

## PROPOSED AOOS BUDGET ADDITIONS

Follow-up to May 22, 2019 Board Meeting; Updated July 17, 2019

The Board delayed acting on funding for small project proposals and other item budget additions, using a combination of the IOOS Fill the Gaps Streamline access to Observations funding (\$80K) and additional AOOS funds available for reallocation (\$50K). The Board primarily wanted staff to obtain additional information on some of the proposals to be given to the executive committee for a final decision. Based on the additional information requested, staff developed final recommendations which were circulated to the full board for additional input. Only NOAA AK Fishery Science Director Bob Foy responded with additional information for item C. These are staff's final updated recommendations:

### A. STREAMLINE ACCESS TO OBS

**\$80,000**

*To be used for highly visible observation or data projects that fill an important gap. Last year similar funds were used kick-start Water Level Watch data portal development, and to support installation of new AIS/weather station on St. Lawrence Island.*

**Final staff recommendation: Use Fill the Gaps Streamline Access to Obs funds (\$80K) for projects 1, 2 & 3.**

**1. Utqiagvik GPS water level installation: New contracts with JOA (John Oswald Associates), ASTRA, ADNOR (estimated \$45K).** Install the AOOS-owned ASTRA GPS system in Utqiagvik (Barrow), Alaska to make water level observations.

#### No Questions from Board

AOOS strongly supports this project. AOOS owns the ASTRA GPS equipment already, and the equipment is available for remote community installations with or without gridded power. One of the Alaska Water Level Watch priority sites for GPS water level observations is Utqiagvik. We think siting and permitting will be straightforward here as well. This keeps the investment from the National Weather Service and AOOS in developing alternative water level observing technologies moving forward. The intent of this would be a permanent installation.

**2. GPS water level data solution: New contract with ASTRA, LLC (\$30K).** Develop operational water level data from GNSS observations at three UNAVCO stations (including St. Michael, which AOOS/NWS paid for) and provide algorithms to AXIOM for long-term operational use.

#### No Questions from Board

AOOS strongly supports this project. AOOS has paid for the entire St. Michaels UNAVCO installation and is receiving real-time GNSS data, but the data needs to be re-calculated for water levels. This will provide that and will help operationalize other opportunistic UNAVCO stations nearshore to provide water level data.

**3. HydroBall Pilot Project 2020: New project (Year 1: \$5K; Year 2: estimated \$25K).** Pilot a single beam bathymetric surveying program using an instrument towed by a small boat in western Alaska coastal communities, river mouths and estuaries using a community approach.

#### Questions from AOOS Board

Where is this project in the planning stages?

- This project would be a pilot with significant cost share potential with NOAA Office of Coast Survey (equipment purchase for about \$25K and for processing data, unknown value), plus liaison/communications with community (Western AK Landscape Conservation Cooperative has agreed to pick up this expense).
- The total for the pilot project was estimated about \$50K including the above costs and the cost of paying stipends to the community monitors. However, 50-75% of the costs would be taken care of by partners, so the total overall costs to AOOS may be closer to \$15-20K (depending on how the data is handled).
- Project needs a support letter to NOAA OCS to get this underway.
  - We are hoping they will agree to purchase pilot instrumentation and to also work up the data.
  - AOOS is interested in running this pilot program in one community in western AK, and will scope it out in 2019, hoping to implement in 2020.
- AOOS is requesting \$5K this year to further scope the project to determine the feasibility and interest (including travel for WALCC). Funds would be used to census communities, coordinate with partners on what community to pilot the project in, and conduct some additional outreach and training, and maybe a community workshop.
- The 3 parties (AOOS, NOAA, and Western AK LCC) would use this information to determine the feasibility of implementing the pilot in 2020, as well as the level of partnership support.

#### **B. REALLOCATION OF EXISTING AOOS FUNDS**

*About \$50K in Other category in budget is available for reallocation, largely due to over-budgeting for rent/parking and postage/printing.*

**Final Staff Recommendation: Use funds from Years 1-3 in Other category for Projects 4, 5 and 6. Authorize use of additional funds from the existing AOOS core budget as they are available and as needed for Projects 7 and 8 since those funding needs are uncertain at this time.**

**4. Replacement of oxygen equipment: Add to existing subaward with Russ Hopcroft, UAF (\$5,693).** Replace dissolved oxygen sensor on shipboard CTD for Seward Line surveys.

AOOS supports this small equipment purchase to maintain competent oxygen measurements along the Seward Line, a critical parameter for both biophysical observing and also for carbonate chemistry. It is inexpensive.

**5. Replacement of hydrophone equipment: Add to existing subaward with Kate Stafford, UW (\$11,905).** Replaces borrowed and aging hydrophone packages used on AOOS-funded Chukchi Sea Ecosystem Mooring.

AOOS supports this small equipment purchase to replace begged-borrowed equipment on one of our sentinel moorings. It is inexpensive.

**6. Near-Real-Time Beach Flooding/Erosion Monitoring Cameras : Add to existing subaward with Jacqueline Overbeck, AKDNR/DGGS (\$24,591) for new component.** The Alaska Water Level Network would test 4 different camera systems for near-real-time beach flooding/erosion monitoring. Funds would be used to purchase 3 systems for trials.

#### Questions about project

- Two types of cams require cell service; the other uses satellite for communications. Part of the test is to see which can better supply near real-time information without having to send a community member out to make a tide stage measurement.
  - Testing for ability to set up direct communications for images in RT.
- Will someone download the images or will that be done operationally?
  - Images will feed semi real-time to ADNR's DGGS which will then provide feed to public through AOOS website.
- Why do you need to test cameras for endurance in cold climates when there are already many tested and tried webcams that operate year-round in cold climates being used in Alaska?
  - We will research potential candidates that are already in operation in Alaska to see if they might provide the quality images we need for this effort (i.e., Microspecialties).
  - Currently, other webcams that are installed are not close enough to the beach, so they cannot be validated as high quality enough imagery, but we definitely can research more on existing systems that might be suitable and start there, reducing our need to test for endurance.
- What are you really testing for, endurance or quality of images?
  - Both, but yes, we should research more on what systems are working in Alaska, and make sure we are not testing systems that are already known not to work.
  - We will work with webcam operators in the region to learn more before our field trials.
- Have you researched what cameras are already known to work in the Arctic and narrowed down your trials from that?
  - No, but we will
- Why is AOOS being asked to purchase climbing equipment and provide training for climbing towers?
  - We do the tower climbing exclusively for AOOS...we otherwise would not need this training. The State will not fund as there are not tasks in state job

description requiring tower climbing or hanging off a bridge to install water level sensing equipment. This is only done for the AOOS contracts.

- Based on the most recent annual report, this training and equipment was already purchased by AOOS, so is this still needed in this proposal?
  - Yes, it was for 2 persons, but it is not clear these same people would be used for this camera project, so we wanted to build in the training costs from the beginning. Same for equipment.
  - Testing will include usability of camera interaction software for sending and receiving data...will reach out to potential users to ensure these issues are well documented.
- USGS is doing similar research. Will this collaborate with that?
  - Of course.

**7. Workshops/stakeholder engagement preparing for FY21-25 proposal: (could be \$10-20K, depending).** These funds would be taken from available personnel/fringe funds and added to conferences & stakeholder travel lines for upcoming workshops as needed, including possible marine debris and Prince William Sound workshops.

**8. CDIP Buoy Projects (could be \$10-15K, depending): O&M on 3 Wave Buoys (including new Kodiak NREL asset)**

#### Questions from Board

Can we assume operations of the NREL wave buoy off of Kodiak within the existing budget?

Does it make sense to support this buoy on loan?

- By AOOS assuming operations and maintenance of the NREL Wave buoy, for little investment we get an established asset, mooring in place, buoy deployed, buoy purchased (that alone is worth \$70-80K).
- Our CDIP Partner at Scripps is handling the data and iridium fees. We should have support from the Kodiak USCG Buoy tender for at least one buoy visit, and recovery after we are done with it in 2021. We may have to charter a vessel for one RT this summer to redeploy after servicing. We have estimates for batteries and CDIP Tech travel to service buoy. We would contract with Ocean Power Technologies to help with logistics in Kodiak on an as needed basis (i.e. to charter vessel to go get buoy if it breaks loose).
- With this new buoy, we will likely exceed our 2019 budget for maintenance of wave buoys due to having committed resources to the Nome buoy that had not previously been budgeted. We will likely need to identify additional resources to support the NREL buoy for the next year.

#### **C. PROJECTS NOT RECOMMENDED FOR MOVING FORWARD AT THIS TIME**

This project is in addition to the projects that were on the mini-proposal list, but weren't as highly ranked.

**Kodiak Burk-O-Lator support: New project with NOAA Kodiak AFSC lab, Chris Long (\$48,230).** Funding would provide support for personnel running nearshore carbonate chemistry samples from Kodiak villages using the Kodiak lab's Burk-O-Lator.

Burk-o-lators have been funded by the national Ocean Acidification Program and the IOOS Ocean Technology transfer program on a pilot basis. There are four OAP systems currently operating in Alaska (Ketchikan, Sitka, Seward and Kodiak). Long-term funding for three of these (Ketchikan, Sitka & Seward) through OAP is uncertain at this time, and the Kodiak program only has partial funding through the NOAA Kodiak facility. We have received \$30K this year from the OA Program Office to provide technical support to Alaska's burk-o-lators. We will be talking with the overall program on how best to spend these funds. Clearly there is long-term interest throughout Alaska in supporting the kinds of community-based monitoring enabled by the burkolators.

#### Questions from staff & board

- Is this system operational now?
  - Proposal says it is being run through September 2019 to process samples from community sample collection effort, with partial staff support.
- What is the long-term support looking like for this BOL?
- Is BIA willing to partner with financial support for community sampling program?
- Proposal states that the BOL was originally purchased with funds from OAP and NOAA Aquaculture, but this is unclear since our understanding is that it was purchased by UAF Ocean Acidification Research Center.
- Who is leading the OA BOL project now in Kodiak and what kind of support does it have? This was acquired when Bob Foy, a leading OA researcher, was at the Kodiak lab. He is now the director of AFSC, based in Juneau. Currently, the Kodiak BOL is not a collaboration with the other AK BOLs and is a stand-alone system. The Kodiak BOL is not at this time funded under the OAP BOL projects, so we need to find out more from Chris about the operational status, who is taking it over, etc.

#### Response from Bob Foy:

- This system was purchased through NOAA's Arctic Program. It has had some difficulties in getting running, but is now doing so with the support of a ½ time technical staff funded with 1-year aquaculture grant funds.
- They are now cobbling together the funding to analyze discrete water samples collected by IGAP staff from 3-4 villages.
- AFSC would like to find long-term funding to create a long-term time series database.