

Global Alliance Against Industrial Aquaculture, 8 March 2014

**Farmed & Dangerous Salmon
- the Most Contaminated Food on the Supermarket Shelf**

Ullapool, Scotland - Data released via Freedom of Information (FOI) by the Pesticide Residues Monitoring Programme of the Chemicals Regulation Directorate (an agency Health and Safety Executive) reveals that pesticide residues of DDT, Dieldrin, Cypermethrin and Deltamethrin [1] have been detected in Scottish & Norwegian farmed salmon on sale in supermarkets across the UK - from Port Talbot to East Sussex to Harrogate to Newcastle to Southampton - including Marks & Spencers, Asda, Iceland, Tesco and Waitrose during 2013 (January to September).

Read in full via [Supermarket Scamon: Pesticide Contamination of Farmed Salmon - HSE FOI Dossier \(March 2014\)](#)

Read exclusively in The Daily Mail (8 March): "[DDT found in salmon: Pesticide discovered in farmed fish on sale in five major British supermarkets](#)"

MailOnline Saturday, Mar 08 2014

DDT found in salmon: Pesticide discovered in farmed fish on sale in five major British supermarkets

- Trace levels found in Waitrose, Tesco, Asda, Morrisons and Iceland salmon
- Salmon production process involves dousing fish in chemicals to kill lice
- Fish also given protein feed which can contain DDT and other by-products
- Pesticide DDT banned for use 30 years ago because of risk to human health
- Some studies suggest link between DDT and Alzheimer's disease in elderly

By SEAN POULTER

"It's official - farmed salmon is now the most contaminated foodstuff on the supermarket shelf," said Don Staniford, Director of the [Global Alliance Against Industrial Aquaculture](#) (GAAIA). "Farmed salmon should carry a Government health warning. Consumers tempted by special offers on 'fresh' farmed salmon may be getting more than they bargained for - an added cocktail of cancer-causing chemicals including DDT, dioxins, PCBs and dieldrin. Cheap and nasty farmed salmon leaves a bad taste in the mouth."

"Salmon is farmed and dangerous," continued Staniford. "[Peer-reviewed science](#) has shown that the consumption of farmed salmon more once every five months carries an elevated cancer risk. These latest results represent yet another nail in the coffin of farmed salmon. Salmon farming is highly efficient way of bio-accumulating cancer-causing contaminants up

the food chain. Rather than being marketed as a 'healthy & nutritious' food, farmed salmon should be labelled as hazardous waste."

According to the [FOI data released by the Chemicals Regulation Directorate](#), DDT was detected in 17% of UK salmon (i.e. Scottish farmed salmon) sampled between April and September 2013. In Q1 2013 (January to March), Cypermethrin, Deltamethrin and DDE were detected in farmed salmon from Norway and Scotland sold by Asda, Tesco and the Edinburgh Salmon Company. In Q2 2013 (April to June), Dieldrin and DDT were detected in farmed Scottish salmon fillets sold by Waitrose.

A [letter](#) from the Health & Safety Executive dated 10 February 2014 states that the information will be published in "early March". A further FOI request was filed (3 March) for data for Q4 2013 (October to December). "The quarter 4 2013 data is not yet available," replied the HSE (6 March). "The quarter 4 report is not due to be published until June 2014".

Previous surveys of salmon were conducted by the Pesticide Residues Committee (PRC) and The Expert Committee on Pesticide Residues in Food (PRiF) in 2010, 2007, 2004 and 2001 (access [online here](#)). The [2010 Pesticide Residues Committee annual report](#) detailed how 58% of fresh salmon (assumed to all be farmed) contained pesticide residues - and salmon represented the most contaminated food group with 42 out of the 85 positive samples (i.e. 49.4%) [2].

Results by Food Type

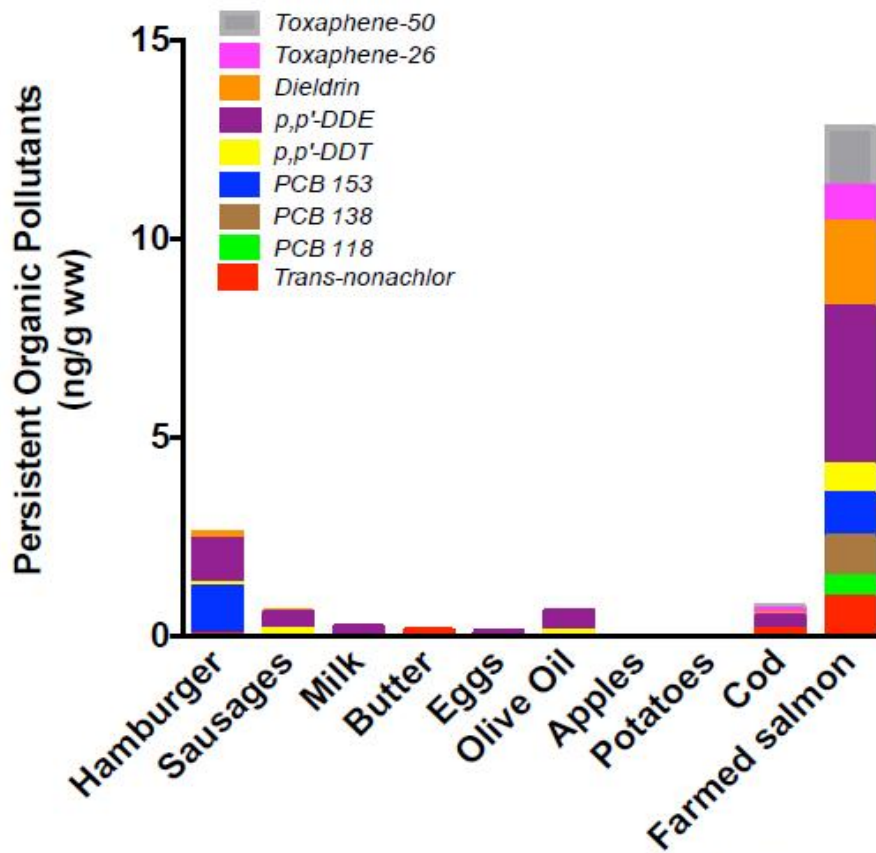
Food	Number of samples tested	Number of samples containing residues	Number of samples containing residues above the MRL	Number of samples containing more than one residue
Beef	120	1	0	0
Cheese	107	3	0	0
Milk	300	0	0	0
Pork	108	0	0	0
Salmon	72	42	No MRLs	5
Trout	96	36	No MRLs	4
Venison	48	3	0	0

Results of previous surveys were reported in 2002 by the Sunday Herald via "[Farm salmon is now most contaminated food on shelf](#)" and The Salmon Farm Monitor via "[Sunday Herald labels farmed salmon from Tesco's, Safeway, Asda, M&S and Sainsbury's as the 'most contaminated food on the shelf'](#)"

Earlier this week, GAAIA called for a ban on Scottish farmed exports to China - read via "[Curb China's Insatiable Appetite for 'Scottish' Farmed Salmon!](#)"

In a documentary - "[Filet - Oh Fish!](#)" - to be broadcast later this month, [Dr. Jerome Ruzzin from the University of Bergen](#) warns that farmed salmon is by far the most contaminated various foods tested. "Never eat farmed salmon!" [warned Dr. Ruzzin](#) in the Norwegian newspaper Bergens Tidende in February 2014.

Environmental pollutants in food



Sources:
 Schechter et al, EHP 118:796-802, 2010
 NIFES "Monitoring program for pharmaceuticals, illegal substances, and contaminants in farmed fish", Report 2013.

In March 2014, Norway's state broadcaster NRK [reported](#): "Obese may be hurt by contaminants in farmed salmon". Dr. Ruzzin "believes that it is farmed salmon that is the worst," reported NRK (5 March).

In January 2014, [The Guardian](#) reported: "A report on farmed salmon by Green Warriors of Norway, stated that 'farmed fish is Norway's most toxic product'". In November 2013, French TV [broadcast a damning documentary](#) on the safety of farmed salmon. In July 2013, [Norwegian scientists warned](#) against the consumption of farmed salmon due to hazardous levels of chemicals and contaminants (read more via ['Food Safety'](#)).

A [scientific study](#) published in 2005 warned that: "Consumption of farmed salmon at relatively low frequencies results in elevated exposure to dioxins and dioxin-like compounds with commensurate elevation in estimates of health risk". Another study [published in the prestigious journal Science in 2004](#) "concluded that concentrations of several cancer-causing substances in particular are high enough to suggest that consumers should consider severely restricting their consumption of farmed salmon" [3].

Read more via "[Farmed salmon: one of the most toxic proteins sold?](#)" and "[A threat to your child's health](#)"

Notes to Editors:

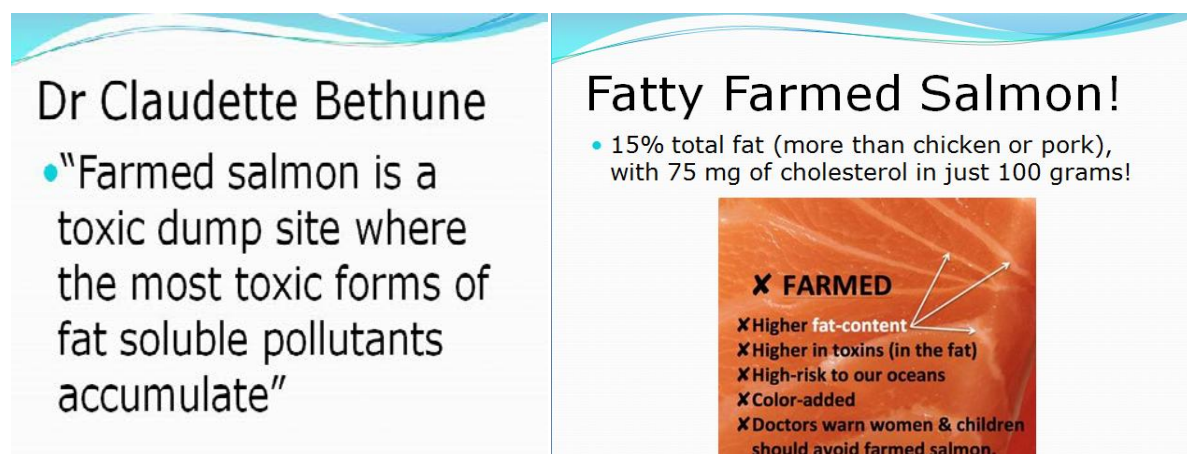
[1] The chemical cocktail in farmed salmon includes the following pesticides:

- [DDT](#) has been classified by the International Agency for Research on Cancer classified as a possible human carcinogen and has been [linked to breast cancer](#). DDT has [contaminated farmed salmon for decades](#) despite being [banned for use 30 years ago because of the risk to human health](#).
- [Dieldrin](#) is a banned pesticide that is highly persistent in the environment and classified as a probable human carcinogen. Scientific studies have [shown dieldrin contamination of farmed salmon](#).
- [Cypermethrin](#), a neurotoxin used as a pesticide on salmon farms [since the 1990s](#), is classified as a possible human carcinogen and has [increased significantly](#) in use on Scottish salmon farms. Cypermethrin has been [shown by scientific research](#) to impact on the reproductive functions of wild salmon and [kills lobsters](#).
- Deltamethrin [considered the most powerful and most toxic of the pyrethroids](#), is used as a chemical treatment for sea lice parasites on salmon farms. The use of Deltamethrin has [increased significantly in Scottish](#) as well as in [Norwegian salmon farming](#).

[2] A [letter](#) from the Health & Safety Executive dated 10 February 2014 states that the information will be published in "early March". A further FOI request was filed (3 March) for data for Q4 2013 (October to December). Read the FOI reply and key documents supplied by the Health & Safety Executive [online here](#)

[3] Further information is available in a report - "[Five Fundamental Flaws of Sea Cage Fish Farming](#)" - presented by Don Staniford in February 2014 to the European Economic & Social Committee in Brussels.

The presentation included the following slides:



Dr Claudette Bethune

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

Fatty Farmed Salmon!

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

X FARMED

- X Higher fat-content
- X Higher in toxins (in the fat)
- X High-risk to our oceans
- X Color-added
- X Doctors warn women & children should avoid farmed salmon.

Salmon health risks debated in Norway

Friday, 21 June 2013 | Written by Pete Bevington

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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.

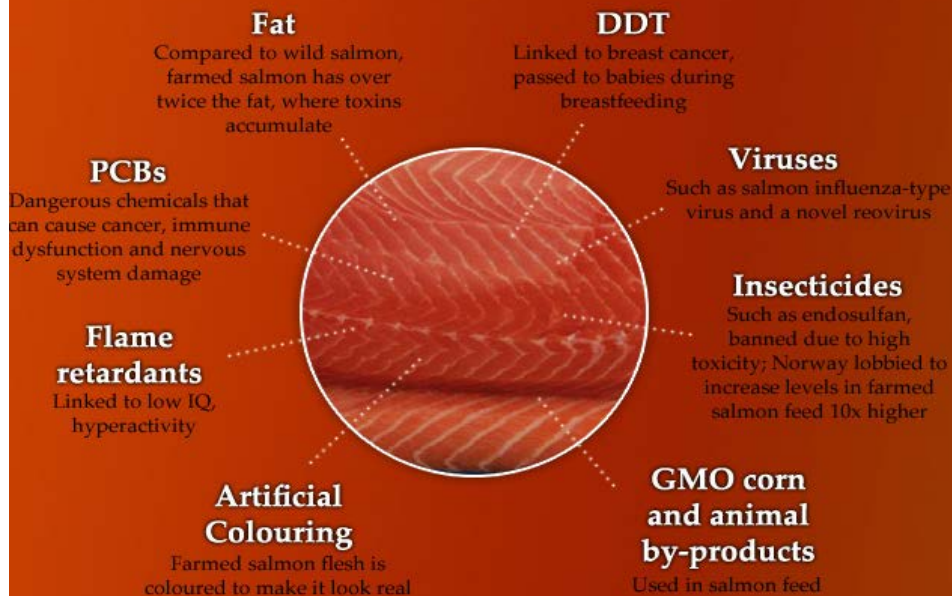
Senior consultant Anne-Lise Birch Monsen and professor of medicine Bjorn Bolann of Haukeland University Hospital, Bergen, raised concerns about harmful chemicals that find their way into fish feed.

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).

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

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.

9 JANUARY 2004 VOL 303 SCIENCE

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.



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

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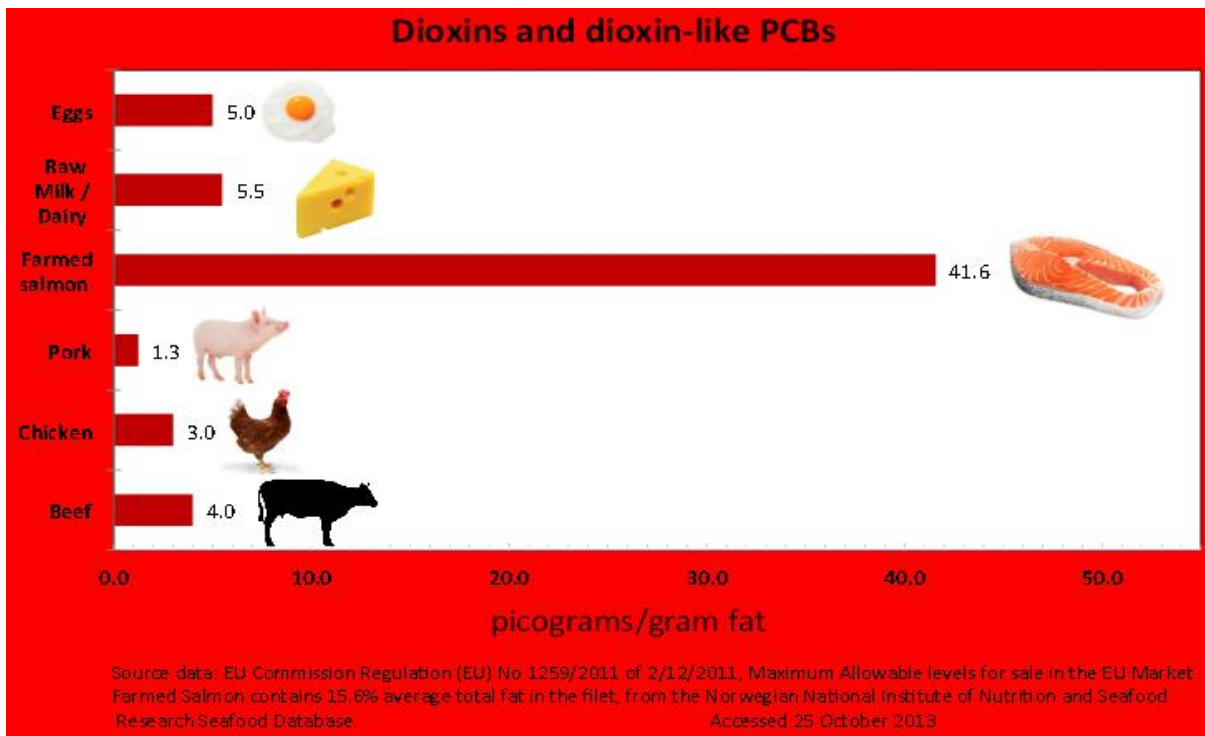
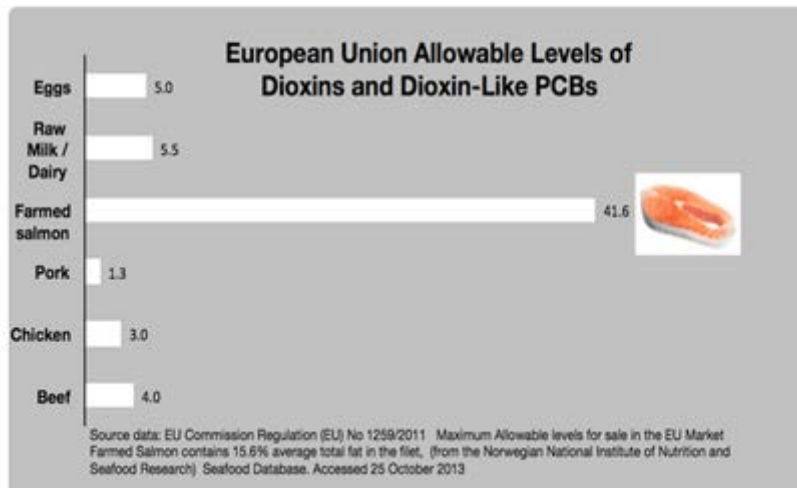
Carry-over of dietary organochlorine pesticides, PCDD/Fs, PCBs, and brominated flame retardants to Atlantic salmon (*Salmo salar* L.) filets

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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.

The graph below reveals the extent of the problem with toxins in farmed salmon. The European Union permits exceptional levels of toxins in farmed salmon. 41.6 picograms of toxins per gram of fat allowed in farmed salmon is 7 - 32 times more than allowed in other comparable foods. When we eat chicken, pork or beef, the serving-size is similar to a meal of salmon. It is not that we only eat a teaspoon of salmon per meal. Graphs like this illustrate the importance of educating ourselves about the foods we buy in restaurants and [markets](#), so we can decide on the risks we want to take. We do this increasingly as we look for organic and non-GMO foods for our families.



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”

Read presentation in full [online here](#)

All the FOI documents and more background is available [online here](#)