

Dorado Bioacoustics - Meeting Notes January 23, 2018

Attendees: KBB, CW, BR, KR, EJM, FC, PM, E ## Updates

1. Kelly B.B. update on transducer selection.
 - switch 70 to 333kHz and 200kHz
 - limits range, better resolution
 - allows us to put them next to each other
 - 2ft cables only, can be advantageous to quick disconnect solution.
2. Discuss day move on
 - Nov 26 to Dec 9th

Functional Requirements Review

The requirements we have identified for the proposed system are:

1. All components must be contained within the I2Map Payload area. *remove?*
2. The system must facilitate deck configuration and start/stop operation.
3. Data (up to 100 GB per dive), must be available post-dive.
4. There must be a ~~dedicated~~ Windows-based processor to operate the software.
5. Time, depth, and position data from the vehicle must be incorporated in the recorded data ~~via a NEMA string~~
6. The acoustic system must survive the depth rating of the overall payload.
7. Transducers cannot impact the video data.
8. The forward-oriented transducers' field of view must overlap with the field of view of the camera from 1-5 m of the vehicle.
9. I2Map must remain deployable without the acoustic payload and during development
10. Science Requirements:
 - ping rate/ping power/detail
11. Do we want this to be on CTD missions as well? 24 hour missions. Power reqs, mission tilt an issue.
12. Be a permanent addition to the system? Optional.
13. Cannot impact existing surveys in duration or depth capability.
14. If possible how compact. Power requirements change.
15. Continuous data collection.
16. Cannot impact other acoustic systems, and vice-versa.
17. 5 hour data download.
18. System needs to deployed without the AUV [*Nice to have*]

Derived Requirements

Mechanical

The following are mechanical requirements:

1. Depth rated to 1500-m
2. No obstruction for transducers to xx degrees normal to the transducer. (TBD)
3. No video image obstruction from additions components.
4. Transducers mounted permanently or easily installed/removed.
5. Neutrally buoyant
6. Vehicle shall remain in stable flight at existing I2MAP normal through-water speed.

Electrical / Software

The electrical and software requirements are:

1. Self-powered or auv-host connection (18-36VDC), existing electronics require a clean 12-17VDC input.
2. Power required (TBD) *Currently 10W with computer*
3. Isolated TTL Trigger Input/Output, ability to interleave w/ other sources.
4. GPS/Depth/MRU serial data to sonar software
5. Configuration interface (ethernet/remote desktop)
6. CPU must accommodate simrad and echoview software
7. Unit must store minimum 1 dive's data (confirm LFM worst case).
8. Disciplined time input (ntp or 1-PPS)
9. Provide a dedicated download connection.
10. Isolate all communication.
11. Data Workflow
12. 4 hour run time.
13. Must respect normal AUV environmental monitoring standards.

Other topics

1. Discuss battery vs self closed housing.
2. Overall Schedule (MS Project)
 - Hard Milestones: sea days 10/26, 10/29, 11/26
 - Soft Milestones:
 1. Preliminary Design Review, by end of March
 2. Critical Design Review (likely separate mechanical/electrical), by end of May, push up for 12 week bulkhead lead time.
 3. Manufacturing, done by September
 4. No tank testing?

3. Updated System Diagram for IO definition.
4. Nautilus order in the next 30 days, decide on main housing architecture.
5. Bottom 8 pack 800 WHr.

Action Items

1. Order Transducers [KBB]
2. Science Related Functional Requirements [KBB]
3. System Diagram [EJM]
4. Power Pack Spec [EJM]
5. Interface Diagram [EJM]