ADVANTAGES OF
ACOUSTIC TAGS OVER RADIO TAGS

HTI acoustic tags have several advantages over radio tags for tracking fish and other animals and objects in water.

- Sub-meter position resolution in three dimensions. Some deployments have realized 20 cm resolution.
- The smallest tag available: 0.5 grams, 15.3 mm long x 6.4 mm diameter.
- Detection ranges in water up to 1 km. Radio tags are typically limited to 10 m in water.
- Up to 250,000 user-specified individual tag ID codes available with *Model 795 Acoustic Tag*s.
- Code-phase modulation for *Model 795 Acoustic Tag*s increases signal strength by as much as 11 dB over a conventional CW pulse.
- *Acoustic Tag* software permits display of three-dimensional tag tracks on a PC.
- Tags can be rapidly programmed by the user in the field for pulse width, pulse repetition rate, and individual tag identification: 0.5-10.0 msec pulse width (most tag sizes), ping rates 25 pings/sec to 1 ping/16 sec.
- No antenna required for the tag, reducing drag and the potential for atypical behavior with radio tags.
- Over 1000 tags in the same area can be detected and tracked simultaneously. Tag “collisions” common with radio tags are a thing of the past with acoustic tags.
- Via modem or satellite communication, *Model 290/291/295 Acoustic Tag System*s can be operated remotely from virtually anywhere in the world with reliable telephone communication. For example, HTI can remotely operate a client's *Model 290/291/295 System* from HTI's Seattle offices for upgrading systems, downloading data, and addressing quality control.
- Better tag detectability with acoustic tags (typically > 95%).
- Less detection equipment required, yielding a quicker deployment. For example, in 2002 in order to monitor smolt passage with radio tags at John Day Dam, 210 antennas were required with *Model 290 Acoustic Tag Receivers*; as few as 20 hydrophones would be required.
- Positive indication that hydrophones are functioning properly.
- HTI acoustic tags are rated to 300 m depth.
- A portable acoustic tag receiver (*Model 291 PATR*) is available that is compact and operates on 12 VDC.
- Manual mobile tracking of fish tagged with acoustic tags is possible using the 12 VDC *Model 291 Portable Acoustic Tag Receiver*.
- Acoustic tags function in seawater, unlike radio tags.
- The *Model 290 Acoustic Tag Receiver* can collects data simultaneously from up to 16 hydrophones. *Model 290 Acoustic Tag Receiver*s can be synched via GPS to collect data from all HTI ATR’s and Dataloggers.

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