

FISH PASSAGE CENTER

1827 NE 44th Ave., Suite 240, Portland, OR 97213 Phone: (503) 230-4099 Fax: (503) 230-7559

http://www.fpc.org/
e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: FPAC

FROM: Jerry McCann

DATE: August 18, 2008

RE: Fin hemorrhage/inflammation at Lower Monumental Dam and other dams in

relation to higher temperatures in July and August

In response to your questions as to the cause of high injury rates reported at Lower Monumental Dam in July we have shown a strong link between the observed hemorrhaging and/or inflammation "pinkness" observed at this sites and anesthetic application at high temperatures. Initial questions were brought to FPC from FPAC members at a meeting in July 15 regarding the increased incidence of injuries in subyearling Chinook salmon in the sample. Subsequently FPC staff identified that pinkness in fins (likely caused by inflammation) was the primary sign being seen in fish and reported this to FPAC on July 22.

Further investigation has led to the conclusion that this inflammation and even some outright hemorrhaging in the fins is likely due to the anesthetization of fish at relatively warm temperatures. At Lower Monumental Dam, where the incidence of "pink" fins has been very high, an experiment was conducted on August 14 to determine if anesthetic was the cause of the symptom seen at that site. Fish from A side tank were anesthetized normally and then examined for signs of injury/disease. In that group of fish the incidence of "pink fins" was essentially 100% (almost every fish according to Monty Price). In the other tank fish were crowded but not anesthetized. These fish were sent into the sample trough in the sample room and allowed time to become quiescent at the low dosage of MS222 that was present in the sampling trough

(solution is usually 43.5 mg/L). The concentration in the tank would have been lower since water was added with the fish (perhaps 20-30 mg/L). None of the fish in this second group had "pinkness" in their fins. This contrast from the normally anesthetized group suggested that the cause of the inflamed fins was likely due to anesthetization, particularly at warm temperatures.

According to SMP personnel at several sites, when fish are held in recovery tank for a few hours time, the pinkness disappears. This further suggests that the pinkness is an indication of acute physiological distress associated with anesthetization.

In a related incident McNary Dam SMP personnel observed fin hemorrhaging occurring in fish that were anesthetized for GBT exams. The site typically uses 80mg/L anesthetic for these exams, at the point just prior to examining the fish to assist in examining fish under the microscope.