



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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Memorandum

To: Mike Long, Field Supervisor AFWO

cc: Phil Detrich, Klamath Coordinator
Alexandra Pitts, External Affairs

From: Nicholas Hetrick, Fish Program Lead AFWO

Subject: Update on Juvenile Fish Mortalities Observed in the Klamath River

In an effort to locate and determine the fate of 39 radio-tagged juvenile Chinook salmon released at IGH that were detected at Happy Camp but not at the Salmon River receiver station located further downriver, Greg Stutzer and crew conducted a float-based radio tracking survey from Indian Creek (rkm 178) to Green Riffle (approx rkm 120). The survey occurred from July 9 - 11, 2008 under relatively low flow conditions (see attached). Radio tags within this reach that were detected and subsequently recovered were evenly dispersed along the river continuum through this reach and were most often located in low gradient habitat types along eddy shear zones in water ranging from <1 to 3 m in depth. While diving to locate these transmitters, a number of dead juvenile salmonids and other fish species were observed. Although no formal counts were conducted, the crew observed about 10 to 40 dead fish within 5 meters upstream and downstream of the location of each tag. Dead fish were observed at 23 of the 25 dives made. The appearance of dead fish observations ranged from what was assumed to be recent mortalities to carcasses fully engulfed by fungus. The two dives where dead fish were not observed occurred in water having relatively high water velocity. Dead and / or dying fish were also observed at several thermal refugia areas, which were also occupied by live salmonids (predominantly Chinook salmon, and to a lesser extent, steelhead). Most mortalities observed were juvenile salmonids; however, numerous dead sculpins, suckers, and one dead bullhead catfish were also observed. Water temperatures were not measured, but were noticeably warm, likely above 70 deg. F within the mainstem flow of the Klamath River. No adult salmonid mortalities were observed.

The above observations are consistent with previous reports from the Big Bar outmigrant trapping site where large numbers of juvenile mortalities had recently been observed, including deceased "floaters" drifting into the cone of the screw trap. Consistency in observations and geographical extent of dead fish observations, coupled with the die-off of all sentinel disease study fish being held in the mainstem Klamath indicate the occurrence of what may have been a significant number of juvenile mortalities. However, data from this event as well events from previous years are limited in terms of total numbers and/or proportion of mortalities in relation to the overall population.

On the morning of Monday, July 14, 2008, we passed the above mentioned information on to Mark Hampton of CDFG. I informed Mark that the Service will not be making a determination to enact the

KFHAT protocols; rather, we will pass on our observations to the KFHAT team, and assist in subsequent surveys if deemed necessary.

To follow-up on observations of dead juvenile salmonids reported above, Steve Gough and crew (USFWS) surveyed three sites on the middle Klamath River on Wednesday, July 16, 2008 for dead and/or dying fish. The crew deployed an underwater video camera from a canoe and scanned the bottom of large pools at Dolan's Bar (near Orleans) and Big Bar (between Orleans and Weitchpec). As Karuk Fisheries technicians recently observed dead fish in the wadable backwaters and eddies at the Whitmore Creek confluence (between Orleans and Somes Bar), the crew also checked this location.

Steve and his crew were unable to observe any dead fish during the surveys at any of these sites, and saw few live juvenile fishes few as well. It appears that most outmigrant juvenile salmonids had already moved either further downstream or had congregated in thermal refugia areas. We did, however, encounter and capture video footage of several adult green sturgeons, which appeared to be healthy.

Results of this follow-up survey are consistent with the July 15 surveys conducted by Hampton et al. CDFG who also did not observe any significant numbers of deceased fishes in the Klamath River. Based on the findings of the most recent July 14 CDFG survey and the July 15 USFWS survey, we conclude that further surveys are not warranted at this time. Carcasses resulting from a mortality event associated with observations made during the July 9-11, 2008 radio tag relocation survey do not appear to have persisted in the river. This is consistent with previous juvenile mortality surveys in the Klamath River in that carcasses appear to be processed/preyed upon quickly, and thus are not counted during subsequent surveys.

