

**To: Aquatic Animal Health Technical Committee**

**From: IF&W**

**Subject: Sheepscot Pond Fishway Disease Assessment and Implications for the Palermo State Fish Hatchery and Associated Stocking Program for Brown Trout and Brook Trout**

The Palermo State Fish Hatchery utilizes Sheepscot Pond as its water source for rearing both brown trout and brook trout. The hatchery is NEFHC “class A” rated, meaning that no diseases of regulatory concern have been detected at the facility within the previous 3 years. It has had this rating for decades, allowing the clean transfer of fish and eggs between other MDIFW fish culture stations, as well as to public waters of the state. Since the hatchery does not have microscreen drum filtration or UV filtration on its water intake, diseases of regulatory concern could be easily introduced into the water supply of the hatchery. The proposed modification to the operation of the Sheepscot Pond fishway to allow passage of river herring (alewives + blueback herring) during their spawning migration further increase the risk for the hatchery much more so than all other risk factors combined due to the quantity and overall biomass associated with such migration events. Risk is further amplified by the close proximity of the fishway to the hatchery intake. The MDIFW has historically precluded river herring from using the fishway and accessing Sheepscot Pond as a strategy to minimize risks from disease and to prevent juvenile river herring from entering the intake to the fish culture facility. Aside from risks associated with river herring, there are also other disease introduction risks that can come from increased passage of other aquatic species such as American eel and sea lamprey.

The Aquatic Animal Health Technical Committee is requested to assess the pathogenic risks and associated implications to a Class A state fish hatchery by allowing river herring and other migratory fish into the hatchery source water. Please consider the following:

- The fishway is actively operated by MDIFW to exclude river herring and other migratory fish from May 1 to July 1.
  - Should the fishway remain closed during this time period to prevent passage of river herring and associated pathogenic risks?
  - Should the fishway be closed the remainder of the year to prevent passage of other migratory aquatic species and associated pathogenic risks?
  - The use of wild caught live baitfish is currently allowed for fishing in Sheepscot Pond, however; the holding of any live baitfish not taken in Sheepscot Pond is prohibited. Should the use of all baitfish (freshwater & marine) be prohibited for use in Sheepscot Pond and it’s headwaters?
- VEN is said to be commonly found in anadromous species such as alewives and its previous detection in Damariscotta Lake, a lake accessed by sea-run alewives, highlights one of the disease concerns of IF&W. In August of 2010, a summary of Maine DMR Cooperative Agreement # CT-13A-20090126\*4283 summarized results of disease surveillance of rainbow

smelt at 14 different sites within the Gulf of Maine. The report mentions multiple sites with evidence of erythrocytic disease and such could be used as evidence for prevalence of VEN within Maine marine waters. How susceptible are brown trout and brook trout to VEN and what are the potential consequences for inland waters of the State if VEN infected fish were distributed into said waters? What are the risks for inland landlocked smelt populations from such transfers?

- Does the committee recommend comprehensive disease screening of anadromous and catadromous species in the Sheepscot and other nearby waters to obtain a baseline reference prior to the proposed introduction of river herring into Sheepscot Pond?
- If the fishway were operated for year round passage, would the committee recommend annual fish health testing and monitoring of wild populations as a strategy to assess level of risk to the Palermo Hatchery and to be used as a basis to support fishway closure.
- If comprehensive testing (prior to and regular monitoring) were conducted what is the likelihood that a pathogen of regulatory concern would be detected? What is the likelihood of ISAV or a VHSV variant being detected? If VHS or another OIE reportable pathogen was detected, what are the likely short term and long term ramifications for export within the aquaculture, elver, and lobster industries in the State?
- If the fishway is operated to allow river herring and other migratory fish to access Sheepscot Pond, does the committee recommend installation and operation of a micro-screen drum filtration and ultraviolet light filtration on the hatchery intake water?

Unfortunately disease reference material for river herring is limited and information about river herring / salmonid hatchery interactions is almost non-existent with the exception of one non-profit hatchery in Maine.

**Reference Hatchery-** The only salmonid hatchery in Maine that has an untreated water supply with sea-run alewives in its water source is the Downeast Salmon Federation Hatchery in Machias. IF&W has historically screened fry from this hatchery each May as a courtesy for DMR. The hatchery receives eyed eggs from USFWS and rears them at the hatchery for release in the fall as parr. Fry are processed as whole fry homogenates and such a process is only valid for the testing of BKD and for certain viral pathogens of regulatory concern. To date such testing has not yielded any positive detection of a viral agent using CHSE and EPC cell lines. However, it should be noted that testing occurs in the early stages of the alewife run and any infective agents that may be introduced from alewife migration may be missed. It should also be noted that the hatchery has experienced temporary but significant mortality events in 2014, 2015 and 2016 in June due to unknown causes. Since these mortality events occurred after testing, testing would not detect causes that are the result of recently introduced disease agents associated with alewife migration. Since alewives were present at the time, there is a possibility that the mortality events are connected to alewife migration. If testing was also conducted later in the summer

on larger fish so as to enable standard necropsy and screening for a broader suite of pathogens, a causative agent could possibly be identified.

Links to articles of use:

Link to Rainbow Smelt Disease Surveillance Summary: <https://www1.maine.gov/dmr/science-research/species/documents/P%20-%20Pathology%20Final%20Report.pdf>

Link to NOAA Disease Surveillance Summary which included alewives in Maine: [http://www.nefsc.noaa.gov/salmon/factsheets/disease\\_factsheet.pdf](http://www.nefsc.noaa.gov/salmon/factsheets/disease_factsheet.pdf)