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Ministry of Agriculture and Lands

Animal Health Centre

AAVLD - Accredited Laboratory

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Final Report AHC Case: 09-109

Last Updated: 01/16/09 1:27 PM
Pathologist: Gary D. Marty
Received Date: 01/14/09
Collected Date: 01/07/09
Client Ref No: 7059

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Animal Data
Species: Atlantic Salmon
Breed:
Sex:
Age:
Premise ID:

Case History

Submitted formalized Atlantic Salmon tissue for histopathology.

Fish presented with p.p hem in liver, p.c. Saltwater entry 07 S1. Vaccinated.

Final Diagnosis

1a. Liver: sinusoidal congestion, multifocal, moderate (slides 1, 2)

1b. Liver: basophilic hepatocellular cytoplasm, diffuse, moderate (slides 1, 2)

2. Skeletal muscle: myonecrosis, acute, multifocal, mild (slide 1)

3. Spleen: peritonitis, chronic, focal, with fibrocellular fronds, mild (slide 2)

Final Comment: These fish have lesions that are fairly common in Atlantic salmon that die in marine net pens in British Columbia. Although none of the lesions are of sufficient severity to have caused death, they provide clues about possible causes of death. Comments on specific lesions follow:

Sinusoidal congestion in the liver is evidence of circulating vasodilators. Differentials include substances released from inflammatory cells or bacteria, and infection with VHSV. Sinusoidal congestion is one of the classic lesions associated with ISAV infection, but ISAV has never been identified in British Columbia.

Basophilic cytoplasm in hepatocytes is an indication of active protein synthesis. It is normal in mature females producing protein for deposition in their eggs. In other fish it might be related to increased protein needed as part of an inflammatory response. It is common in juvenile fish with ulcers.

Skeletal muscle degeneration has been associated with feeding of rancid oils and dietary deficiency of vitamin E and selenium (reference: Fish Pathology, 3rd Edition. 2001. R.J. Roberts). It can also occur in fish that are not eating; muscle tissue is broken down to provide nutrients for critical organ survival.

Splenic peritonitis is consistent with a reaction to foreign material; it is common in fish that have been vaccinated, affecting 60% of the 460 Atlantic salmon fresh mortalities ("silvers") examined in 2008 as part of the British Columbia Fish Health Auditing and Surveillance Program

(42% were mild, 16% were moderate, and 2.6% were severe).

Histopathology

Formalin-fixed tissues were submitted in 2 cassettes for histopathology.

Slides 1 (7059-1) and 2 (7059-2) - heart, spleen, brain, liver, trunk kidney, skeletal muscle, intestinal ceca and mesenteric adipose tissue

All organs were examined. Organs not listed elsewhere have no significant lesions.

Quality control: Liver autolysis: mild (slide 2), severe (slide 1). Organs have no postfixation dehydration and no acid hematin deposits.

Gary D. Marty
D.V.M., Ph.D., Diplomate A.C.V.P.

END OF REPORT