



Ministry of Agriculture  
and Lands

Ministry of Agriculture, Food and  
Fisheries

## MEMORANDUM

January 3, 2006

File: 2005-0594 &95

Re: Report from Meetings with Mainstream  
Re: occurrence of *Piscirickettsia salmonis* at sites in Broughton

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The following is an overview from meetings that took place in November with representatives from Mainstream Canada regarding findings of *Piscirickettsia salmonis* at two sites within the Broughton Archipelago during BCMAL surveillance activities.

### Background:

*Piscirickettsia salmonis* (P. salmonis) is an intracellular bacterium that was first recognized in wild Pacific salmon since the 1970's. In the early days of salmon farming, piscirickettsiosis was first diagnosed as a disease that could cause low levels of mortality amongst farmed Pacific and Atlantic stocks. Over the last few years, tracking of the geographical and seasonal occurrence of the disease has been made possible through the development of the industry Fish Health database system. BCMAL is also able to examine the findings of the disease through its audit and surveillance systems.

A review of the findings from the databases revealed that P. salmonis has never been documented outside of zone 2.3 (Tofino/Barkley Sound) and 3.1 (Sechelt area). In September 2005, a fish health audit was conducted at Cecil Island and the BCMAL Fish Health Biotechnicians found signs of internal swelling in a few fish which subsequently revealed findings of both P. salmonis (1/9) and Renibacterium salmoninarum (causative agent of Bacterial kidney disease). At the time the finding was considered incidental and treatment for BKD had occurred. Treatment for P. salmonis infection is usually the same thus the findings at the time were considered low risk for resulting in disease. Subsequent fish health audits of Cecil Island and Maude Island on November 8th revealed that both farms had experienced outbreaks (pens requiring treatment) for piscirickettsiosis; a disease that had not been documented in this zone in the past. A meeting with representatives from Mainstream Canada occurred on November 24th and it was brought to the company's attention that there was a concern with the occurrence of this disease in a new zone because the company operated sites within the "normal" geographical range documented for this disease over the last 10 years. Questions were asked regarding the potential for a breach in biosecurity and BCMAL officials were ensured that this had not happened. The company suggested that BCMAL Fish Health staff contact the company veterinarian and review requested records. A meeting was held with the company veterinarian on November 28<sup>th</sup> and records reviewed related to mortality, disease and treatment of disease on those sites.

### Findings from review of records and datasets:

The fish entered at Cecil and Maude were smolt from a variety of source hatcheries including San Mateo, Little Bear Bay, Hotham Sound and Oceans hatcheries. These fish were entered into sea water in Fall 2004. At the time of entry BKD was a problem that required treatment for the groups from Hotham Sound. These fish were treated as smolt in April and May of 2005. Examining the mortalities from the affected pens at that time showed signs of increased mortality and effect of treatment. Affected pens included 2 and 4 at Burdwood, 1,2 and 4 at Cecil Island, and Pens 1 and 3 at Maude. Mortality in these pens decreased subsequent to treatment.

In discussions with the company veterinarian, *P. salmonis* was diagnosed at a low level in all three farms sites during late August early September. Treatment was applied to select pens (4 & 12 Burdwood, 3,4,5,7 at Cecil and 2 & 4 at Maude). Records of the affected pens and treatments were provided.

Pens 4 and 12 at Burdwood farm were treated with oxytetracycline the first week in September. Mortality in affected pens rose to a maximum of 0.2%/ week and responded well to treatment decreasing to background levels of mortality one month post treatment.

Pens 3, 5 and 7 were affected with *P. salmonis* and treated in mid-September with AquaFlor. This is not the usual treatment for this disease and is an extra-label use of this product. Mortality prior to treatment ranged from 0.2 to 0.5% per week however at the peak of the infection in September, the mortality in pen 7 rose to a high of 1% per week. Subsequent to treatment there was a rapid decline in the mortality. Pen 4, was also treated in November but mortality data for this pen was not collected. The veterinarian for the company indicated that mortality was rising and the decision to include this pen in with the group of already affected pens was made.

Looking at the information from Maude Island, mortality in pens 2 and 4 in late August was high. Given the level of mortality and timing of treatment this may have been the location of the first cases of rickettsiosis seen in this area. Mortality in pens 1, 3 and 5 were provided although only Pen 5 was treated with oxytetracycline for rickettsiosis in late November. The information shows that other pens than those treated were being affected by this disease.

According to the company veterinarian, *P. salmonis* was diagnosed at all three sites extensively, however the site was also scheduled for harvest so some of the pens were treated and held while the others were harvested out. The veterinarian was questioned about the fish health practices and possible movements of equipment, boats people etc. that could have resulted in the movement of this disease. There was movement of equipment and nets to these sites; however no records were available for inspection.

The veterinarian recommended that inspectors check with the site managers to determine the timing and type of equipment movements.

#### Recommendations:

Based on the findings and discussions with the company personnel, the following recommendations will be made:

1. Further investigation by BCMAL inspectors of the movement of equipment (barges, nets, dive gear etc) and personnel between area 2.3 and 3.3 to determine if the finding of this disease in the area represents a breach in company biosecurity.
2. In the event that there is no evidence of the above, given the nature of this disease - slow to move, associated with movement of biological materials, in particular shellfish or improperly composted nets to remove bio-fouling- the following is the company should not utilize any equipment from the three affected sites at any other sites currently in production where the disease has not been diagnosed. Precautions should be made to have increased level of biosecurity for movements of any personnel between the three affected sites and any unaffected sites in this area. This includes but is not limited to visiting affected sites last, diving the site last, all barges and supply vessels maintain a protocol for visiting these sites last.
3. Once site harvesting is completed, all sites should be fallowed, all equipment thoroughly disinfected and cleaned with special attention paid to the removal of biofouling organisms and materials. Discharge effluent from the cleaning of nets and equipment should be done off site to avoid returning this material to the site or waters surrounding these sites.
4. Fish taken for broodstock from production at any of these sites should be screened for *P. salmonis*. Any positive fish for *P. salmonis* should either be destroyed or not be utilized in the Broughton area. As this disease is ubiquitous in area 2.3 thus this does not apply to fish for this area.
5. When harvesting of affected fish there must be containment of all bloodwater and offal for disinfection and disposal at the harvest plant. Preferably, stun and bleed should not occur on site.
6. Once sites are re-stocked, specific site monitoring of mortalities for *P. salmonis* should be undertaken to determine if re-infection has occurred. A protocol for testing can be developed in consultation with the company

veterinarian. This information should be reported directly to BCMAL Fish Health Veterinarian.

Joanne Constantine  
Fish Health Veterinarian