



The Ministry of Agriculture, Food and Fisheries is pleased to provide the following information on fish health and disease surveillance activities for aquaculture facilities.

In November 2000, the Province of British Columbia initiated a new fish health auditing and surveillance program (FHASP). This program is one component of a larger provincial fish health policy initiative aimed at improving our knowledge of fish diseases in aquaculture facilities by determining which diseases occur routinely and identifying possible changing trends in disease occurrence. This program does not attempt to meet any federal statutory requirements for fish health import/export or fish movements; however, as this program is epidemiologically-based, the information provides an excellent review of the health status of cultured fish stocks in this province.

The provincial program is an active surveillance program that requires staff to inspect farm sites and collect specimens for health evaluation. For the specific purposes of this program, the province is divided into a series of fish health zones, based on general watershed guidelines, which are used as sampling areas (See attached map). We use a multistage sampling system with the unit of concern being the zone. All sites within a zone are assigned a random number. Selection of the farms within a zone for sampling is weighted based on the number of farms in that zone as a percentage of the total number of farms in the province – that is, if an area has 30 percent of the farms then only 30% of the farms in the area would be randomly selected. This ensures equal probability of each farm being selected for sampling. Sampling is conducted during routine fish mortality dives and all fresh mortalities examined. Sampling is aimed at achieving a 95% confidence interval for detection of 2% disease incidence such that the total sample number is up to a maximum of 300 fish per zone. It should be noted that total number of fish actually sampled varies with each site visit.

Samples are collected for bacteriology, molecular diagnostic, and histopathology analysis. For bacteriology, kidney tissue from each individual fish examined is swabbed onto Trypticase Soya Agar and Blood agar plates. This allows for detection of a wide variety of fish pathogens. Biochemical analysis is used to confirm identity of bacterial agents. This work is completed at our laboratory at the Animal Health Centre (AHC) in Abbotsford. The AHC laboratory is accredited by the American Association of Veterinary Laboratory Diagnosticians.

Samples for virology are collected from each individual fish sampled and submitted to the AHC laboratory for analysis. Samples are pooled five fish per sample and screened using standard Polymerase Chain Reaction (PCR) technique for the following pathogens:

Infectious Hematopoietic Necrosis Virus (IHNV)

Infectious Pancreatic Necrosis Virus (IPNV)
Infectious Salmon Anemia (ISA)
Viral Hemorrhagic Septicemia (VHS North American strain)
Piscirickettsia salmonis

In the event there is a PCR positive finding or a suspect viral septicemia on clinical examination, the samples are cultured on appropriate cell lines for confirmation of the diagnosis.

Histopathology services are provided by a veterinary pathologist with extensive experience in fish disease diagnosis. Samples of representative tissues from each individual fish are subject to microscopic evaluation.

Attached is a summary of the results for the FHASP in 2001. The sampling results are further broken down by species in each zone.

