Acoustic telemetry methods are routinely used to estimate the survival, movement and relative distributions of fish. In instances where acoustically-tagged fish are consumed by a predator, the consumed tagged fish may be incorrectly identified as live, resulting in inaccurate study conclusions. If acoustic tags using precisely-spaced and uniform coding schemes are employed, a review of the time-series of detections can be used to determine changes in fish behavior, including those indicative of predation.

Single receiver detection data can indicate that a predation event has occurred when a tag is shed (defecated) within the detection range. If multiple receivers are deployed to provide fine-scale 2D or 3D fish track data, then quantifiable patterns of swimming behavior can be used to infer predation events. The metrics employed in these behavioral analyses include swimming speed, patterns of fish movement, residence times and others.

Recently, a new type of acoustic tag has been developed that can directly measure and report when a tagged fish has been eaten by a piscivorous fish or other predator. These tags were designed to activate in the predator gut to modify the tag signal, while maintaining the information necessary to identify the originally-tagged fish. Tests conducted under controlled conditions in 2013 the predation detection tags (PDT) functioned as designed. Additional field tests are currently underway to evaluate the performance of these tags when implanted in fish released into the natural environment.