The Acoustic Tag Update

Project Location:
Vernita Bar,
Grant County,
Washington

Studying Spawning Behavior in 3D

On the Columbia River in Eastern Washington lies a historic spawning ground for Chinook salmon: Vernita Bar. The site, approximately 228 by 76 meters, offers pristine spawning habitat, including ideal substrate and flows.

In the fall of 2005 Public Utility District No. 2 of Grant County (Grant PUD), which operates Priest Rapids and Wanapum dams upstream of Vernita Bar, investigated the spawning behavior of Chinook salmon. This action was taken in order to better understand the use of this natural resource under varying flow levels.

Grant PUD was interested in many aspects of spawning behavior, including a comparison of daytime vs. nighttime spawning, and redd site selection and fidelity. To fully investigate the many and varied aspects of spawning behavior, Grant PUD employed the use of acoustic tag 3D telemetry. In November 2005, HTI assisted Grant PUD setting up a 3D acoustic tag tracking array to encompass a portion of the Vernita Bar spawning grounds. Fifty Chinook salmon were tagged, ranging from 66 cm to 109 cm with a mean of 82 cm.

HTI's *Model 290 Acoustic Tag Receiver* was used in conjunction with *Model 795 Acoustic Tags.* This system offered a means of remotely tracking tagged fish in three dimensions with sub-meter resolution, generating a position every 3 seconds. Resulting tag positions were plotted in 3D, revealing the movement of each tracked fish. HTI's *AcousticTag* software permitted control of view rotation and speed of playback for each tag track. The resultant tracks assisted researchers in assessing fish behavior with respect to environmental variables. This in turn, helped Grant PUD to better understand how to protect the fish population.

According to Dave Duvall, a Fisheries Biologist and Project Leader for Grant PUD, "The determination and relentless-ness these fish exhibited by spawning in habitat dominated by high river velocity and large cobble is what impressed me most about this project. These fish utilize habitat that most other species can't use and, as a result, need some measure of protection like Hanford Reach Fall Chinook Protection Program."

Progressive thinking and technology continues to help Grant PUD evaluate spawning behavior and improve river management, which will help protect Chinook salmon at Vernita Bar. For more about the equipment used, visit us online at www.HTIsonar.com or call us at 206-633-3383.

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