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24 July 2012

Dear Professor Nestle,

Norwegian Farmed Salmon: An Environmental & Public Health Hazard

I understand that you are visiting Norway in September on a trip funded by the Norwegian Seafood Council (NSC). In advance of your visit, the Global Alliance Against Industrial Aquaculture (GAAIA) would like to proffer an alternative perspective to the NSC's shameless 'press kit' and argue that Norwegian farmed salmon is a hazard to the environment, wild fish and public health.

I would be only too happy to speak to you on the phone or meet in person in Norway and I would encourage you to reach out to scientists like Dr. David Carpenter and Dr. Claudette Bethune who have personal insight into this issue. Your trip offers a unique insight into the Norwegian salmon farming industry and a chance to ask vital questions.

Please do not let this letter put you off joining the trip which also includes "a registered dietitian, food/nutrition editors, a food and fitness blogger and a chef". Rather, it is encouraging that the Norwegian Seafood Council (as represented by their marketing agency The Food Group) has afforded you the opportunity to grill them like a PCB-contaminated and disease-ridden farmed salmon!

Suffice to say that I offer an unashamed environmental and public health perspective. I am co-author of 'A Stain Upon the Sea' and have researched the issue of salmon farming for over 15 years (my chapter 'Silent Spring of the Sea' is available online here). Instead of completing my PhD on the environmental impacts of Scottish salmon farming I became a vocal campaigner and have worked for Friends of the Earth Scotland, the Salmon Farm Protest Group, Friends of Clayoquot Sound, the Pure Salmon Campaign and now with the Global Alliance Against Industrial Aquaculture and the Green Warriors of Norway.

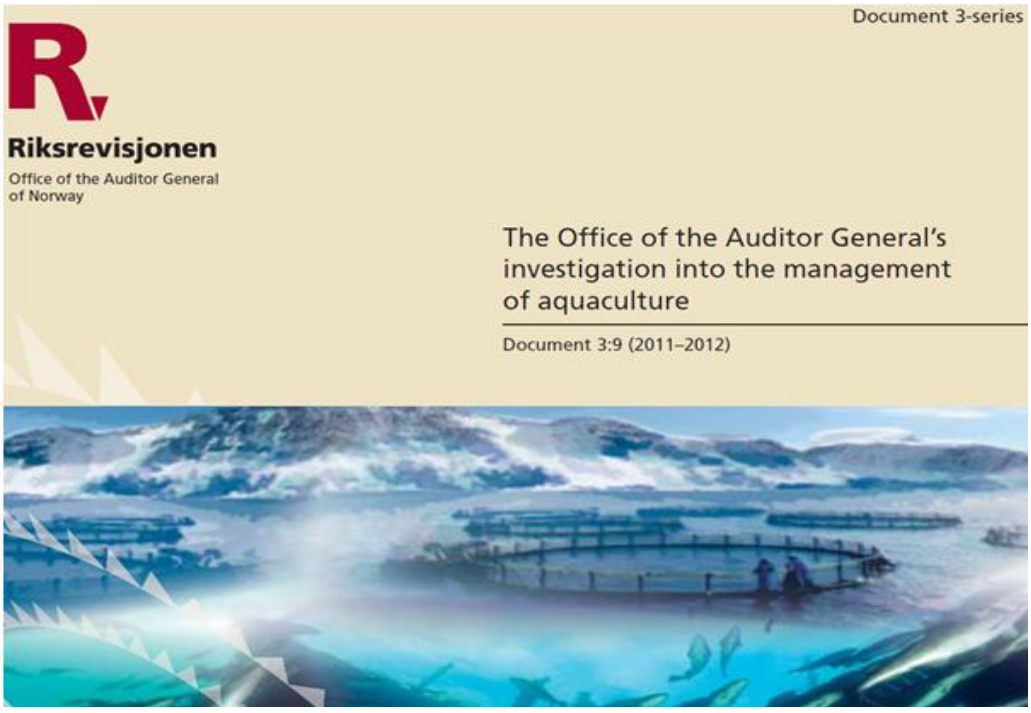
You may be familiar with the work of the Pure Salmon Campaign (co-ordinated firstly by the National Environmental Trust and SeaWeb and then by the Pew Charitable Trusts). The Pure Salmon Campaign produced two films which are worth watching on the plane to Norway: "Dear Norway" (2009) and "Farmed Salmon Exposed: the global reach of the Norwegian salmon farming industry" (2009). There are also various factsheets available including details on feed use, escapes, infectious diseases, chemicals and human health impacts – online here. Sadly, the Pure Salmon Campaign ended in 2010 when funding via the Gordon & Betty Moore Foundation and Packard came to an end.

As background, I enclose here a copy of a report written by the Green Warriors of Norway on the environmental and health impacts of Norwegian salmon farming – it is also available online here. This report is useful as it is in English and details issues such as sea lice,

escapes, toxic chemicals, feed contamination and how the Norwegian Government is putting pressure on scientists to remain silent on the risks of Norwegian farmed salmon. In the final analysis, Norwegian farmed salmon belongs in the trash not on the supermarket shelf!

Leder i Norges Miljøvernforbund, Kurt Oddekalv aksjonerer mot den norske lakseoppdrettsnæringen. Her kaster han laks kjøpt i en av verdens største kjøpesenterkjeder, Carrefour, utenfor Benidorm. Foto: Leif Kverneland, spaniaavisen.no

Please also find enclosed a critical report by the Office of the Auditor General of Norway – available in English online here. This report is a damning indictment of the Norwegian salmon farming industry and was submitted to the Norwegian Parliament (Storting) in March.



A video showing the waste impacts under a Norwegian salmon farm is also available online here. I also enclose a bibliography of scientific papers at the end of this letter.

As background before your visit, please also read a 2010 complaint to the U.S. Federal Trade Commission filed by chef Rick Moonen, Food & Water Watch, The Center for Food Safety and others – read in full online here. The complaint was filed against the Norwegian Seafood Council for a deceptive advertising campaign. This followed another complaint to the U.S. Federal Trade Commission in 2006 following an ad campaign by Salmon of the Americas (more details of that are enclosed below – and online here).

Please be aware that your hosts on the press junket to Norway, The Food Group, are the architects of the campaign to promote increased farmed salmon consumption in the United States. In January the U.S. lifted the duty on imports of Norwegian salmon (read more via Reuters: "Norway's salmon producers eye U.S. as tariff falls"). There is intense interest from Norway to find ways of marketing their hazardous product in the United States – hence this expensive PR exercise.

The Green Warriors of Norway do not have the multi-million dollar budget of the Norwegian Seafood Export Council but you can watch a video of the "Hazardous Norwegian Salmon Dinner" online here (read more details via 'Norway's Salmon Shame').

The hazards of Norwegian farmed salmon are well documented. A scientific paper in 2004 published in the journal Science revealed cancer-causing contaminants such as dioxins, PCBs, DDT, dieldrin and toxaphene. A 2005 study and another 2006 study both concluded that the consumption of farmed salmon carried an elevated cancer risk. Another 2009 study in the Journal of Cancer Research reported carcinogenis in Norwegian farmed salmon including intestinal tumors and metastases (analogous to that of human colorectal cancer associated with inflammatory bowel disease).

In 2011, a scientific study concluded that consumption of Norwegian farmed salmon was linked to diabetes and obesity (no wonder the American Diabetes Association recommends

wild not farmed salmon). “This comes as no surprise and joins a long list of negative effects of eating farmed fish,” said Kurt Oddekalv, leader of the Green Warriors of Norway. “Farmed salmon is the most toxic food we find in our stores and I expect that these toxins will be tried to be hidden in the future.”

As the enclosed report from the Green Warriors of Norway states:

FARMED FISH IS NORWAY'S MOST TOXIC FOODSTUFF

Several studies conclude that fatty fish is the most important source of dioxins, PCB and PBDE in the Norwegian population, and that farmed salmon is the worst by far. These are fat soluble substances that decompose slowly, thus accumulating in nature, and their concentrations increase higher up in the food chain in fatty fish species like salmon. The toxic substances are in the fat and when the feed given to farmed fish contains large parts of fish oil (fat) from five times as many wild fish it is evident that farmed fish will contain a lot of toxins. Chronic exposure to dioxins and PCB may lead to cancer, a weakened immune system and reduced reproductive capacity.
Another environmental toxin that accumulates through the food chain is mercury. In fish it is found as methyl mercury, which affects the nervous system and blood pressure, and it may contribute towards heart and coronary disease. Since this toxic substance is excreted in human milk it is particularly dangerous to unborn and newborn children and it may disturb both cognitive and motor development. Are we really willing to subject our descendants to such risks?

International scientists have repeatedly warned against too high levels of environmental toxins in Norwegian farmed salmon, and in late November 2005 Russian veterinary authorities found high levels of lead and cadmium in salmon imported from Norway. On 1 January 2006, a Russian ban on the import of fresh Norwegian salmon was introduced. Russian authorities complained of insufficient control on the Norwegian side.
Norwegian authorities have for years tried to make the EU allow higher levels of toxic substances. We believe this bears witness to an altogether irresponsible policy.

Farmed salmon with extensive wounds caused by lice. Photo John Øystein Berg

For the Norwegian Seafood Council to promote farmed salmon as “kid-friendly” is therefore nothing short of shameful – on a par with the nauseating ad campaign promoting farmed salmon to pregnant women.

As a well known nutritionist, professor of public health and gatekeeper of ‘foodie’ opinion you’re an obvious target of the Norwegian salmon farming industry’s propaganda machine. Thankfully, you appear to be aware of the problems having written in 2010, for example, that wild Alaskan salmon “have higher levels of omega-3 fats than the farmed fish”. Another article published in The Atlantic in 2010 questioned GM farmed salmon.

During your trip you may wish to question your hosts on research in Norway on genetic engineering to increase the levels of Omega-3s in farmed salmon. Norwegian salmon feed companies have applied to use GM soya and maize in Norwegian salmon farming (although they claim they are not currently using GM feed in Norway at least). However, the same Norwegian companies use GM feed ingredients in Chilean salmon farming – with the products already on sale in the United States. The experts in Norway working on this issue are at NIFES here in Bergen – including Dr. Monica Sanden and Dr. Gro-Ingunn Hemre (read more online here).

You may already be aware of DuPont's GM yeast product (engineered to have higher Omega-3s) which is marketed in the United States as "harmoniously raised" Verlasso farmed salmon. More details are available online here and for a more sceptical viewpoint please read an article by Charles Margulis online here. Scott Nicholls at DuPont is the Dr. Frankenfish behind Verlasso farmed salmon and could tell you more about the GM yeast product – contact details online here.

Your book 'Food Politics' is well-versed in the dangers of dioxins and other contaminants in farmed salmon – as well as artificial colourings. The scientific papers by Dr. David Carpenter and Dr. Jeffrey Foran on dioxin and PCB contamination are cited in the attached reference list – along with more recent papers linking Norwegian farmed salmon consumption with diabetes and obesity as well as a paper linking aquaculture with BSE. A letter from medical doctors and scientists on the health risks of farmed salmon is also available online here.

Instead of decontaminating farmed salmon feed, the Norwegian salmon farming industry has focussed on cleaning up the industry's poor image (read how the industry's PR machine went into overdrive following the damning findings of the 2004 Science paper – online via 'Spinning Farmed Salmon'). During your visit you could ask about decontamination strategies for farmed salmon and why the industry is not using them to the full extent (the industry claims it is prohibitively expensive but it is technologically feasible).

If you can extricate yourself from your minders you could visit here in Bergen and meet with research scientist Dr. Age Oterhals – an expert on decontamination of fish feed. The fact is that the industry have known about cancer-causing contaminants in farmed salmon feed since the 1970s – long before the revelations in Science in 2004 (read more via 'Silent Spring of the Sea'). Norwegian salmon farming is an extremely efficient method of bio-accumulating contaminants. The end product, however, should carry a warning label like on cigarette packets rather than marketed as 'healthy and nutritious' Norwegian farmed salmon.

[The graphics above are subject to the ongoing 'Salmon Farming Kills' lawsuit involving the Norwegian Government-owned company Cermaq – a judgment is expected later this year]

Thankfully, many retailers have already heeded the warnings. In 2008, Safeway restricted purchases of Chilean farmed salmon following the disease and sea lice crisis. In 2010, U.S. retailer Target removed farmed salmon from its stores. And just last month, the Canadian retailer Overwaitea Food Group removed all open net cage reared farmed salmon.

Nevertheless, NSC's factsheet on 'Safety' claims that "farmed salmon from Norway are fresh, delicious, and responsibly harvested" and that "Ocean-farmed Salmon From Norway is Safe and Natural." This view is clearly contradicted by peer-reviewed scientific papers and reports – in addition to the fact that farmed salmon contains artificial and synthetic colourings such as Canthaxanthin and Astaxanthin. The enclosed list of references, for example, demonstrates that Norwegian farmed salmon contains unsafe levels of cancer-causing chemicals; elevates the risk of cancer; and increases diabetes and obesity (not to mention the global impacts on wild salmon populations and ocean resources).

The following excerpt from the Pure Salmon Campaign's web-site is worth including on the issue of contaminants and health claims by the salmon farming industry:

FTC Petition Slams Salmon Ad Promoting Unsafe Food to Pregnant Women

In December 2006, the Pure Salmon Campaign filed a truth-in-advertising complaint with the Federal Trade Commission (FTC) against the trade association of farmed salmon producers for deceptive advertising that appeared in The New York Times Magazine encouraging pregnant women to eat chemical laden farm-raised salmon.

The six-page ad, paid for by the trade association Salmon of the Americas (SOTA), made extensive claims about the health benefits of farmed salmon for pregnant women and their babies. The ad proclaims "Ocean-Farmed Salmon — just what the doctor ordered" under a picture of a pregnant woman.

Pure Salmon submitted a petition asking the FTC to stop SOTA from using false and misleading information in their ads and has dozens of scientific studies cited to support its claim, including a peer-reviewed paper published just last year in the Journal of Nutrition.

This study was a follow-up to the ground-breaking January 2004 study of toxins in farm-raised salmon in the journal Science. The Journal of Nutrition study found that women of childbearing age, expectant and nursing mothers, and young children should minimize their consumption of farm-raised salmon in favor of other sources of omega-3 fats.

In February 2007, the FTC released its deliberations on the petition. In a rare gesture, the commission announced it had opened a formal law enforcement investigation to look into the petition. As a result, the industry group has agreed to institute a stricter advertising review policy to prevent deceptive advertising in the future.

- Read the FTC Petition
- Read the February 23, 2006 Press Release
- Listen to the February 23, 2006 Press Conference [mp3, 2.9 megs]
- Read the Health Professionals' Letter to Salmon of the Americas
- Read the February 16, 2007 Press Release
- Read the February 2, 2007 Federal Trade Commission letter. [PDF]

Salmon of the Americas ad is enough to make you sick!

click for full-sized version

- Pure Salmon's latest ad speaks out on Salmon of the Americas health claims
- Coastal Alliance for Aquaculture Reform debunks Salmon of the Americas Ad

For more on Health and Contaminants:

- More information about contaminants and farmed salmon, from the first global study of the health risks in farm-raised salmon.
- Children's Health Environmental Coaltion factsheet on PCBs
- EPA chemical- specific fact sheets

Norwegian Government Scientist Points Out Problems with Salmon Feed at Costco Annual Meeting

At Costco's annual general meeting, Pure Salmon and a Norwegian government scientist discuss their concerns about one of the local retail giant's most popular products — farmed salmon.

Costco is one of the largest purveyors of farmed salmon in the United States. Most of the farmed salmon Costco sells comes from Norwegian-based companies, which dominate the industry.

Cadmium was found in Norwegian farmed salmon feed as far back as April 2005, according to the World Trade Organization. This discovery prompted the Canadian government to destroy the contaminated feed shipments. Furthermore, late last year, Russian authorities placed a temporary ban on the import of Norwegian farmed salmon, citing high levels of cadmium and lead.

Separately, Norwegian authorities disclosed they had found nitrites in smoked salmon. Nitrites are banned for use in food products as it reacts with amines in foodstuffs and transforms into carcinogenic nitrosamines. Nitrites stabilize food color and influence taste.

- Read the Press Release

More than 30 Scientists from Around the World Express Concern About Current Farming Methods

At the same time, the Pure Salmon Campaign will release a statement signed by more than thirty U.S., European, Canadian, and other international scientists communicating their concerns about the salmon aquaculture industry.

- Read the Scientists' Letter

Pew Charitable Trusts (who took over the co-ordination of the Pure Salmon Campaign in 2006 following their takeover of National Environmental Trust) also obtained damning

information on illegal chemical use in Chile. You wrote about this alarming issue in 2009 – following revelations in The New York Times. Please note that Chile is not the only country using SLICE (Emamectin benzoate) and there are other toxic chemicals used.

Norway, for example, is still using significant quantities of antibiotics and toxic chemicals including Teflubenzuron. The Norwegian Seafood Association (FHL) published the latest chemical use data earlier this year (online here). Even though the following tables are in Norwegian you can guess the names and get the picture (Table 1 is antibiotics and Table 2 is sea lice chemicals). The use of Emamectin benzoate (SLICE) is increasing and the use of the organophosphate Azamethiphos is coming back with a vengeance due to sea lice resistance:

Tabell 1. Antibakterielle midler (kg aktiv substans)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
florfenikol	205	154	111	202	302	139	166	303	275	336
flumekin	5	60	4	28	7	18	1	1	0	0
lincomycin/ spectinomycin (1:2)					50	66	70	43	57	0
oksolinsyre	998	546	1035	977	1119	406	681	926	308	212
oksytetracyklin	11	45	5	8	0	19	23	40	10	1
Totalt	**1219**	**805**	**1159**	**1215**	**1478**	**648**	**941**	**1313**	**649**	**549**

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)]

[1)]Tallet er korrigert i forhold til fjorårets rapportering av "Forbruk av legemidler i norsk fiskeoppdrett" p.g.a. manglende rapportering fra en grossist i 2009.

[2)] Endret 15.3.12, pga korreksjon av innrapporterte tall.

A review of sea lice chemicals (and Canthaxanthin) is available in my chapter 'Silent Spring of the Sea' – online here. In addition, there are other chemicals used in Norwegian salmon farming – with many increasing in use over the last decade:

Tabell 3. Midler mot innvollsorm (kg aktiv substans)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
fenbendazol	8	2	23	78	27	1	0	0	0	0
praziquantel	152	232	412	122	145	94	91	29	11	137
Totalt	**160**	**234**	**435**	**200**	**172**	**95**	**91**	**29**	**11**	137

Tabell 4. Midler mot sopp (kg aktiv substans)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
bronopol	396	422	314	377	492	493	751	508	1020	1003
malakittgrønt	8	4,5[3)]	0,7[3)]	0,9[3]	0,9[3)]	0,8[3)]	0,6[3)]	0	0	0
Totalt	**404**	**427**	**315**	**378**	**493**	**494**	**752**	**508**	**1020**	**1003**

[3)] Har ikke gått til produksjon av matfisk

Tabell 5. Bedøvelsesmidler (kg aktiv substans)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
benzokain[4)]	ca 500	ca 500	ca 500	ca 400	ca 400	ca 700	ca 800	ca 800	ca 800	ca 1000
isoeugenol[5)]	1	1,5	2,5	-	6,5	5	25	33	65	92[6)]
trikainmesilat (metakain)	827	699	737	960	1248	1269	2164	2379	2815	3449

[4)] Beregnet salg til fiskeoppdrett. Noe av solgt mengde benzokain kan ha blitt benyttet i humanmedisin.

[5)]Isoeugenol er bare brukt i forskning eller til stamfisk t.o.m. 2010. I 2011 har en mindre mengde gått til matfisk

[6)] Endret 15.3.12, pga korreksjon av innrapporterte tall

Kildeangivelse: Grossistbasert legemiddelstatistikk, Nasjonalt folkehelseinstitutt, 2011. Data fra dette oppslaget kan fritt lagres elektronisk, skrives ut, mangfoldiggjøres og videreformidles forutsatt at det henvises til kilden på hver rapport, tabell eller figur.

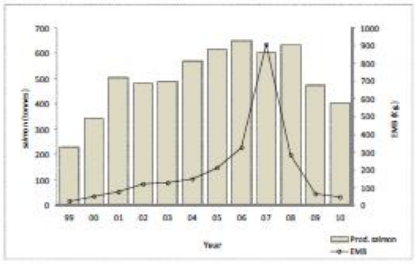
Informasjonen er utarbeidet i samarbeid med:
Professor Kari Grave, , (kari.grave@nvh.no) og Professor Tor Einar Horsberg (tor.e.horsberg@nvh.no), Inst. for mattrygghet og infeksjonsbiologi, Norges veterinærhøgskole.

If you would like more information on the use of chemicals the two professors listed above can provide details (read also "Sea lice: a never-ending battle"). Professor Tor Einar Horsberg in particular is an expert on chemical resistance and can provide more background

– he is based in Oslo and you could meet him during your visit (his contact details are online here).

In Chile, Norwegian-owned companies are using MORE not less chemicals (read the latest data – in Spanish only I am afraid – online here). The research of Dr. Sandra Bravo is the best resource if you are interested in following this up – read a presentation she gave last month online here. Here's a table (p20) from that presentation – again it is not in English but you get the picture and can work out the names of the chemicals (antiparasitarios = anti-parasitic chemicals; Caligus = sea lice):

Antiparasitarios Control Caligus (2000-2011)



I.A. (kg)	2000	2001	2002	2003	2004*	2005*	2006*	2007*	2008	2009	2010	2011
EMB	52	77	121	127	149	212	326	906	285	65	47	49
Ivermectina	20	10	3	3	0	0	0	0	0	0	0	0
Diflubenzuron	0	0	0	0	0	0	0	0	162	3.878	3.639	2.815
Cipermetrina	0	0	0	6	0	0	0	0	0	0	29,7	341,6
Deltametrina	0	0	0	0	0	0	0	5.2	105,2	31,7	34,3	39,9
Nuvan	1.6	3.4	0	0	0	0	0	0	0	0	0	0
Producción salmon (ton)	342.407	504.422	482.392	488.256	569.146	614.139	647.263	600.835	630.647	473.579	404.633	450.422

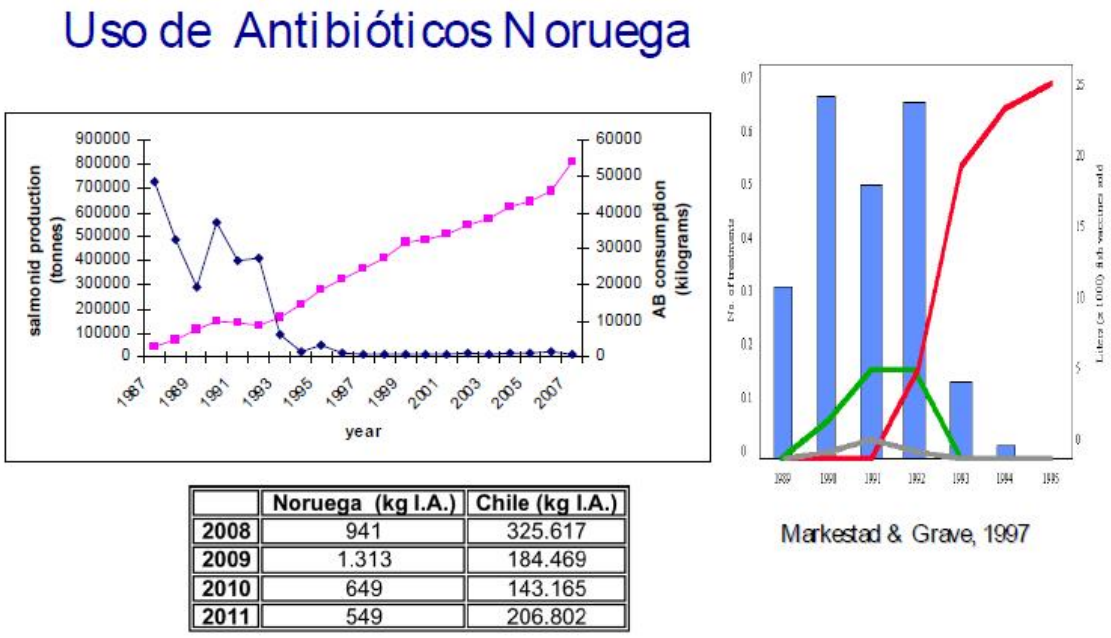
2007: 1.5 gr IA EMB/ ton salmón

When you look at antibiotic use (p15) the latest figures also reveal an increase:

Uso Antibacterianos Chile 2000-2011

I.A. (kg)	2000	2001	2002	2003	2004*	2005*	2006*	2007	2008	2009	2010	2011
Ac. oxolínico	19.180	25.168	39 .29	37.940	–	–	–	78.582	25.325	2.900	1.192	680
Amoxicilina	0	0	0	0	–	–	–	1.732	349	473	863	1.118
Enrofloxacina	228	76	114	51	–	–	–	0	0	0	0	0
Eritromicina	1.950	1.464	1.720	937	–	–	–	2.139	7.981	1.542	2.586	2.410
Florfenicol	396	597	299	5.484	–	–	–	143.009	184.715	113.137	74.431	103.165
Flumequina	30.046	61.364	51.738	70.005	–	–	–	74.773	32.293	3.233	1.588	1.669
Oxitetraciclina	18 251	44 962	26 100	19 644	–	–	–	89.309	74.931	63.172	62.506	97.760
Sulfa+trimetoprin	198	185	118	103	–	–	–	91	22	11	0	0
Total (kg)	**70.249**	**133.815**	**119.917**	**134.163**	–	–	–	**385.635**	**325.617**	**184.469**	**143.165**	**206.802**
Producción Salmón (ton)	342.406	504.422	482.392	486.837	569.146	614.139	647.311	600.880	630.653	473.579	404.633	450,422
Kg I.A./ton	**0,21**	**0,27**	**0,25**	**0,28**	–	–	–	**0,64**	**0,52**	**0,39**	**0,35**	**0,46**

When you visit Norway, your hosts will proudly display graphs showing the decline in the use of antibiotics (they will be much more coy on data on sea lice chemical use). What they will fail to mention, however, is the fact that Norwegian companies are using vast quantities of antibiotics in Chile – p16 of Dr. Sandra Bravo's recent [presentation]:



	Noruega (kg I.A.)	Chile (kg I.A.)
2008	941	325.617
2009	1.313	184.469
2010	649	143.165
2011	549	206.802

Fuente: FHI (www.fhi.no); sernapesca

Another issue which is causing increasing concern in Norway as well as Canada, Scotland and Chile is the spread of infectious diseases. In Norway, Pancreas Disease (PD) is spreading like wildfire and has now broken through a natural barrier into Northern Norway. Just last week Norway's state broadcaster reported that PD was spreading towards the far North of Norway – perhaps threatening the region you are visiting a salmon farm? You may wish to question your hosts on PD and other infectious diseases. Watch a news report by NRK on PD found in Norwegian farmed salmon on sale in supermarkets online here (you don't need to understand Norwegian to see the concern in the eyes of the shoppers).

Røverkjøpet i fiskedisken kan være virusinfisert, uten at du får vite det.
Forbrukerrådet reagerer sterkt og mener kundene blir ført bak lyset.

Some information is available in English via the Norwegian School of Veterinary Sciences – read their latest annual report on farmed fish health online here. For example, the incidence of PD as well as HSMI (Heart & Skeletal Muscle Inflammation) and IPN (Infectious Pancreatic Necrosis) has increased during the last decade:

Table 1. Total number of sites 1998-2010 diagnosed with infectious salmon anaemia (ISA), pancreas disease (PD), heart and skeletal muscle inflammation (HSMI) and infectious pancreatic necrosis (IPN). For those diseases for which it is relevant, both "suspected" and confirmed diagnoses are included.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ISA	13	14	23	21	12	8	16	11	4	7	17	10	7
PD	7	10	11	15	14	22	43	45	58	98	108	75	88
HSMI							54	83	94	162	144	139	131
IPN					174	178	172	208	207	165	158	223	198

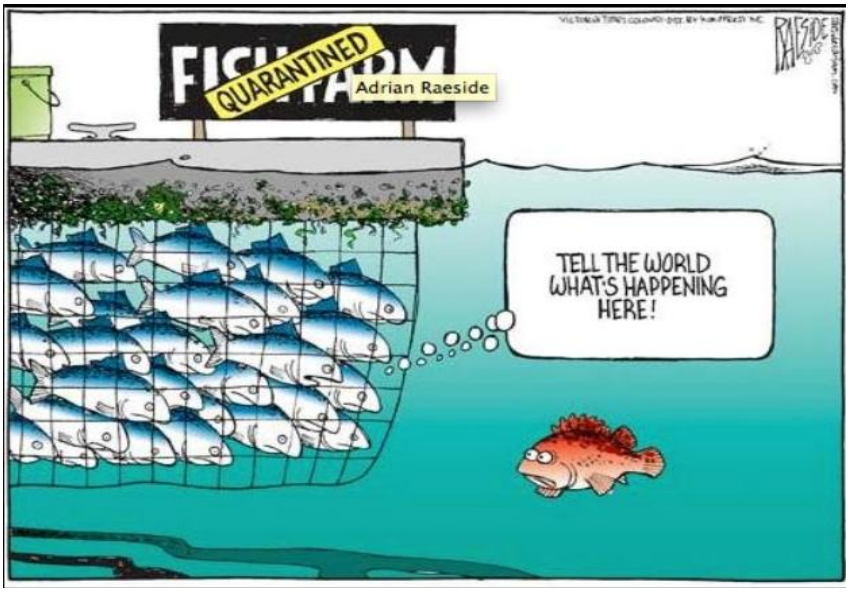
In British Columbia too, Norwegian companies (which control over 90% of production) are experiencing disease problems with the flesh-eating parasite Kudoa found in farmed salmon on sale in supermarkets along with HSMI, Salmon Alphavirus (linked to PD) and ISA. For recent CTV News reports please watch:

"Deadly Fish Virus Detected" (CTV News, 19 July)

"Salmon test results demand follow-up: former minister" (CTV News, 18 July)

"Parasite-ridden salmon sold in BC stores" (CTV News, 3 July)

Last year, The New York Times published an article detailing how the deadly virus Infectious Salmon Anaemia (ISA) had been spread from Norway to Chile via infected eggs (read more via 'Norwegians Concede a Role in Chilean Salmon Virus'). A follow-up Editorial stated that: "Salmon farming is a problem everywhere". Information on the global diseases affecting salmon farms is available the 2011 report "Fish Farmageddon: The Infectious Salmon Aquacalypse" – online here. During the course of your visit hopefully you can tell the world what is happening inside Norway's disease-ridden feedlots.



As you can imagine, the language barrier in Norway can present some problems translating what is going on inside the Norwegian salmon farming industry. Your hosts will no doubt exploit this by claiming that Norwegian salmon farming is the best in the world and that environmental groups support the industry (it's strange how every country claims to have the best industry in the world!). The report from the Office of the Auditor General of Norway (enclosed here and available online here) clearly debunks that myth along with the report from the Green Warriors of Norway (online here).

Please also note that the support of 'environmental' groups WWF and Bellona is bought and paid for. WWF Norway, for example, receives funding of $140,000 per year from Norway's largest salmon farming company Marine Harvest. Bellona received money from salmon feed giant Skretting (a subsidiary of Nutreco – and former owner of Marine Harvest) prompting Friends of the Earth Norway to call Bellona a 'call-girl' for prostituting themselves to the salmon farming industry. Bellona's report on salmon farming is available in English (online here) but must be read in that context (despite the blood money it is surprisingly critical).

Far from supporting Norwegian salmon farming, environment groups and wild salmon organizations are opposed to the industry. The Norwegian Salmon Association, for example, has called for a boycott of Norwegian farmed salmon.

"It's important to realise that the farming industry represent a big economy in Norway and that they use every means to obtain their goals and that many politicians are in their hands!" wrote Geir Kjensmo of the Norwegian Salmon Association in 2005. "The threats from salmon farming in Norway are many. In the area near the farms, sea-lice thrive and the density of lice can be lethal to smolt migrating to their feeding areas in the ocean. The farms are often established on both sides of the fiords where the migrating smolts swim from their home river to the sea. They have to swim through the lice belt of the farms and are attacked by a great number of lice. They soon die impoverished on their way to sea."

Seven years later the situation is getting even worse. Earlier this month even the normally pro-industry WWF Norway called on the industry to reduce production due to sea lice infestation. The Norwegian Salmon River Owners Association (Norsk Lakseelver) called on the Norwegian Government to introduce "emergency procedures to finally end the sea-lice curse". According to Norsk Lakseelver: "The salmon farming industry, as organised and run today, is not sustainable."

The Norwegian Hunters and Fishers Organization (NJFF) are also opposed to salmon farming expansion. Speaking on TV2 News in March, NJFF's Alv Lyse said: "There are significant environmental challenges of today's salmon farming industry. This report from the Office of the Auditor General of Norway should be given great weight."

"The Auditor General's report echoes what the Green Warriors have been arguing for decades – that Norwegian salmon farming is unsustainable and a pollution hazard," said Kurt Oddekalv, leader of the Green Warriors of Norway in March. "Consumers around the world should rise up in protest against this filthy industry and boycott Norwegian farmed salmon. This report is one more nail in the coffin of the disease-ridden Norwegian salmon farming industry."

The Norwegian Government's own conservation adviser, the Directorate of Nature Conservation, has urged Norway to reduce salmon farming production due to sea lice

infestation. In 2009, the Norwegian Salmon Association reported under the headline 'Norway is managing the extinction of wild salmon!': "The Director of The Directorate for Nature Management, Janne Sollie, says today that Norway is not managing the farmed salmon business, but the extinction of wild salmon! She says this due to the fact of record high and disastrous levels of sea-lice in the farmed salmon farms. If this is allowed to keep on, all wild salmon will be history!" For more details in English read 'Sea Lice Are Out of Control in Norway'.

In 2010, Norway's former Attorney General (Georg Rieber-Mohn) sounded the alarm on Norwegian salmon farming. "Our error is to give the … salmon farming industry too much freedom in developing," he told CBC News. "We have a remarkable, huge decline [in wild salmon stocks]. You can diminish the lice problems for a while. You can prevent some escapes, but then they come back … again and again."

"Scientists in Norway detail growing sea lice resistance to the chemicals designed to kill them," he wrote in a letter to the Canadian Government. "The Norwegian Food and Safety Authority recently reported nearly 100 cases of chemical treatment failures as sea lice are now immune. So serious is the situation that the Directorate of Nature Management – the Norwegian Government's conservation adviser – has called for drastic reductions in farmed salmon production and slaughter of farm stock to reduce the sea lice burden..... Atlantic salmon in the wild in Norway are now threatened with extinction in many rivers in Norway. There are many causes to this decline, but in vast areas the farming of salmon is the main factor. Escaped farmed salmon is a huge problem added to the problem of uncontrolled growth of sea lice. Scientists foresee remarkable damaging effects in new areas in the future" (read his letter in full via 'Save Wild Salmon, Move the Farms').

The worldwide reputation of Norwegian farmed salmon is at an all time low with both Russia and China blocking imports. In 2011, the French media published a report headlined: "Salmon – The Ecological Ruin of Norway" (watch a French TV report online here). Norwegian Members of Parliament saw for themselves in March this year the hostile reception afforded to the Norwegian salmon farming industry in British Columbia, Canada (watch the protests online here).

In May, Russian health authorities classified Norwegian farmed salmon as "dangerous produce" and a "health risk". Norway's #1 customer banned imports of fresh Norwegian farmed salmon from 13 processing plants after "laboratory tests found salmonella and other coliform bacteria", "poor safety controls" and "repeated instances of microbe pollution."

This is Russia's third ban on Norwegian farmed salmon since 2005. In 2011, Russia banned Norwegian farmed salmon due to listeria contamination following an earlier ban in 2005/6 due to "dangerously high levels of cadmium and lead."

The Norwegian newspaper Dagbladet hit the nail on the head in 2006 when it published an article headlined 'Norwegian Farmed Salmon is a Health Hazard.' This article focused on Dr. Claudette Bethune who blew the whistle on lead and cadmium contamination of Norwegian farmed salmon in 2006 whilst working in Norway at the National Institute for Nutrition and Seafood Research (NIFES).

"Norway took meat off the market because it was fed the contaminated feed, yet no precautionary or preventive measures were taken with regards to the salmon," said Dr. Claudette Bethune speaking at Costco's Annual General Meeting in January 2006. "Norway has yet to acknowledge the significant feed incident early last year as a possible explanation for the high levels of cadmium found by the Russians."

A 'sensitive' cable (dated May 2006) published by WikiLeaks stated that: "the Russian Agriculture Ministry placed a ban on all fresh Norwegian salmon imports after allegedly finding abnormally large amounts of lead and cadmium."

In 2008, scientific research also found the toxic chemical Ethoxyquin in Norwegian farmed salmon (more information is available online here). Another scientific paper published in 2007 concluded that: "These EQ residues may have higher toxicological effects for human consumers than the parent compound and therefore need to be studied in more detail." According to a report published by the Green Warriors in 2010, the use of Ethoxyquin (EQ) raises serious health issues:

> Feeding salmon with feeds containing 107 ppm of EQ resulted in enlarged hearts. Feeding salmon with higher doses, up to 1800 ppm, led to enlargement of both heart and liver. Hearts were significantly larger in fish fed with 107 and 1800 mg per kilo feed than they were in fish fed diets not containing EQ. Salmon is starved before slaugthtering. During the feeding period the levels of EQ and EQDM in fish rose gradually and were peaking when feeding stopped. Levels of EQ were higher than levels of EQDM when feeding was terminated. After two weeks of starvation only traces of EQ was found in fish muscle, while levels of EQDM were peaking. After starving of fish ended, there was 100 times more EQDM than EQ in the fillets. Berdikova (2007) also found 10 other metabolic by-products with unknown toxicology, most probably derived from EQ, of which 3 of these were shown to originate from EQ. Since EQ mainly is transformed into EQDM, it would be the most likely candidate compound for food safety tests and evaluation of possible health risks. In some cases metabolized by-products are less toxic, but in other cases far more toxic, than the compounds they were derived from.
>
> Berdikovas (2007) research showed that EQ could be harmful even when small concentrations of EQ were added to feed, as a concentration of just 107 ppm led to enlarged hearts. Use of EQ as feed additives in fish for human consumption thus represents an unacceptable health risk until it is firmly proven that fish flesh contaminated by EQ, EQDM and other metabolites deriving from EQ does not represent a health risk. Such research must also seek to establish baselines for which concentrations of EQ and it's family of derivatives that can be allowed in fish presented for the consumers. Since the toxicity of EQ and it's metabolic by-products is not established scientifically, neither in humans nor in any animal group, NMF demands that the use of EQ as a feed additive for fish and other animals is banned immediately in order to ensure food safety and animal welfare.
>
> EQ and EQDM were shown to pass the blood-brain barrier in salmon. This barrier prevents uncontrolled inflow of substances like hormones, glucose, foreign molecules and disease propagules. The blood-brain barrier thus acts as a shield to keep the brain safe, e.g. from substances that have potential neurotoxicological effects. This barrier consists of 4 physiological thresholds. Given that these substances manages to pass all thresholds in the blood-brain barrier of salmon, there is reason to believe, and fear, that the same could happen in humans.

More recently, a scientific paper published in 2011 examined the "potentially adverse effects of ethoxyquin dimer, a major metabolite of the synthetic antioxidant ethoxyquin in salmon muscle." Ethoxyquin expert, Dr. Victoria Berdikova Bohne, was also featured in the Norwegian newspaper Bergens Tidende in March 2011 expressing safety concerns.

16

økonomi

Nyhetsleder
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BERGENS TIDENDE LØRDAG 26. MARS 2011

Laks fôres med sprøyt

Kurt Oddekalv og Miljøvernforbundet krever totalforbud mot det syntetiske stoffet ethoxyquin. Ingen vet i dag om stoffet laksen fôres med, er farlig for mennesker.

OLE ERIK KLOKKEIDE
CHRISTIAN LUBA
ØKJAN DEISZ (foto)

Ethoxyquin (EQ) ble opprinnelig laget som sprøytemiddel for å unngå brune flekker på epler

fakta
Ethoxyquin (C14H19NO)

- En kunstig antioksidant som brukes blant annet i fiskemel.
- EQ forhindrer fett fra å harskne, og det forhindrer melet fra å utvikle varme og eksplodere under frakt.
- Det er tillatt med 150 mg/kilo kunstige antioksidanter i fiskefôret. Norge har ikke bestemt en øvre grense for restmengder av kunstige antioksidanter i selve fiskekjøttet. Flere land, blant annet Tyskland og Japan, har innført en slik grense.
- Det meste av ethoxyquinen omdannes til ethoxyquin-dimer (EQDM) i fisken.

ADVARER: *Flere miljøvernorganisasjoner over hele verden advarer mot ethoxyquin og vil ha stoffet forbudt i blant annet fiskefôr.*

– Vi vet ikke i dag om EQDM er farlig på noen måte. Ingen har forsket på problemstillingen, sier Bohne. Hun jobber i dag i Nofima, et privat forskningskonsern rettet mot akvakultur.

Nå jobber Bohne med å finne metoder som kan få industrien til å velge alternativer til ethoxyquin.

– Men det går tregt med kundene, sier hun.

Forsvinner ikke

Forskning på EQDM har så langt bestått i å undersøke fisken etter 14 dagers sulteføring. Der-

More details are available via 'Massiv bruk av pesticidet ethoxyquin i for til oppdrettsfisk'

After blowing the whistle on the dangers of Norwegian farmed salmon, Dr. Bohne lost her job – in a very similar circumstances to Dr. Claudete Bethune who was sacked by NIFES in 2006 following her revelation of toxic Norwegian farmed salmon. Dr. Bohne still works here in Bergen at Nofima – you may wish to contact her (details online here). Another researcher worth reaching out to here in Bergen is Dr. Jerome Ruzzin – an expert on POPs and diabetes.

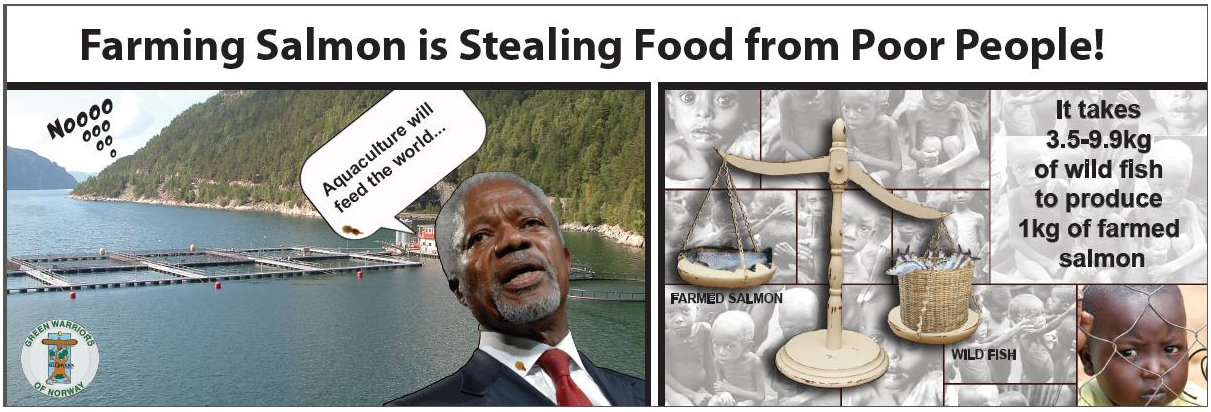
In 2010, China imposed restrictions on Norwegian farmed salmon which was "left to rot in Chinese warehouses." Faced with the chop from the Chinese market, the Norwegian Seafood Council wheeled out karate legend Jackie Chan in a desperate (and failed) attempt to lift the restrictions on Norwegian farmed salmon.

Jackie Chan embracing Norwegian salmon. Photo: Norwegian Seafood Export Council

Chinese martial arts legend praises Norwegian Salmon at NOBU opening in Beijing

Read more via 'Russia says 'Nyet' to Norwegian farmed salmon'

Together with Jackie Chan you are in good company being schmoozed by the Norwegian salmon farming industry – the former United Nations general secretary Kofi Annan also visited Norway last month picking up a huge fee speaking in support of aquaculture. The Green Warriors of Norway sent a letter to Kofi Annan pointing out that salmon farming was stealing precious food from poor people and our oceans and protested outside the conference in Stavanger.



"Put simply, we should be eating forage fish directly to feed the malnourished around the world rather than feeding forage fish to salmon farms to produce a 'luxury' product to feed the engorged in Europe, the United States and Japan," stated the letter. "If you are serious about sustainability then you should cut out the middle-man and stop the flow of forage fish to the salmon farming industry" (read letter in full online here).

Please note that the Norwegian Government has a vested business interest in salmon farming – the Minister of Fisheries (Lisbeth Berg-Hansen) is herself a salmon farm owner; the Minister of Agriculture & Food also has interests in a salmon farming company and the Minister of Finance is a former chairman in the state-owned salmon company Cermaq. In modern day Norway, the political hierarchy is controlled by the so-called "Oppdretternes Maktgarn" ("Salmon Farmers' Mafia).

According to the Norwegian newspaper Dagbladet (who published the graphic above in 2010), the "Salmon Farmers' Mafia" is headed by the Minister of Fisheries Lisbeth Berg-

Hansen – former head of the Norwegian salmon farmers' trade association (FHL). You may well meet the Minister during your visit to Oslo since your hosts – the Norwegian Seafood Council – are "a public company owned by the Ministry of Fisheries and Coastal Affairs" (details online here).

Norway's support for salmon farming goes right up to the top. The Prime Minister of Norway, Jens Stoltenberg, travels around the world never missing a photo opportunity to promote Norwegian farmed salmon.

When Norwegian Prime minister Jens Stoltenberg visited China in 2007 he took the opportunity to kick off a new supermarket campaign, marketing Norwegian salmon. www.seafoodfromnorway.com

Prince Haakon of Norway gets in on the act too as a global ambassador promoting Norwegian farmed salmon – photographed here in South Korea in 2010.

Read more via 'Something Is Rotten in The State of Norway'.

Your hosts clearly want to capture a similar photo of you eating Norwegian farmed salmon and endorsing the hazardous product as nutritious and delicious!

Shamefully, Norwegian salmon farming is spreading pollution and infectious diseases all around the world. Norwegian-salmon farming companies are also killing wild salmon and spreading Norwegian diseases and viruses in British Columbia (read a letter to the King of Norway in 2010 outlining these concerns online here). Environmental groups also raised the issue of Norwegian-owned salmon farms in a 2007 letter to Norway's richest man John Fredriksen as owner of Marine Harvest (the world's largest salmon farming company). I also wrote to the CEO of Marine Harvest last month on the issue of infectious diseases.

Global information – including video testimonies and statistics – is readily available via 'Farmed Salmon Exposed'. A 'Global Month of Action' will take place later this year – including protests in Norway against Norwegian farmed salmon. More details will be posted online via 'Global Boycott'.

In summary, I hope you have time to read up on the environmental and public health hazards of Norwegian farmed salmon in advance of your trip to Norway in September. I am only too happy to speak to you on the phone if you want to grill me like a wild salmon!

Finally, I hope you have a good trip and bring warm clothes. We are at the height of summer here and it has been raining non-stop here in Bergen for two weeks. Tromso is much further North and even colder.

Yours sincerely and best fishes,

Don Staniford

Global Alliance Against Industrial Aquaculture

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