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May 31, 2011

Dr. David Suzuki, Founder
The David Suzuki Foundation
Suite 219, 2211 West 4th Avenue
Vancouver, BC, V6K 4S2

By E-mail

Dr. Suzuki,

RE: Salmon Aquaculture

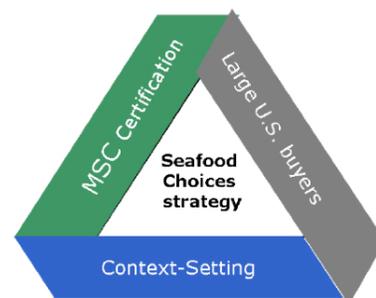
The purpose of this letter is to re-iterate my opinions and my appeal to you about information from the David Suzuki Foundation with regards salmon aquaculture.

For many years, the David Suzuki Foundation has been suggesting that farmed salmon is unsafe and unsustainable because of contaminants, sea lice, and other issues. If sound science shows that farmed salmon is high in contaminants, and that sea lice originating from salmon farms put wild salmon at serious risk, I would agree that farmed salmon should be boycotted and banned. But, for the many reasons that I have outlined in detail in the attached papers, it is clear to me that in both cases, this is not what research actually shows.

The fact is, research shows that contaminant levels are actually *lower* in farmed salmon than in other fish. Excellent returns of wild salmon in both the Broughton Archipelago and the Fraser River would seem to suggest that salmon farming does not put wild salmon populations at risk of extinction, as the David Suzuki Foundation has suggested. Moreover, of the two ways of growing salmon, farming has important advantages over Alaska's salmon ranching.

On the basis of the attached information, it is clear to me that in many instances, the David Suzuki Foundation has selectively and inaccurately broadcast its some of the foundation's research findings about farmed salmon and salmon farming. I feel that this has falsely reflected the actual findings, especially with regards to PCBs in farmed salmon, and sea lice. Hundreds of media stories have taken cues from press releases issued by the David Suzuki Foundation and have echoed the false and misleading information that the David Suzuki Foundation issued in the first place.

I am concerned because it appears to me that the David Suzuki Foundation may have garbled its research findings and exacerbated the salmon farming controversy as part of the "Context-Setting" of a multi-million dollar American marketing campaign to sway consumers and retailers towards "wild" fish, most of which is Alaskan, and away from the competition: imported, farmed fish.¹ Bad press about farmed salmon being unsafe and unsustainable has provided a foil for differentiating Alaskan "wild" salmon as safe and sustainable.



Source: The David & Lucile Packard Foundation

Under the weight of years of bad press generated by the David Suzuki Foundation and the campaigns in which the David Suzuki Foundation has played a lead role (eg. the Farmed and Dangerous campaign), I believe that the salmon farming industry does not have a fair chance.

Recently, I became aware that the David Suzuki Foundation has removed 23 of the 26 press releases and web-pages about which I have raised concern. Internet archives show that most of these were removed merely hours after I posted an open letter to you at my blog, on Feb. 3, 2010. I feel that it is not good enough for the David Suzuki Foundation to quietly remove all of this material given that it was initially broadcast with so much fanfare.

My hope, Dr. Suzuki, is that you are big enough to acknowledge that in some instances, the David Suzuki Foundation has incorrectly reported some of its research findings about PCBs in farmed salmon, and sea lice. Its fair, I believe, to request a clarification of the actual research findings and funding sources.² In my opinion, this would go a long way towards putting the salmon farming controversy into proper perspective.

In particular, I believe that the David Suzuki Foundation should acknowledge that its sea lice research was partially funded by the same American foundation that paid \$560,000 for an "antifarming campaign" involving "science messages" and "earned media" and that the sea lice researchers funded by the David Suzuki Foundation had a "research partnership" with this organization while it helped to generate hundreds of media items about sea lice. I also believe that the David Suzuki Foundation should publicly disclose that its sea lice research was partially funded by a commercial fishing company, a business that may have an interest in disparaging farmed fish.

In conclusion, I appeal to you, Dr. Suzuki, to please issue a public statement that accurately and comprehensively reports your actual research findings with regards to PCBs in farmed salmon, and sea lice. In particular, I believe that this statement should make clear that the research funded and publicized by the David Suzuki Foundation:

- a) Does not show and has never shown that farmed salmon is "high" in PCBs, and
- b) Does not show and has never shown that sea lice originating from salmon farms are causing high levels of mortality among juvenile salmon in the wild.

Sincerely,

Vivian Krause

Attached:

- Research about Contaminants in Farmed Salmon: Science or Marketing?
- Sea Lice Research: Science or Marketing?
- Form letter sent to Vivian Krause by David Suzuki, May 2002

I. Background

As I have said in my previous letters, the opinions and concerns outlined here stem from information that I began to come across during the preparation of a submission to the Special Committee on Sustainable Aquaculture, in the fall of 2006.³ Since then, over the past four years, I have written a series of letters to you in which I have attempted to present my concerns, opinions and questions.⁴ I have also written op-eds that have been published in The Financial Post, The Vancouver Sun and elsewhere.^{5,6,7,8}

As you know, I am familiar with salmon farming because I was employed in the industry during 2002 and 2003. Having published peer-reviewed papers in food science and nutrition, I am also familiar with the scientific process. I have a B.Sc. and a M.Sc. in Nutrition.

The two papers that I refer to in this letter are the papers (attached) that I have sent to you before:

- Research on PCBs in farmed salmon: Science or Marketing?
- Sea Lice Research: Science or Marketing?

I have prepared this letter and the attached papers as a concerned member of the public. As I believe that this is a matter of public interest, I will post this letter at my blog: www.fair-questions.com

II. Scientific Integrity

UBC's policy on Scholarly Integrity states that the University community "has always recognized the necessity for maintaining the highest ethical standards in the conduct of Scholarly Activities."⁹ UBC's definition of Scholarly Activity includes "activities that would be appropriate for inclusion on a curriculum vitae." In your curriculum vitae, you list among your "Professional Activities" your 17 years as chair and president of your foundation.¹⁰ For these reasons and because you are Professor Emeritus of UBC, I assume that UBC's policy on Scholarly Integrity applies.

A. Falsification of Research Findings

According to UBC's policy on Scholarly Activity, UBC defines "falsification" as "alteration, selective omission or misrepresentation of research data or citations." In this sense of the term, it appears to me, Dr. Suzuki, that you have falsified some of the research findings that you and your foundation have widely disseminated and publicized with regards to farmed salmon and salmon aquaculture, particularly with regards to 1) PCBs in farmed salmon, and 2) sea lice, salmon farming and wild salmon.

1. PCBs in Farmed Salmon

Since 2001, you and your foundation have been telling the public that farmed salmon is "high" in PCBs and should be avoided, especially by women of child bearing age and young children.^{11,12,13} You have publicly described farmed salmon as "poison" and said that you wouldn't feed it to a child.¹⁴ For many years, a seafood guide that is promoted by the David Suzuki Foundation incorrectly informed the public that regular consumption of farmed salmon poses a "health threat" due to PCBs.¹⁵

In 2002, you sent a widely distributed letter (attached) in which you thanked your supporters - including the author of this letter - for helping you "to uncover the fact that B.C. farmed salmon is

heavily contaminated with PCBs and other toxins." In doing so, I believe that you reported uncovering a fact that you did not actually uncover. Your letter included the comment, "There is good science in the plan, of course. All campaigns at the David Suzuki Foundation begin with good science." As we know, the untruthful reporting of research findings is not good science.

The truth is that studies suggest - including the studies reported by the David Suzuki Foundation - that farmed salmon is actually *very low* in PCBs and other contaminants, especially mercury. Wild halibut, for example, is reported to contain approximately 25 times as much mercury as farmed salmon.¹⁶ Tuna contains 33 times more.¹⁷ Studies have also found that certain species of wild salmon from certain locations may have higher concentrations of contaminants than farmed salmon.

Dr. Suzuki, you and your foundation have been informed by me on several occasions that the claim that farmed salmon is "high" in PCBs, is false. Despite the sound scientific evidence against this claim, and despite the fact that this has been repeatedly drawn to your attention, your foundation has persisted for many years in providing selective and inaccurate information about contaminants in farmed salmon.

Research from the U.B.C Department of Paediatrics and the B.C. Children's Hospital has found that some Vancouver-born children of well-educated mothers are deficient in omega-3 fatty acids at birth.¹⁸ This study found that the infants' eyesight was impaired due to omega-3 fatty acid deficiency. Their brain development may also be adversely affected. I believe that this situation is not helped by the fact that for many years, the David Suzuki Foundation has been advising women of child bearing age to avoid farmed salmon. Fish in general is an excellent source of omega-3s. According to the U.S. Institute of Medicine, farmed Atlantic salmon is higher in omega-3 fatty acids than any other commonly eaten fish.¹⁹

2. Sea Lice, Salmon Farming and Wild Salmon

Since 2002, you and your foundation have been informing the public that sea lice *originating from salmon farms* cause high levels of juvenile salmon mortality in the wild, and put wild salmon populations at risk of extinction in the Broughton Archipelago. For example, you and other scientists sent a letter to the Prime Minister of Canada and the Premier of British Columbia in which you wrote, "... there is now extensive peer-reviewed science that sea lice spread from farm to wild salmon, and kill juvenile wild salmon. In some cases, sea lice originating from salmon farms are estimated to have killed up to 95 percent of the wild juvenile salmon that pass salmon farms..."²⁰ Your letter included the comments, "the science is clear" and "there are no studies to the contrary." In light of the extensive information presented in my letter of May 14, 2009, and in my paper, "Sea Lice Research: Science or Marketing?" I believe that these latter claims are false.

For the reasons that I have outlined in my paper, it is clear to me that the sea lice research funded and publicized by the David Suzuki Foundation provides no evidence as to the origin of the observed lice nor their actual impact on wild salmon populations. Claims that "farm-origin" sea lice are putting wild salmon at risk of extinction are, therefore, unsubstantiated and false, in my opinion.

By not mentioning the naturally high mortality of juvenile wild salmon, the naturally wide year-to-year fluctuations in pink salmon returns, the possibility of wild fish as sources of sea lice, and by not mentioning the serious limitations to the research design and data collection, it appears to me, Dr. Suzuki, that on the whole, the information that you have given to the public is incomplete and misleading with regards to your foundation's own sea lice research findings. Through the selective omission and misrepresentation of research data, I believe that you have falsified the sea lice research findings that you have disseminated.

I am concerned because it appears to me that the David Suzuki Foundation may have garbled its research findings and exacerbated the salmon farming controversy as part of the "context setting" of a multi-million dollar marketing campaign that is heavily funded by the David and Lucile Packard Foundation as part of its "Market Intervention" strategy to conserve marine fisheries, most of which, for many years, has been Alaskan.²¹ Part of the "context setting" appears to me to be to an "antifarming campaign" to sway market share away from the competition: the aquaculture industry.

B. Lack of Impartiality, Accuracy and Scholarly Rigor

UBC Policy 85 from January 1995 suggests that integrity among scholars is to maintain and enhance the value of impartiality that universities offer. On the basis of the information presented in my letters, particularly my letter of May 14, 2009, it appears to me that with regards to salmon aquaculture, Dr. Suzuki, you have not been entirely impartial.

You and your foundation present to the public the notion of a dichotomy between "wild" and farmed salmon. In my opinion, this dichotomy is false; as I see it, there are not two but three basic types of salmon: wild, farmed and *ranch*ed. In North America, more than 90 percent of "wild" salmon is Alaskan. In 2010, nearly half (49 percent) of so-called "wild" Alaskan salmon was actually *ranch*ed salmon. These salmon are not wild. These salmon - nearly half of all so-called "wild" Alaskan salmon - are hatched in a plastic tray, fed pellets, grown in tanks, and raised in net pens before they are put in the wild.

Both farming and ranching salmon have pros and cons. In my opinion, the David Suzuki Foundation has denigrated farmed salmon and generated bad press about salmon farming, yet virtually no mention is made of the negative impacts of salmon ranching. In this way, in my opinion, you and your foundation lack impartiality and thoroughness in the information that you provide to the public about the two approaches to salmon aquaculture.

C. Removed Web-Pages

In 2009, I presented a 46 page document in which explained in detail why I believe that 26 press releases and web-pages about farmed salmon contain information that is selective and inaccurate. I appealed to you to please correct the record. A few months ago, it came to my attention that 23 of these 26 press releases and web-pages have been removed. Based on my analysis of internet archives, it is clear to me that most of these press releases and web-pages were removed on Feb. 3, 2010, *the very same day* that I posted an open letter to you, asking whether you had deliberately manufactured controversy over salmon farming in order to serve the interests of your American funders.

While I am pleased to see that press releases and web-pages that contained inaccurate and misleading information are no longer in circulation, I believe that it is not good enough simply to quietly remove this material, especially since it was disseminated with so much fanfare in the first place.

III. Why This Matters

I am again bringing forward my concerns because of reasons that are environmental, economic and related to public health.

A. Environmental Reasons

As I mentioned earlier, in North America, about 95 percent of "wild" salmon is Alaskan. Of that, nearly half (49 percent) is not truly wild salmon, its *ranch*ed.²² Last year, Alaska put 1.5 billion hatchery-born salmon into the Pacific ecosystem.²³ In essence, Alaska is using the Pacific Ocean as a salmon ranch.

Although it would surprise a lot of people, the fact is that Alaska actually grows more than twice as many salmon as British Columbia. If Alaska didn't ranch salmon, the 2010 salmon harvest would have been only 78 million fish, not 169 million.²⁴ The ex-vessel value would have been only \$366 million, not \$534 million. What this means is that salmon ranching increased the ex-vessel value of Alaskan commercial fisheries by a whopping \$168 million last year. Not only that, hatchery-born salmon also accounted for an estimated 270,000 of the so-called "wild" salmon caught in Alaskan sport fisheries.

Unless we're prepared to settle for substantially less salmon for sport fisheries and for food, growing salmon is a necessity. The question we should be asking is what is the best way to go about it in each unique ecosystem.

No doubt about it, during the early years, the environmental impacts of salmon farming were unacceptable. Since then, salmon farming has improved a lot. With better anchoring and staff training, many farms have had no escapes in five years or more. Thanks to under-water cameras, the use of feed has been reduced by half. New vaccines mean that the use of antibiotics is one tenth of what it used to be.

Of the two ways to grow salmon (B.C.'s farming vs. Alaska's ranching), farming is advantageous in the sense that it avoids the risks of over-fishing, ghost nets, by-catch, the killing of endangered stocks, and the strains of ocean-ranching on the food chain and the carrying capacity of the Pacific ecosystem. But that's not what we've been hearing from the David Suzuki Foundation.

Salmon farming entails "devastating costs" says the David Suzuki Foundation but when it comes to Alaska's salmon ranching, the foundation, and most environmental groups, seem to me to look the other way.²⁵

The main problem with salmon ranching is that 95 per cent of ranched salmon are never harvested. They die at sea. But before they do, ranched salmon consume an enormous amount of wild, forage feed. This puts a huge strain on the carrying capacity and the food chain of the wild salmon ecosystem. Not only that, all of the feed pellets that are fed to ranched salmon - at a cost to Alaska of approximately \$20 million per year - are wasted.

B. Economic Reasons

In a recent study by Canadian Business, two towns on Vancouver Island ranked among the worst places to live in Canada. Port Alberni was #172 out of 180. Campbell River was #175.²⁶ In both towns, unemployment was over 10 percent. Both are places where salmon farming could provide hundreds of year-round, well-paying jobs. The same goes for Nova Scotia.

Since 2003, farmed salmon exports from Norway have doubled.²⁷ Norwegian companies are succeeding but Canada, despite being right next door to the world's largest seafood market, is losing out.

C. Public Health Reasons

The campaign against farmed salmon has been a boon to Alaskan fisheries and the coastal fishing communities whose livelihood and lifestyle hinges on market demand for wild fish. Protecting a traditional way of life is a noble pursuit, but in terms of public health, it is illogical to campaign against farmed salmon. Farmed salmon is one of the few foods that most of us should actually be eating more of, not less. This applies especially to women of childbearing age and young children and yet this is precisely the demographic group that the David Suzuki Foundation and other environmental groups have been advising to avoid farmed salmon.

Dr. Dariush Mozaffarian and Dr. Eric Rimm of Harvard University warn, "the avoidance of modest fish consumption due to confusion regarding risks and benefits, could result in thousands of deaths every year due to cardiovascular disease, and the suboptimal neurodevelopment in young children."²⁸

Harvard scientists estimate that eating fish weekly can reduce the risk of a fatal heart attack by a third. In North America, more than eight million heart attacks occur every year. In the U.S. alone, cardiovascular disease kills about 2,300 people *every day* and cost an estimated \$504 billion in 2010.²⁹



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