

December 19, 2006

Jacques Diouf
FAO Director General
Food and Agriculture Organization of the United Nations
Viale delle Terme di Caracalla
00100 Rome, Italy

Re: Farmed Salmon Endanger Wild BC Salmon

I am writing to advise the United Nations that in British Columbia, Canada sea lice from salmon farms are killing wild Pacific salmon stocks. The UN **Code of Conduct for Responsible Fisheries** was adopted unanimously by 189 nations on 31 October 1995 to protect global fish resources. While Canada stands among these 189 nations, this Code of Conduct has been breached in favour of salmon farming in Canada. It has been scientifically demonstrated that sea lice from salmon farms kill wild salmon in large numbers. While European fishery managers and salmon farmers acknowledge this and are taking steps to effectively manage the issue, Canadian fishery managers and the same European salmon farmers in Canada refuse to admit to the relationship between salmon farms, sea lice and mortality of wild Pacific salmon. As they delay action (beyond monitoring and requesting further study) certain wild salmon stocks are being critically damaged in British Columbia. The current state of world fishery resources and their ecosystems allow no room for complacency (FAO 2005).

Europe endured a similar learning phase, but now recognizes the severity of impact that sea lice can have on wild salmon. **Interactions between Aquaculture and Wild Stocks of Atlantic Salmon and Other Diadromous Fish Species** (Norwegian Institute for Nature Research Special Report 34 Oct 2006)

- The latest information presented in Bergen **confirms** that cultured salmon can have significant negative impacts on the wild stocks
- Sea lice from salmon farms were **conclusively** identified as a serious threat to wild salmon stocks.
- Furthermore, **the industry** now acknowledges that its activities can have **damaging impacts** on the wild stocks
- The interactions between farmed and wild salmon can be damaging and need to be **eliminated**, not just reduced.

Principle 9.1.2 of the Code of Conduct for Responsible Fisheries drafted by the Food and Agriculture Organization of the United Nations could have averted the current crisis had it been applied some years ago. It states that member countries shall “promote responsible development, including advance evaluation of effects based on the best available scientific information.” Instead Fisheries and Oceans Canada challenged the Canadian NGO scientific community to reestablish what was already known in Europe about impact of salmon farms on wild salmonids. We have this underway with 9 papers published in scientific journals specifically on the relationship of farm-origin sea lice on wild salmon (Appendix 1). These studies detail salmon farms as the source of lice infestations on juvenile wild salmon, and confirm that it only takes 1 or 2 sea lice to kill juvenile pink and chum salmon because these species weigh less than 0.5g at saltwater entry. The studies establish that up to 91% of juvenile wild salmon passing salmon farms are dying of sea lice (Krkosek et al 2006).

During the interval required to produce this science, public concern has escalated to the point where the salmon farming industry itself is threatened (http://www.wilderness-tourism.bc.ca/news_08_05.html). WTO policy states trade in fish *should not result in environmental degradation*, but production of farm salmon shipped to the United States is degrading surrounding environments in Canada with significant production of sea lice. Wild salmon are of great importance to the BC economy.

British Columbia scientists, both government and non-government, have confirmed there is a solution to the conflict, and that British Columbia could have **both** wild and farmed salmon. By merely, but effectively, separating wild and farmed salmon, British Columbia could continue farming salmon while reaping the social and economic benefit of maintaining some of the world’s largest wild salmon populations.

I believe it is possible to reconcile the demands of salmon aquaculturalists with the needs of First Nations and other British Columbians to whom wild salmon belong. However recent public comments by the agencies entrusted with Canadian fishery resource maintenance have made it clear no progress in this direction is underway.

- “At this time our [unpublished] research **does not support** the close association between salmon farms, sea lice, and loss of wild salmon that has been reported”. (Dr. Brian Riddell, Section Head, Salmon Stock Assessment

and Enhancement Evaluation, **Fisheries and Oceans Canada**, Campbell River Mirror Dec. 1, 2006)

Similarly, Pat Bell, Minister of Agriculture and Lands (MAL) in charge of siting salmon farms in BC publicly misstated the most recent science on sea lice to deny that 91% of some wild salmon stocks are being lost to salmon farms.

- "It was largely old data that had been collected using dipnet technology, as opposed to the hard science of doing a statistical regime around calculating the appropriate number of fish that have to be sampled in a long-term testing regime," (Dec. 13, 2006, Penticton Western – News)

Minister Pat Bell misidentified the gear type and the methods, both deemed appropriate for publication by The National Academy of Sciences of the USA.

No wild fish stock can sustain 91% by-catch mortality and clearly the governing agencies are not even accurately reviewing the science. The scientific community in Canada has done what it can; the impasse is political in nature and thus my appeal to the United Nations for an intervention, before vital wild salmon stocks are lost.

In regards to management of salmon farming, it is apparent that both the Federal government of Canada and the Provincial government of British Columbia are in violation of 12 principles of the United Nations **Code of Conduct for Responsible Fisheries** signed by Canada, including the following:

- 6.1 to conserve aquatic ecosystems;
- 6.2 to maintain a resource for future generations;
- 6.4 to conduct conservation based on the **best scientific evidence available**;
- 6.5 to apply the precautionary approach;
- 6.8 to protect critical fisheries habitats such as ...nursery areas... from significant impacts resulting from human activities;
- 6.14 to honour obligations established by the **WTO** including policies and practices that trade in fish should **not result in environmental degradation**;
- 6.19 that in regards to aquaculture... countries should ensure that resources are used responsibly;
- 7.2.1 that management must recognize that long-term sustainable use of fishery resources is the overriding objective;
- 7.5.1 that countries should apply the precautionary approach;

- 7.6.8 that measures should, as appropriate, be revised...in the light of new information;
- 9.1.2 to promote responsible development, including **advance evaluation** of effects based on the best available scientific information;
- 9.1.4 that countries should ensure that **livelihoods of local communities and access to fishing grounds** are not negatively affected;

I understand compliance with the United Nations Code of Conduct for Responsible Fisheries is voluntary, but the international community could not be more emphatic in its rejection of careless destruction of world-class fish resources such as British Columbia's wild salmon. The above principles were **unanimously accepted**. For Canada to violate the Code we pledged to uphold significantly and needlessly contributes to the degradation of our planet's environment and resources.

Denial of harm to natural systems is so commonplace a strategy adopted by industry and governments when a public resource is at stake that its components have become familiar. Admission of the problem is the critical first step to resolving any problem. I am appealing to the United Nations to take a leadership position in this crisis and intervene on behalf of the world community to prevent further loss of another important global food resource.

Canadian fishery managers are already answerable to the demise of one of earth's greatest food resources, the North Atlantic cod stocks of the Grand Banks, This management error, duly forecast by the government's own scientist (Ransom A. Myers), and ignored, resulted in irrevocable social and economic detriment to the economies of eastern Canada and the loss of a global source of food. At a time when the world recognizes fish stocks are finite and reaching extinction levels, Canada's denial of the impact of salmon farms on wild salmon is insupportable.

Wild salmon are BC's lifeblood, sacred to many. Salmon are a powerhouse in the British Columbia economy, they provide essential nutrient flow between oceanic and coastal ecosystems, support human communities, tourism; a rising economic star in BC and are integral to unresolved Aboriginal rights. Wild salmon belong to our children and our children's children; they are not ours to destroy.

Intervention by the world community and the United Nations could provide the impetus for change that those of us within Canada seem unable to inspire.

Thank you. I look forward to receiving the United Nation's reply to this heartfelt request.



Alexandra Morton
Biologist
Echo Bay, Canada
wildorca@island.net

Appendix 1

Morton, A.B., and Williams R. 2003 Infestation of the sea louse *Lepeophtheirus salmonis* (Krøyer) on juvenile pink salmon *Oncorhynchus gorbuscha* (Walbaum) in British Columbia, *Canadian Field Naturalist* **117**:634-641.

Morton, A., Routledge, R., Peet, C., and Ladwig, A. 2004. Sea lice (*Lepeophtheirus salmonis*) infection rates on juvenile pink (*Oncorhynchus gorbuscha*) and chum (*Oncorhynchus keta*) salmon in the nearshore marine environment of British Columbia, Canada. *Canadian Journal of Fisheries and Aquatic Sciences*, **61**:147-157.

Morton, A., Routledge, R., and Williams, R. 2005. Temporal patterns of sea lice infestation on wild Pacific salmon in relation to the fallowing of Atlantic salmon farms. *North American Journal of Fisheries Management*, **25**:811-821.

Morton, A., and Routledge, R. 2005. Fulton's Condition Factor: Is it a valid measure of sea lice impact on juvenile salmon? *North American Journal of Fisheries Management*, **26**: 56-62.

Morton, A. and Routledge, R. 2005. Mortality rates for juvenile pink and chum salmon (*Oncorhynchus gorbuscha* and *keta*) infested with sea lice (*Lepeophtheirus salmonis*) in the Broughton Archipelago. *Alaskan Fisheries Research Bulletin*, **11(2)**: 146-152.

Krkosek, M., Morton, A. and Volpe, J.P. 2005. Nonlethal Assessment of Juvenile Pink and Chum Salmon for Parasitic Sea Lice Infections and Fish Health. *Transactions of the American Fisheries Society*: **134(3)**: 711-716

Krkosek, M., Lewis, M.A. and Volpe, J.P. Transmission dynamics of parasitic sea lice from farm to wild salmon. *Proceedings of the Royal Society B*: **272**: 689-696.

Krkosek, M., Lewis, M.A., Volpe, J.P. and Morton, A. 2006. Fish farms and sea lice infestations of wild juvenile salmon in the Broughton Archipelago – A rebuttal to Brooks (2005). *Reviews in Fisheries Science* **14**:1-11

Krkosek, M., Lewis, M.A., Morton, A., Frazer, L.N., and Volpe, J.P. 2006. Epizootics of wild fish induced by farm fish. *Proceedings of the National Academy of Sciences***103**:15506-15510.