

Memorandum

DATE: 5/19/03

TO: Mike Cozart, Hatchery Manager
CDFG, Merced River Hatchery

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SUBJECT: Pathology summary of VAMP release groups

The California-Nevada Fish Health Center performed a fish health inspection on sixty Merced River Hatchery Fall Chinook Salmon smolts sampled 4/22/03 as part of the 2003 VAMP survival studies. These fish were sampled out of the transport truck at the Mossdale release site on the San Joaquin River. No virus was detected in tissue culture of 20 (3 pooled) kidney samples. No bacterial pathogens were detected by culture of 60 individual kidney samples on standard bacterial media. No *Renibacterium salmoninarum* (causative agent of Bacterial Kidney Disease) was detected in 20 (3 pooled) kidney samples assayed by Direct Florescent Antibody Technique.

Tetracapsula bryosalmonae (the causative agent of Proliferative Kidney Disease) infection was assessed by histology of individual posterior kidney tissues. Smolts were collected out of the transport truck at each of the 6 VAMP release sites (48 fish total). These samples were assessed for infection with the parasite and severity of inflammation of the kidney. The parasite was observed in 30 of 48 samples (63%). Severe inflammation of the kidney, likely due to *T. bryosalmonae* infection, was observed in 10 of 48 samples (21%). Fish with severe inflammation of the kidney were likely suffering from some level of anemia, and we would expect reduced performance and possibly reduced survival in these fish.

An additional 17 fish were submitted for *T. bryosalmonae* inspection by the Merced River Hatchery. This group of fish was fed an alternate diet with an immune system stimulant added. The parasite was detected in 3 of 17 samples (18%). Severe inflammation was observed in 1 of 17 samples (6%). Due to differences in the age and rearing conditions, it is impossible to say if the feed additive offered any protection. It obviously did not induced immunity to *T. bryosalmonae* infection.

State of California
Department of Fish and Game

FISH PATHOLOGIST REPORT

Location

Merced River Hatchery

Date

30 Oct 2003

Species and Size

Brook trout adults

Holding Area

A&B-1

Fish Condition

Adult brook trout, obtained from Crystal Lake Hatchery, are being kept above catchable RTH's transferred from Mocassin Creek Hatchery earlier this month (the hatchery water supply pipe is being upgraded) as a biological filter to prevent copepod infestation of the RTH's. The brook trout are starting to mature, exhibiting fungal lesions, and mortality has been in the hundreds/day. Microscopic evaluation of gill and skin wet-mounts revealed a few *Gyrodactylus* on the gills (2-4/scrape), and only fungal hyphae on the skin. Internally, fish were within weeks of gonadal maturity (2 females and 4 males) and organs appeared normal. Kidney cultures produced bacterial growth from 4/5 fish (not *A. salmonicida* – motile short rods). No signs of BKD observed.

Recommendations

Keep fish off feed. Replace with younger fish as soon as possible as these fish will only serve as pathogen amplifiers for the RTH's down-stream. Treatment of fungus is mostly ineffective at this stage. Ideally, fish should be taken off feed as they are approaching maturity, and prophylactic chemical treatments (usually H₂O₂ if formalin isn't able to be discharged) are administered at least twice/week to keep fungus in check if fish are to be kept through their spawn cycle.

Comments

Water temp. 59°F

Submitted by

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