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ALTA., SASK., MAN., ONT., N.W.T., NUNAVUT, TEXAS AND NEW YORK

April 23, 2012

File No. 10-0008

Via Email

Cohen Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River  
2800- 650 West Georgia Street  
P.O. Box 11530  
Vancouver, BC V6B 4N7

**Attention: Brian Wallace, Q.C., Senior Commission Counsel**

Dear Sir:

**Re: Rule 65 Application- Re-open hearings to receive new evidence regarding disease in salmon in British Columbia**

We write to advise of new information regarding the presence of piscine reovirus (PRV) and heart and skeletal muscle inflammation (HSMI) in aquaculture salmon in British Columbia. The presence of these pathogens in British Columbia has the potential to severely impact wild Fraser sockeye salmon. We apply pursuant to Rule 65 for the opportunity to bring the information to the attention of the Commissioner for his consideration in drafting his final report.

## **PRV and HSMI**

HSMI is characterized by inflammation and damage to heart and somatic muscle. HSMI was first detected in Norwegian fish farms in 1999 and has spread to over 400 farms. HSMI was detected in Chile only a couple of years ago and appears to already be causing challenges for the aquaculture industry.

Developing research into the novel disease links HSMI to PRV and indicates that both cause high mortality and appears to be transmissible to wild fish (see "Heart and skeletal muscle inflammation of farmed salmon is associated with infection with a novel reovirus", Palacios et al. 2010- abstract attached).

In the course of its hearings, the presence and significance of HSMI and PRV in British Columbia were not explored. None of the government-associated witnesses, except Dr. Kristi Miller, gave oral testimony to the Cohen Commission regarding the presence of the pathogens in

British Columbia. Under cross-examination, Dr. Miller confirmed that she had identified the virus in Pacific salmon samples from Creative Salmon farms thought to be causative of HSMI; and, that she had identified the virus in migrating sockeye salmon as well. [Dec. 15, 2011 Transcript, p. 112-113] At the time of her testimony, Dr. Miller referred to an agreement with fish farmers to test their fish; recent information indicates that she has not been given opportunities to test since then.

Apparently, the presence of PRV in fish farms in British Columbia has been known to government regulators. This week Dr. Gary Marty was referenced in the Times Colonist and he states in an interview with Global TV (April 17<sup>th</sup>) that the Province found that PRV was common in farmed salmon in 2010. According to the article/interview, Dr. Marty does not correlate the presence of PRV with disease in the farmed salmon. However, in 2008, before the causative virus, PRV, was identified, Dr. Marty identified the symptoms of HSMI to Mainstream in their fish (AHC case 3362). The prevalence of this virus on the migration route is significant and potentially devastating for Fraser sockeye. Damaged heart muscle could be contributing to the extremely high en route mortality recorded in Fraser sockeye.

The presence of the virus and potentially the disease is also indicated by recent sampling in 2012. Independent testing conducted at the Atlantic Veterinary College and in Norway on farmed Atlantic salmon raised in British Columbia waters and purchased in local supermarkets identified PRV in 44 of 45 fish tested and 28 of 29 fish by PCR and sequencing of the virus. The fish presented with indicators of HSMI, including stunted growth.

The test results indicate an extremely high level of this novel virus associated with high mortality and morbidity in fish farms and potential transmission and mortality in wild fish.


### **Request to re-open evidentiary hearings to receive evidence regarding HSMI and PRV**

The Aquaculture Coalition submits that the Commission should receive new evidence regarding the epidemiology and impacts of PRV and HSMI in salmon populations on a global scale and should hear evidence regarding its presence in British Columbia. In particular, the knowledge of Dr. Miller and Dr. Marty regarding the presence of PRV and HSMI in fish farms in British Columbia is relevant to the Commissioner's inquiry and an opportunity to hear their evidence is warranted.

Therefore, by this letter we respectfully request that the Commission provide an opportunity for participants to submit evidence on PRV and HSMI.

Yours truly,

RATCLIFF & COMPANY LLP



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Display Settings: Abstract



[PLoS One](#), 2010 Jul 9;5(7):e11487.

## Heart and skeletal muscle inflammation of farmed salmon is associated with infection with a novel reovirus.

[Palacios G](#), [Lovoll M](#), [Tengs T](#), [Hornig M](#), [Hutchison S](#), [Hui J](#), [Kongtorp RT](#), [Savji N](#), [Bussetti AV](#), [Solovyov A](#), [Kristoffersen AB](#), [Celone C](#), [Street C](#), [Trifonov V](#), [Hirschberg DL](#), [Rabadan R](#), [Egholm M](#), [Rimstad E](#), [Lipkin WJ](#).

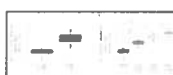
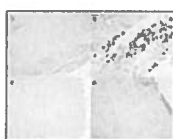
Center for Infection and Immunity, Columbia University, New York, New York, United States of America.

### Abstract

Atlantic salmon (*Salmo salar* L.) mariculture has been associated with epidemics of infectious diseases that threaten not only local production, but also wild fish coming into close proximity to marine pens and fish escaping from them. Heart and skeletal muscle inflammation (HSMI) is a frequently fatal disease of farmed Atlantic salmon. First recognized in one farm in Norway in 1999, HSMI was subsequently implicated in outbreaks in other farms in Norway and the United Kingdom. Although pathology and disease transmission studies indicated an infectious basis, efforts to identify an agent were unsuccessful. Here we provide evidence that HSMI is associated with infection with piscine reovirus (PRV). PRV is a novel reovirus identified by unbiased high throughput DNA sequencing and a bioinformatics program focused on nucleotide frequency as well as sequence alignment and motif analyses. Formal implication of PRV in HSMI will require isolation in cell culture and fulfillment of Koch's postulates, or prevention or modification of disease through use of specific drugs or vaccines. Nonetheless, as our data indicate that a causal relationship is plausible, measures must be taken to control PRV not only because it threatens domestic salmon production but also due to the potential for transmission to wild salmon populations.

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