



The Acoustic Tag Update

Project Location:
Wanapum Dam,
Grant County,
Washington



A First: In-Turbine 3D Fish Tracking

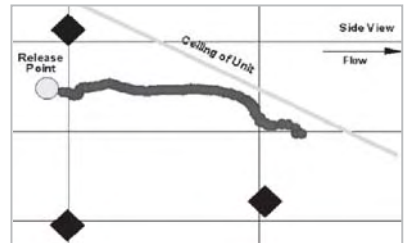
Located on the great Columbia River, a few miles south of the I-90 Bridge crossing at Vantage sits one of the river's most powerful energy facilities: Wanapum Dam. Operated by Grant County Public Utility District, the District has been working diligently for over 50 years to serve its customers throughout the Northwest and other states along the West Coast. HTI is pleased to be a part of their fish protection efforts by providing them with the most effective hydroacoustic and acoustic tag tracking technology, helping to evaluate and refine fish bypass measures.

Although HTI had conducted numerous fine scale, 3D fish tracking studies, none had attempted to track tagged fish inside an operating turbine intake. As one can imagine, the turbine intake proved to be a challenging, extremely noisy, high-velocity environment for acoustic tag tracking.

Five hydrophones were placed inside the turbine intake where water velocities exceeded 6 ft/sec (1.8 m/sec).

Fortunately, neither divers nor dewatering of the turbine were required for deployment and retrieval of the hydrophones and cables. Although the background noise levels were high, HTI's proprietary encoded acoustic tag signals out-performed expectations. HTI scientists found it relatively easy to distinguish the continuous tagged fish transmissions from the background noise due to the tag signal's consistent appearance compared to the random nature of the background noise. This was aided by the very rapid pulse rate used, 25 pulses/sec. By using a *Model 290 Acoustic Tag System* in conjunction with HTI's *Model 795 Acoustic Tags*, HTI was able to produce detailed, fine-scale routes of fish travel through the turbine intake area. The user was able to control view rotation and speed of playback for each 3D fish track.

For more information about the equipment used here, visit us at www.HTIsonar.com or call us at 206-633-3383.



Learn more at www.HTIsonar.com



Model 795-series Acoustic Tags

- Tags as small as 0.60 g.
- Sub-meter, 3D resolution.
- Over 100,000 unique ID codes available.
- Several tag size/tag life combinations to choose from.
- Tag life to over 4 years available.



Impossibly small,
impeccably accurate.



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