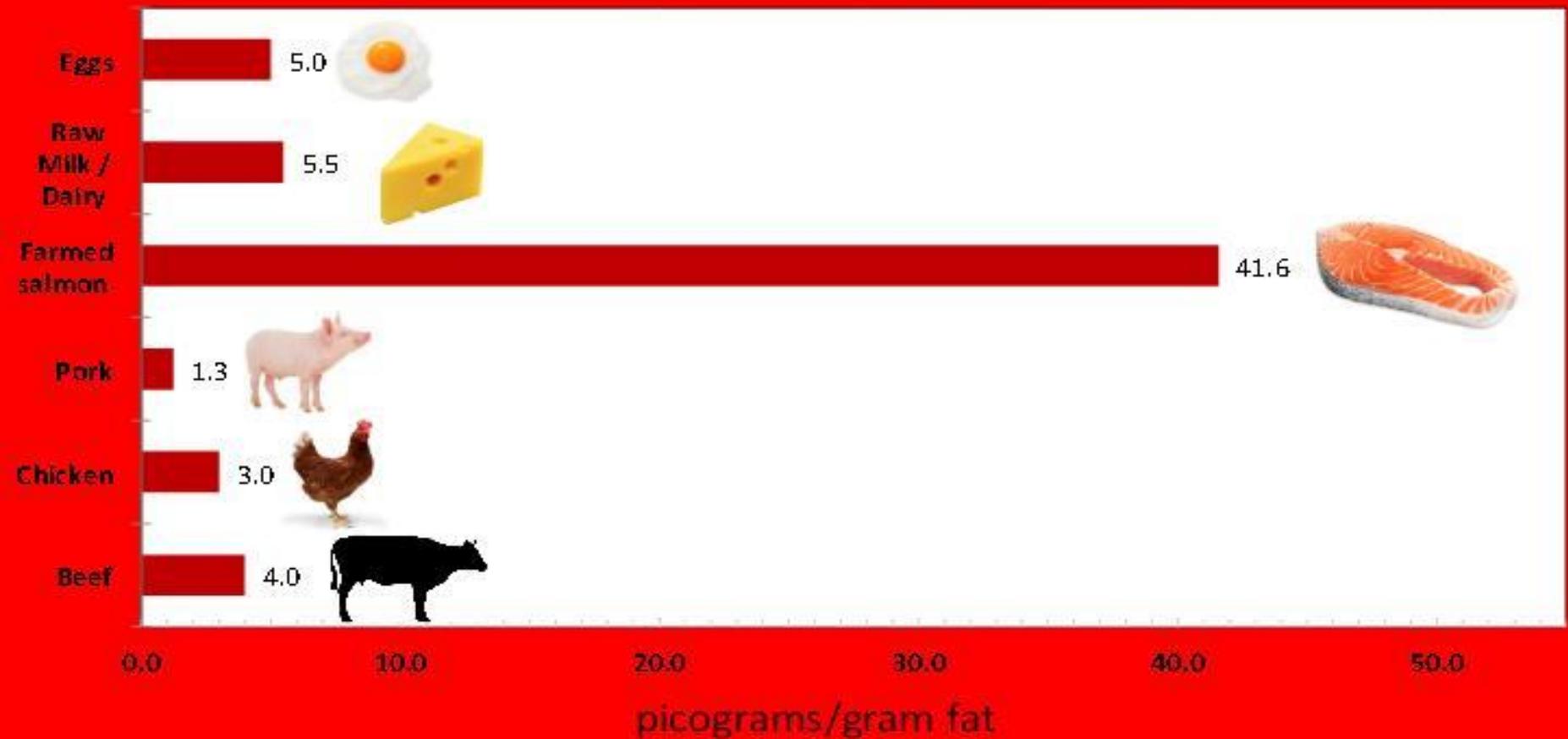
Endosulfan sulfate: Chlorinated pollutants.
Risk: Nervous system damage, carcinogenic.

*Information adapted from VG,
Norway's second largest newspaper

Dr Claudette Bethune

- “When farmed salmon is compared to other meat products on a fat basis, rather than by wet weight, the actual allowable contamination can be evaluated across the food types. We can see that farmed salmon, with an average of 15.6 % total fat, is allowed to have 10-times the dioxin and dioxin-like PCB contamination as bovine meat, 14-times more than for poultry meat and 33-times more contamination than for pig meat. Also of note is that farmed salmon is typically 10% fattier than their wild counter parts, and the increase in fat is not in the beneficial omega-3s fats”

Dioxins and dioxin-like PCBs



Source: data: EU Commission Regulation (EU) No 1259/2011 of 2/12/2011, Maximum Allowable levels for sale in the EU Market. Farmed Salmon: contains 15.6% average total fat in the filet, from the Norwegian National Institute of Nutrition and Seafood Research/Seafood Database. Accessed 25 October 2013

of 2 December 2011

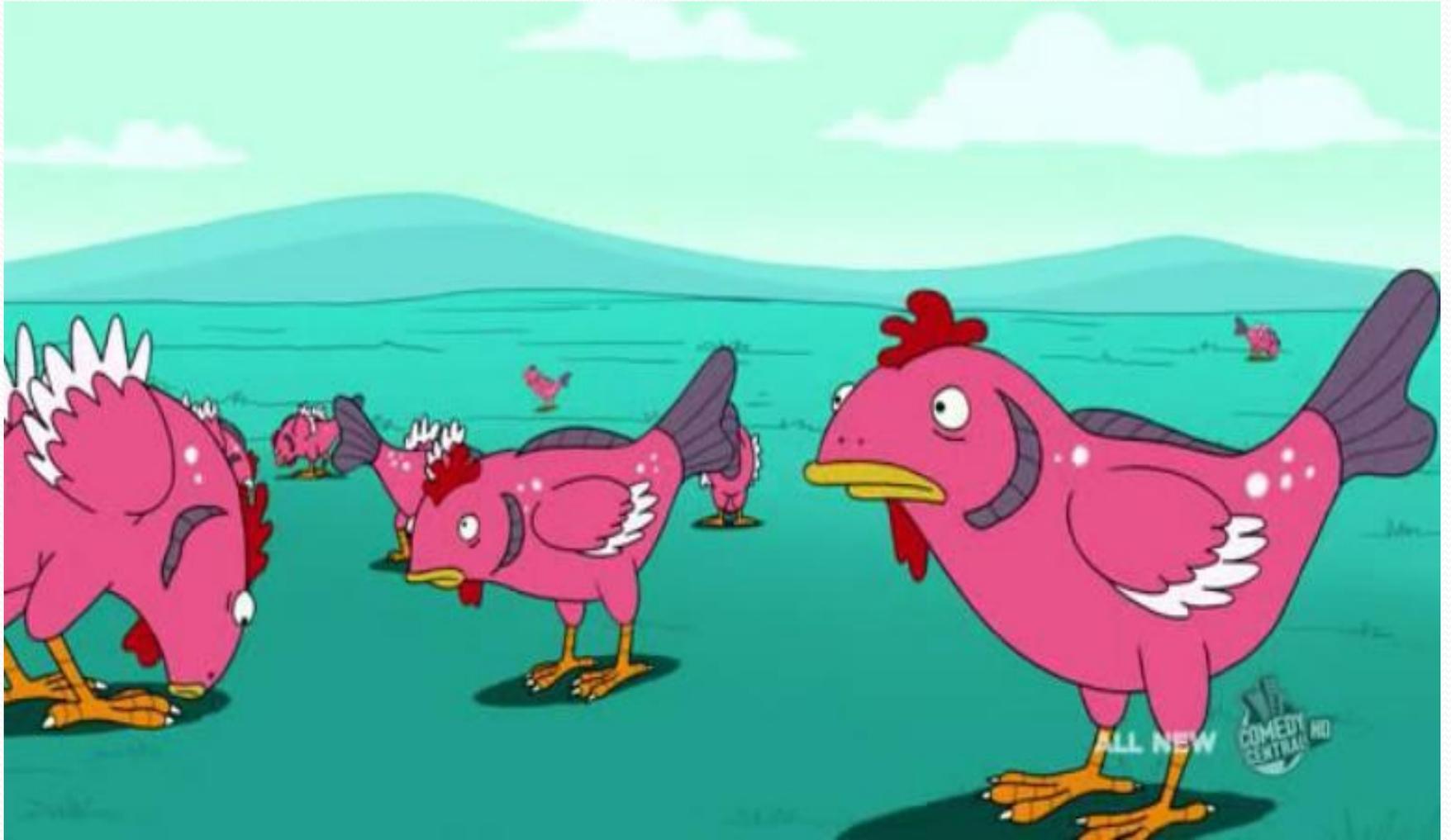
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:320:0018:0023:EN:PDF>

Section 5: Dioxins and PCBs of the Annex to Regulation (EC) No 1881/2006 is amended as follows:

Section 5: Dioxins and PCBs is replaced by the following:

Foodstuff	Maximum Allowable levels for sale on the EU market Sum of dioxins and dioxin-like PCBs
Bovine animals and sheep	4.0 pg/g fat
Poultry	3.0 pg/g fat
Pigs	1.25 pg/g fat
Muscle meat of fish	<p>6.5 pg/g wet weight or 41.6 pg/g fat</p> <p>We know from NIFES that Norwegian farmed salmon contain 15.6% total fat, then:</p> $\text{pg/g fat} = 6.5 \text{ pg/g wet wt} / (15.6/100) = 41.6 \text{ pg/g fat}$ <p>This is then 10x more than for bovine meat, 14x more than for poultry meat and 33x more than for pig meats.</p>
Raw milk and dairy products, including butterfat	5.5 pg/g fat
Hen eggs and egg products	5.0 pg/g fat

The Chicken-Pig Salmon Solution?





EU clears use of pigs, chicken in fish feed

(AFP) – Feb 14, 2013 8+1 0

BRUSSELS — The European Union said Thursday it has ended a ban on using fish meal made from ground-up pigs or chickens introduced at the height of the 'Mad Cow' food scare, just as it fights the latest scandal over horsemeat being passed off as beef.

The European Commission said it had re-authorized the use of Processed Animal Proteins (PAPs) derived from non-ruminant farmed animals, in this case mainly pigs and poultry, in fish feed.

Their use was banned in 1997 for cattle, and from 2001 for all animals, as part of efforts to tackle the Bovine Spongiform Encephalopathy (BSE) or Mad Cow epidemic, caused when other ruminants, in this case sheep, were used in feed.

The Commission said the latest data showed that the EU is close to eradicating BSE in its cattle population while the latest scientific opinion indicates "that the risk of BSE transmission between non-ruminant animals is negligible provided that intra-species recycling (cannibalism) is prevented."

In the absence of PAPs, farmed fish had been fed meal based on other fish, a more expensive substitute.

The ban officially ends on June 1.



En France, nourrir de farines animales les porcs et volailles n'est "pas à l'ordre du jour"

Publié le 19 février 2013 par FLORENT MAILLET

► Mots clés : [Entreprises](#), [Législation](#), [Distributeurs](#), [Industriels](#), [Guillaume Garot](#)



Le ministre de l'Agroalimentaire Guillaume Garot a été clair ce mardi: il a affirmé qu'autoriser les farines animales dans l'alimentation des porcs et des volailles n'était "pas à l'ordre du jour", tandis qu'elles viennent d'obtenir le feu vert européen pour nourrir les poissons d'élevage.

Approuvé en juillet 2012 par les experts des Etats membres de l'UE, le retour des farines de porc et de volailles (protéines animales transformées, PAT) pour nourrir les poissons d'élevage et les autres animaux d'aquaculture vient d'être autorisé par la Commission européenne à compter du 1er juin.

"Mettre de l'ordre dans toutes les dérives"

consumer.

#540 October 2013 | www.consumer.org.nz

Making decisions easy

**WHAT'S IN THE
FARMED
SALMON
YOU EAT?**



Farmed salmon fed livestock

Farmed salmon fed livestock

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By: [Jade Cooper](#) | [New Zealand News](#) | Monday October 7 2013 16:13

A major investigation into farmed salmon's discovered the fish are fed chicken waste parts and bloodmeal from cattle, pigs and sheep.

Consumer Magazine says that's not what you'd expect from a product that claims the fish were on a natural diet.

King Salmon also adds a chemical to the fish food to make its flesh pink.

Consumer's Sue Chetwin says the public needs to know that the farmed salmon is very different to wild salmon.

"Farmed salmon is completely different to wild salmon and we would say that the feed doesn't really replicate the diet of wild salmon so if that's what you think you're eating when you're buying farmed salmon, it's something different to what they're claiming."

**The Salmon Farmer's
Secret Recipe**



Chicken
Lickin'
Bad
Farmed
Salmon



**Bring
The
Sick
Bucket!**

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beef, horse AND crystal violet!

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100% "SUSTAINABLE"
100% PURE
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CHICKENSHIT

Ingredients:
Farmed Atlantic
Salmon with
added artificial
colourings, toxic
chemicals, chicken
feathers, blood
meal, pigs' blood,
GM soya



"FLYING OFF THE SHELVES FASTER THAN PEGASUS"
(SUPERMARKET NEWS)

Conclusion: Boycott
Farmed Salmon!

SALMON FEEDLOT

BOYCOTT

.COM

Monterey Bay Aquarium Seafood Watch

FARMED ATLANTIC SALMON

There are many environmental problems related to farming Atlantic salmon, which means most are ranked "Avoid."

Health Alert +

Environmental Defense Fund has issued a health advisory for farmed salmon due to high levels of PCBs.

Summary

One of the biggest concerns is the amount of food required to raise farmed salmon. It generally takes three pounds of wild fish to grow one pound  of farmed salmon. The environmental impact of salmon farming is still increasing as global production continues to rise.

Target discontinues the sale of farmed salmon

Feature story - January 26, 2010

Target has announced that all their stores will stop selling farmed salmon products. This move towards greater ocean conservation is a first by a major seafood retailer. Salmon consumption in the United States is a huge market for retailers. Salmon is second only to shrimp in seafood purchases in the United States. This announcement is sure to have a ripple affect across the entire seafood industry and will improve the health of oceans throughout the world.

On this page

- › [No Thanks to Farmed Salmon](#)
- › [Carting Away the Oceans](#)
- › [Targeting Trader Joe's](#)
- › [Sustainable Seafood is the way of the future](#)
- › [Take action](#)



Thank you, Target.

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SALMON FARMS ARE INDUSTRIAL FEEDLOTS