

Dr. Inés Montalva
Director Nacional
Servicio Nacional de Pesca
Sernapesca
Victoria 2832, Valparaíso
Chile

April 18, 2007

Dear Dr. Montalva

The Pure Salmon Campaign has become aware of acute sea lice infestations affecting the Chilean salmon farming industry. It has been reported recently that the Chilean salmon farming industry is heavily reliant on the use of antiparasitic treatments to control these infestations and antibiotics to control concomitant infections and mortalities. The Pure Salmon Campaign calls on your agency to reveal the full extent of the sea lice, disease and mortality problem in Chile and to provide documentation on the amount of chemicals – both antiparasitics and antibiotics – currently used by Chilean salmon farming companies and the Chilean industry as a whole. We are concerned that the potential environmental impacts and human health implications of these sea lice outbreaks and the use of chemicals, especially without proper withdrawal periods, are significant.

Two dominant players in the salmon farming industry - Cermaq (Mainstream) and Marine Harvest - have recently admitted problems with sea lice, fish health and mortalities in their Chilean operations. In its Q4 2006 report¹ (released February 15, 2007), Cermaq states: “In 2006 there were a number of negative impacts on production in Chile. Recently there have been further negative impacts from sea lice and other fish health issues. We expect these challenges to fish husbandry to have an adverse affect on production in Chile in 2007.” Furthermore, it states: “A biomass write down of USD 900k was taken because of an unusual level of mortalities at the company’s fresh water facilities.”

Additionally, in its Q4 2006 report² (released March 1, 2007), Marine Harvest explains: “Like the rest of the industry, Marine Harvest is also facing biological challenges in Chile and Scotland, both with regard to growth and fish health... The biological situation in Chile is currently a challenge.” Further, on March 6th, 2007, Atle Eide, the CEO of Marine Harvest, was quoted in Intrafish as stating: “We, as with everyone else, are facing problems with disease and a high mortality rate in Chile.”

One month later, an article published in the Chilean newspaper La Nacion on April 8th revealed that sea lice infestations and chemical resistance due to the excessive use of antiparasitics and antibiotics are affecting Region X and are now spreading to Region XI in Chile.³

In mid-December 2006, the Chilean representative of the Pure Salmon Campaign lodged a Freedom of Information (FOIA) request with your agency (Sernapesca) regarding data on sea lice levels and chemical use in Chile. On March 15, 2007, we received your response, which stated: “it

¹ Cermaq Q4 2006 Report. Available: <http://hugin.info/134455/R/1105309/198714.pdf>

² Marine Harvest Q4 Report. Available: <http://hugin.info/209/R/1108772/200500.pdf>

³ http://www.lanacion.cl/prontus_noticias/site/artic/20070407/pags/20070407173833.html

is known that *Caligus spp.* is a highly prevalent parasitism in marine and estuarine culture environments of the X Region and is a little less extended the XI Region. It must be noted that our Agency, to date, does not have records of the parasitary charge in those areas.”⁴ This brief response is the only information the Pure Salmon Campaign has been able to extract from the Chilean government on the issue of sea lice and chemical use.

Interestingly, this year, the Canadian Food Inspection Agency has issued three Import Alerts for unallowable levels of the sea lice chemicals Emamectin/Ivermectin in Chilean fish products. These include fish from Fjord Seafood (owned by Norwegian company, Marine Harvest), Mainstream (owned by Norwegian company, Cermaq) and Patagonia Salmon.⁵ While the US is the largest importer of Chilean farmed salmon, the US Food and Drug Agency (FDA) tested only four samples of Chilean farmed salmon for Ivermectin. It did not test any farmed salmon samples for Emamectin benzoate during 2006⁶. In 2006, the FDA issued an Import Alert after it detected the antibiotic Oxolinic acid in Chilean farmed salmon.

Through recent communication with leading scientists and Chilean conservation organizations, it is becoming apparent to us that additional information on sea lice infestation and chemical use by the Chilean salmon farming industry most likely exists. For instance, a report published in January 2007 by Oceana Chile detected both Oxolonic acid and Oxytetracycline in wild fish living near Chilean salmon farms.⁷ Dr. Felipe Cabello of the Department of Microbiology and Immunology at New York Medical College and author of a paper on antibiotic use in salmon farming published in *Environmental Microbiology* in June 2006⁸, explained to the Pure Salmon Campaign via email in April 2007:

“Day by day the picture becomes clear regarding the excessive use of antibiotics in Chile. The same conditions that favor sea lice infestations favor bacterial infections, and sea lice infestations

⁴ This response was originally in Spanish, and translated to English by the Pure Salmon Campaign. The original response read: “Por otra parte y en referencia a las enfermedades parasitarias, es de señalar a Ud., que si bien éstas no están contenidas en el mencionado listado de enfermedades de alto riesgo, se conoce que *Caliguasis*, es un parasitismo altamente difundido en los ambientes de cultivo marinos y estuarinos de la X región, siendo su prevalencia algo menor en la XI región. Cabe indicar que nuestro Servicio, actualmente no lleva registro de la carga parasitaria presente en dichas áreas de cultivo.”

⁵ Three ‘Import Alerts’ for Emamectin/Ivermectin in Chilean farmed were reported in February and March 2007 by the Canadian Food Inspection Agency:
<http://active.inspection.gc.ca/scripts/fispoi/ial/IALresults.asp?IAanalysis=EMAMECTIN%20/%20IVERMECTIN&lang=e&m=20>

⁶ In response to a request for information, Barbara Montwill of the FDA wrote to the Pure Salmon Campaign on 11th April 2007: “FDA tests only for Ivermectin in salmon. Development of an analytical method for emamectin benzoate is in progress. In 2006 a total of 111 (47 for products from Chile) analyses have been conducted for Malachite green (Chile: 7), Quinolones (Chile: 36) and Ivermectin (Chile: 4) in salmon. No drugs residues were detected except one sample tested positive for presence of oxolinic acid in salmon from Chile. I do not have information regarding this year.”

⁷ “The use and abuse of antibiotics in the Chilean salmon farming industry” (Oceana, January 2007):
http://www.oceana.org/fileadmin/oceana/uploads/americanadelsur/documentos_2007/Usos_antibioticos_en_la_salmonicultura_version_ingles_.pdf

⁸ “Heavy use of prophylactic antibiotics in aquaculture: a growing problem for human and animal health and for the environment” (*Environmental Microbiology*, June 2006):
<http://www.blackwellpublishing.com/press/pressitem.asp?ref=787>



also favor bacterial infections. It has taken me almost five years to have a clear assessment of what is going on there as a result of the lack of controls and information. I come alone to the conclusion almost a year ago that the excessive use of antibiotics is the result of the lack of basic hygienic and sanitary conditions in the whole industry.”

Dr. Cabello further explained: “Chile is the second largest producer of farmed salmon in the world. It is a country with unrestricted and apparently excessive use of antibiotics in aquaculture. In contrast to Norway (the world’s largest producer of farmed salmon), there are no regulations that permit tracking the use of antibiotics in aquaculture. Unofficial information indicates that all classes of antibiotics are used in aquaculture without restrictions in Chile. Environmental regulations for salmon aquaculture in Chile do not regulate the use of antibiotics in aquaculture and do not discuss any potential environmental repercussions of this use. Educated and very conservative approximations indicate that the Chilean industry may be using between 200 to 250 times more antibiotics than the Norwegian industry...”

Dr. Sandra Bravo of the Universidad Austral de Chile, who was also quoted in the *La Nacion* article regarding the resistance of sea lice to treatments such as Emamectin benzoate, has also provided us with information on sea lice infestations in Chile including her World Aquaculture Society presentation of February 2007 - “Epidemiologic situation of *Caligus rogercresseyi* in the South of Chile, Region X.” This presentation provides quantitative data on the sales of various sea lice treatments in Chile such as Emamectin benzoate, Ivermectin, Cypermethrin, Nuvan (dichlorvos) and explains the causes of loss of effectiveness of Emamectin benzoate sea lice treatments.

In light of the data and concerns addressed above, the Pure Salmon Campaign reiterates our request to Sernapesca to provide the following data in a timely manner:

- Annual, farm site and company specific figures for sea lice counts since 1997 or the earliest year available (please refer to the attached Irish data as an example)
- Annual, farm site and company specific figures on chemical use by farms including antiparasitics and antibiotics since 1997 (please refer to the attached Scottish data as an example)
- Annual, farm site and company specific figures for infectious diseases since 1997
- Annual farm site and company specific figures for farmed fish mortalities since 1997 (please refer to the attached Scottish data as an example)
- List of specific regulations are in place to control the outbreak of sea lice on fish farms in Chile
- List of specific regulations are in place to control the use of antiparasitics and antibiotics by Chilean salmon farming companies and the industry as a whole

Additionally we ask Sernapesca to provide information on any solutions you may be considering or currently using to combat sea lice, disease, heavy chemical use and mortalities among Chilean salmon farms. For instance, the *La Nation* article states that, in some cases, salmon are being transported to other colder regions to avoid further sea lice outbreaks. We have also heard that due to the recent resistance of *Caligus spp.* to conventional sea lice treatments, hydrogen peroxide is being dumped over those cages, which still hold farmed fish.

We request that you provide information on the current actions by Chilean government to combat current sea lice infestations. Additionally, please indicate the demonstrate or potential impacts of



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these treatment or control approaches on the marine environment, employment levels within the Chilean salmon farming industry and the health of Chilean farmed salmon consumers.

The Pure Salmon campaign partners with organizations working around the globe to improve the way farmed salmon is produced. Our campaign rests on one simple premise: Salmon can be farmed safely and with minimal ecological damage, if the industry adopts standards that protect the environment, consumers and local communities. We believe that the adoption of closed containment systems would prevent the spread of diseases and parasites and reduce the industry's chemical dependency. We urge prompt attention to this matter and look forward to a timely response to these questions.

Sincerely,

Andrea Kavanagh
Director
Pure Salmon Campaign
Phone: +1-202-887-8822
Email: akavanagh@puresalmon.org

Cristian Perez Muñoz
Chilean Representative
Pure Salmon Campaign
Phone: +56-9-87326731
Email: perezmu.cristian@gmail.com