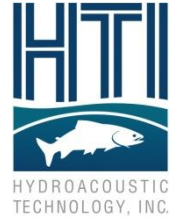


## Course Outline & Registration: **USING ACOUSTIC TAGS TO TRACK FISH**



The 2-day short course *Using Acoustic Tags to Track Fish* addresses all aspects of tracking fish movement in three dimensions with sub-meter position resolution. A basic background and/or experience in using acoustic tags is assumed, although HTI scientists are available to elaborate on these topics as needed. The course includes hands-on operation of *Model 290/291/300-Series Systems* and *AcousticTag/MarkTag* software. Examples from past acoustic tag evaluations are used, and attendees have an opportunity to talk to the biologists and engineers who conduct tag studies for HTI's Consulting Division. An instruction manual is provided, along with reports and papers from case studies.

HTI's acclaimed acoustic short courses have been presented worldwide for over 20 years. Past HTI acoustic short courses have been attended by biologists, engineers, managers, and technicians from fisheries agencies, consulting firms, power producers, and regulatory agencies. A team of four HTI *Senior Scientists* will conduct the course, each with 30 years of experience using and teaching fisheries acoustics.

### **COURSE OUTLINE**

- 1.0 Introduction
  - History of HTI
  - History of Hydroacoustics
  - History of Electronic Tags for Fish
  - About This Course
  - Brief HTI History of Acoustic Tags
  - Application Examples
- 2.0 Fisheries Acoustics
  - "Active" vs "Passive" Acoustics
  - "Active" Acoustics Applications
  - "Passive" Acoustics Applications
  - The *Model 290 Acoustic Tag System*
  - Tag System Operation
  - Transmit Characteristics
  - Properties of the Medium
  - Processing the Tag Signal
  - Remote Access
  - How Acoustic Tags are Used Today: Broad Applications from Around the World
- 3.0 Intro to the *Model 290/291 Acoustic Tag Tracking System & the Acoustic Tag Data Logger* Computer (w/min. specs)
  - Hydrophones
  - Hydrophone Cables
  - Receivers
  - Acoustic Tag Data Logger
  - Acoustic Tags
- 4.0 System Deployment
  - Assessing Your Needs
  - Geometry
    - Ideal & Typical Hydrophone Placements
    - Modeling Hydrophone Precision
    - Estimating Precision of 3-D Positions
  - Hydrophone Mounts
  - Different Types of Mounts
  - Area of Coverage
  - Finding Hydrophones
  - Surveying in Hydrophones (X,Y,Z)
- 5.0 System Testing (i.e., doing an acoustic tag drag)

- Hands-on Tag Demo
- Go to Impulse Calibration Barge for Demo
- 6.0 Acoustic Tags
  - General Specs
  - Individual ID
  - Types of Acoustic Tag Technologies
  - Rep Rate
  - Pulse Width
  - Encoded Signals [i.e., “\_\_” encoding]
  - Tag Life
  - Programming Acoustic Tags
  - Predation Detection Tag
- 7.0 Surgically Tagging Fish
- 8.0 Data Collection with *AcousticTag* Software
  - MobileTag* Software for Mobile Surveys
- 9.0 Marking Tag Tracks with *MarkTag* Software
- 10.0 3D Tracking with *AcousticTag* Software
- 11.0 Acoustic Tag Analysis
- 12.0 Advances in Acoustic Tag Technology
- 13.0 Case Studies
- Q&A

[REGISTER ONLINE](#) or fill out below to register via email/fax.

Please reserve one space for me in the **1-2 February 2018**

\_\_\_\_\_ **ON-SITE** at the School of Aquatic & Fishery Science, UW, Seattle

\_\_\_\_\_ **ONLINE.**

\_\_\_\_\_ Tell me how I could have an acoustic tag short course brought to my location.

\_\_\_\_\_ I cannot attend at this time, but please keep me in mind for future acoustic telemetry short courses.

**ON-SITE** - Tuition for the short course in Seattle is US \$300 and includes lunches and course manual.

**ONLINE** - Tuition for the short course in Seattle is US \$200 and includes course manual.

*Special Offer for On-Site Only: Tuition for tribal organizations and non-profit organizations is US \$150 and includes lunches and course manual.*

Attendance is limited, and is available on a first-come first-served basis. To reserve space, email or fax this form to HTI. A detailed outline and schedule for the workshop will be forwarded to registrants.

Name: \_\_\_\_\_

Organization: \_\_\_\_\_

E-mail: \_\_\_\_\_

Telephone: \_\_\_\_\_

*Email or Fax to:*  
**Attn: Short Courses, HTI - Hydroacoustic Technology, Inc.**  
 Fax (206) 633-5912  
[support@HTIsonar.com](mailto:support@HTIsonar.com) [www.HTIsonar.com](http://www.HTIsonar.com)