

## DATA MANAGEMENT FOR BATS ACOUSTICS CLASS

*Sample Agenda – Times/Lectures/Demonstrations Vary According to Venue*

*Included Meals: Breakfast = 8am, Beverages & Snacks (included); Lunch = 12pm (included); Dinner = 6pm (on your own)*

### **DAY 1: ACOUSTIC DATA MANAGEMENT, OFF-LOADING DETECTORS, & POST-PROCESSING**

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8:00am—Registration and Sample Files Distribution

9:00am—Welcome, Staff/Student Introductions, Workshop Format, Goals and Introductions

9:30am—Guided Demonstration: Off-loading and Post-processing Detector Data

- Organizing Acoustic Files Directory Structure, Archiving Data and Associated Files, Post-processing Workflow
- Attributing Acoustic Files: Using the SonoBat DataWizard to Optimize Data Organization
- Rename Files, Copy, Embed Text-header Information, Customize GUANO, Scrub Noise, and Prepare to Auto-classify

***Lunch (included)***

1:30pm—Lecture/Discussion: Comparing Software Programs for Auto-Classifying Bat Echolocation Calls

- Software Program Features and Capabilities
- Classifier Accuracy and Precision and Implications for Acoustic Survey Results

2:00pm—Lecture/Demonstration: Use SonoBat to Generate Auto-ID Classifications for Acoustic Surveys

- SonoBat Very Basic Operations
- Demonstration of the SonoBatch Control Panel & settings

4:00pm—Lecture/Demonstration: Use KaleidoscopePRO to Classify & Generate File-level & MLE Outputs

- Deleting/Moving SonoBat Scrubbed Files and Batching Remainder for KaPRO
- Viewing the KaPRO Outputs, Assigning Significance to File-level Classifications
- Understanding the MLE Values and their Significance

***Dinner (on your own)***

8:00pm-10:00pm—(Optional) Informal Detector Geek Session

*Working with SonoBat: View Batch, Hide Batch, Understanding Pulse-level, Sequence-level, and Consensus Decisions and their Relative Significance. Viewing and Vetting Recordings. Working with Detectors: Helpful Settings to Improve Recordings, Quick-start Guides, Model-specific Tips and Tricks.*

### **DAY 2: EFFICIENTLY COLLECTING ACOUSTIC DATA, INTRODUCTION TO BAT CALL ID & MANUAL VETTING**

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9:00am—Detector Deployment Considerations

- Siting and Placement Schemes, Deployment Gear, Microphone Selection, Orientation, and Weather-proofing
- Tips and Tricks for Gear Removal and Storage

1:30pm—Lecture/Demonstration: Using SonoBat and KaPRO to View and Analyze Echolocation Call Recordings

- Helpful Tools for Viewing and Vetting Recordings: Standard View, Reference Views, Etc.
- Recognizing Ambiguity among Species and Guilds: Knowing when NOT to Make the Call
- Recognizing Non-bat Recordings

10:00am—Lecture/Discussion: Review of Call Morphology & Call Characteristics of Local/Regional Bats

- Separating Bats into Acoustic Guilds using Fc Metrics, Call Shape Types, and Qualitative Analysis
- Recognizing Call Plasticity, Vocal Repertoires, and When NOT to Make the Call
- Identifying Multiple Bats in a Recording, Echoes, Harmonics, Social Calls, and Directives

***Lunch (included)***

## **DAY 2: EFFICIENTLY COLLECTING ACOUSTIC DATA, INTRODUCTION TO BAT CALL ID & MANUAL VETTING** (CONTINUED)

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1:30am—Student Exercise: Viewing and Identifying Sample Files, Manual ID Practice

- Students Receive Collections of Recordings and Use their Preferred Viewer(s) to Make Manual ID Decisions
- Students Summarize Results in Vetting Table; Annotating Decisions for Later Discussion

2:30pm—Using Excel Functions to Analyze Detector Log Files, Classifier Outputs, and Report on Results

- Helpful Columns to Add to SonoBat Outputs to Help Assign Significance to Auto-ID Results
- Functions to Extract Meta-data from Filenames
- Filtering, Sorting, and Pivoting Data to Create Reports

4:30pm—Student Exercise: Viewing and Identifying Sample Files, Manual ID Practice

- Students Present Manual ID Decisions on Sample Files, with Rationales for Decisions
- Instructors Review Student Decisions in Classroom Round-robin Exercise

### ***Dinner (on your own)***

8:00pm-10:00pm—(Optional) Informal Detector Geek Session

*Working with Real Field Data from Students: Using SonoBat, KaleidoscopePRO. Viewing and Vetting Recordings, Comparing Unknown Files to Reference Recordings. Working with Excel Outputs: Filter Results and Create Pivot Tables to Interpret Data from different Auto-classifiers and Create Occupancy Reports.*

## **DAY 3: TYING IT ALL TOGETHER – SUMMARIZING ACOUSTIC SURVEY RESULTS AND WRITING ACOUSTIC REPORTS**

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9:00am—Lecture/Discussion: Considerations for Mobile Transects

- Theory Behind Mobile Transects, Protocols for Conducting Transects, Check-list for a Successful Transect, Caveats
- Post-processing Transect Data and Visualizing Mobile Transects
- Case Study: Demonstrating Myotissoft Transect with Sample Files

10:00am—Lecture/Discussion: Hardware, Software, & Data Interpretation – Issues of Special Concern

- Why Auto-classifiers Can Fail and How To Spot It
- Some Known Hardware and Software Pitfalls To Avoid
- Case Studies of Difficulties Interpreting Professional Acoustic Surveys and Generating Reports

11:00am—Workshop Wrap-up and Closure: Thank you, Evaluations, Good-bye

- Distribution of Lecture Resources Identified at the Workshop
- Instructors Available for Additional Responses to Student Questions, Problems, and Lingering Issues