Presentation: Poster

Title: **Use of Membrane Filtration Florescent Antibody Test (MF-FAT) to Identify *Renibacterium salmoninarum* within Eggs of Sexually Mature Female Chinook Salmon: *An Attempt to Establish Correlative Relationships between Detection of Bacteria in the Eggs, Ovarian Fluid and ELISA Levels in the Kidney***

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Abstract: The question of whether a female salmon that is positive for *Renibacterium salmoninarum* (Rs, the causative agent of bacterial kidney disease, BKD) by enzyme-linked immunosorbent assay (ELISA) has passed the infection to her offspring through vertical transmission is the 64 million dollar question. This question is further complicated when culling decisions for offspring involve programs where gene conservation and preservation of a threatened stock are the priority, such as the Grande Ronde Basin Spring Chinook Captive Broodstock Program. While ELISA is highly sensitive in detecting the presence of Rs antigen in kidney tissue, it does not document the actual presence of the bacterium or distinguish between actively infected fish versus one that was previously exposed, mounted a successful immune response clearing the infection. We collected samples of 30 eggs and 2 mL of ovarian fluid from 103 mature female Chinook salmon at the time of spawning. We used the Elliot and McKibben membrane filtration fluorescent antibody test (MF-FAT) protocol to count Rs cells in the eggs and ovarian fluid. Kidney samples were also collected and processed by ELISA. Identification of Rs within the eggs and ovarian fluid was successful using this protocol, however bacterial cell concentration for eggs did not correlate well to bacterial cell concentrations in ovarian fluid ($r=0.3265$) or with ELISA ($r=0.2429$). Bacterial cell concentration in ovarian fluid provided a slightly better correlation with ELISA ($r=0.4324$). Detection of high numbers of bacteria in the ovarian fluid by MF-FAT was not predictive of egg cell infection: some females with low ELISA values (<0.2) were identified with high numbers of bacteria in their ovarian fluid and conversely females with high ELISA values (>0.8) had low bacteria counts for their ovarian fluid or egg contents. This technique may not be applicable for refining culling practices in gene conservation programs.