Tutorial: BioAcoustics Passive Acoustics Monitoring

(Approved for 0.8 Continuing Education Units and 8 Professional Development Hours)

Instructors: BioWaves Staff

Overview

Bio-Acoustics is a rapidly growing field in academia, government organizations (e.g. the Navy and NOAA Fisheries Service), the private sector, and the oil and gas industry. Additionally, as anthropogenic activities in the marine environment increase, passive acoustic monitoring (PAM) is becoming widely used for marine ecological studies, mitigation, and monitoring of marine mammals. In anticipation of the growing need for support in this field, Bio-Waves Inc. has designed a Passive Acoustic Technician (PAT) training course that combines theoretical instruction with hands-on demonstrations to give participants a working knowledge of acoustic data characteristics, as well as the hardware, and software used for collecting and processing data.

Bio-Waves has consolidated several elements of the Passive Acoustic Technician training course into a daylong workshop that provides an overview of key concepts in the field of passive acoustics. The focus of this one day training will consist of a review of the basic uses and applications of frequently used software (e.g. Ishmael and PAMGuard) related to PAM operations and post processing of data. We will also review hardware used for data collection, survey design, and troubleshooting issues that arise in the field.

Topics Schedule:

The training session consists of lectures intermixed with hands-on guided software activities, and an example schedule includes:

- Lecture: Introduction to passive acoustic uses and applications, real-time and post processing techniques, and localization practices (8:00-10:00)
- Activity: Guided exercises for localizing on marine mammal vocalizations using Ishmael software, along with navigation of the program capabilities in the field (10:00-12:00)
- Lunch (12:00-1:00)
- Lecture: Review of system noise and troubleshooting methods, PAM operations in the field, and survey designs (1:00-2:00pm)
- Activity: Navigation through PAMGuard and ROCCA software for real-time and post processing applications (2:00-4:00)
- Lecture: Review of hardware used for data collection, including an Acoustic Recording System (ARS), autonomous recorders, etc. and survey design (4:00-5:00pm)

Workshop Requirements

Due to the hands-on software activities presented in this course, each participant is required to bring their own computer with Windows XP or 7 operating systems. Prior to the workshop, participants will need to download and install Ishmael, PAMGuard, JAVA 3D and latest version of JAVA (all freeware) onto their laptop. Detailed instructions of setting up this software will be emailed to all participants when they register to eliminate time required for setup during the workshop. To provide the effective software exercise guidance, this workshop will be limited to a maximum of 50 participants, and will require minimally two Bio-Waves staff instructors and two assistants to conduct.