

EVOSTC **FY21 CONTINUING INDIVIDUAL PROJECT PROPOSAL SUMMARY PAGE**

*Proposals requesting **FY21** funding are due to shihway.wang@alaska.gov and elise.hsieh@alaska.gov by **August 14, 2020**. Please note that the information in your proposal and budget form will be used for funding review. Late proposals, revisions or corrections may not be accepted.*

Project Number and Title

Gulf Watch Ocean Acidification Monitoring

Primary Investigator(s) and Affiliation(s)

Jeff Hetrick, Director, Alutiiq Pride Shellfish Hatchery

Rob Campbell, Biological Oceanographer Coordinator Prince William Sound Science Center

Steve Baird, Research Coordinator Kachemak Bay National Estuarine Research Reserve

Wiley Evans, Ph.D., Hakai Institute, Regional Expert Ocean Technology Transfer Project IOOS and NOAA.

Date Proposal Submitted

August 11, 2020

Project Abstract

The Chugach Regional Resources Commission (CRRC) operates the Alutiiq Pride Shellfish Hatchery (APSH) and the Alaska Ocean Acidification Laboratory in Seward, Alaska. This project would incorporate ocean acidification sampling into the Gulf Watch Program currently funded by *Exxon Valdez* Oil Spill (EVOS) Trustee Council (TC). The Gulf Watch program, through its routine sampling, would add the collection of ocean acidification samples to several of its sampling sites. This would add to the current data set from these sites and offer a broader understanding of ocean acidification in the Prince William Sound and Lower Cook Inlet. The Prince William Sound Science Center (PWSCC) and the Kachemak Bay National Estuarine Research Reserve (KBNERR) are current partners in the Gulf Watch program and routinely conduct marine (vessel) sampling transects on a time series. The cost to sample and process ocean acidification samples (\$34,323 per year) would be the only additional cost to the PWSCC and KBNERR existing programs and would go directly to CRRC.

EVOSTC Funding Requested* (must include 9% GA)

FY20	FY21	FY22	FY23	FY24	TOTAL
\$34,323	\$34,323	\$34,323	NA	NA	\$102,969

Non-EVOSTC Funds to be used, please include source and amount per source: (see Section 6C for details)

FY20	FY21	FY22	FY23	FY24	TOTAL
0	0	0	NA	NA	0

**If the amount requested here does not match the amount on the budget form, the request on the budget form will be considered to be correct.*

1. PROJECT EXECUTIVE SUMMARY

*Provide a summary of the program including key hypotheses and overall goals, as submitted in your original proposal. Please include a summary and highlights from your **FY20** work: preliminary results with figures and tables should be accompanied with interpretation and short discussion to assist with proposal evaluation. If there are no preliminary results to present, please explain why (i.e., lab analysis is still in progress). List any publications that have been submitted and/or accepted since you submitted your last proposal and other products in Section 7. If applicable, **FY19** Annual Reports will be included with this proposal for review.*

There are no preliminary results to report

Ocean acidification has been studied in the open ocean for many years. The APSH developed an Ocean Acidification Lab starting in 2012 in response to industry leaders recognizing the impacts of ocean acidification on shellfish hatchery. From that time APSH has developed a lab capable of delivery climate data for a continuous monitoring program of in-take water from Resurrection Bay and an extensive discrete sampling program for 12 partners throughout Alaska. A project funded by the Bureau of Indian Affairs provided 2 years of support to sample communities and waters of Lower Cook Inlet and Prince William Sound. CRRC solicited samples from the PWSCC and KBNERR while conducting their Gulf Watch sampling to broaden the geographical coverage. That funding has expired and now CRRC is requesting that the EVOS TC include the processing of ocean acidification samples within its Gulf Watch Program. This proposed project would be an addition to existing monitoring capability to the Gulf Watch Program currently funded by the EVOS TC.

2. PROJECT STATUS OF SCHEDULED ACCOMPLISHMENTS

Milestones are annual steps to meet overall project objectives.

Tasks are annual steps to meet milestones (for example, sample collection, data analysis, manuscript submittal, etc.)

*For each milestone and task listed, specify by each quarter of each year their status (completed, planned), as submitted in your **FY20** proposal.*

Reviewers will use this information in conjunction with annual program reports to assess whether the program is meeting its objectives and is suitable for continued funding.

A. Project Milestones and Tasks

Table 1. Project milestones and task progress by fiscal year and quarter, beginning February 1, 2017. **Additional milestones and/or tasks have been added in red.** C = completed, X = planned or not completed. Fiscal year quarters: 1 = Feb 1 – April 30; 2 = May 1 – July 31; 3 = Aug. 1 – Oct. 31; 4 = Nov. 1 – Jan. 31.

Milestone/Task	FY20				FY21				FY22				FY23				FY24			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Milestone 1: list																				
Collect Samples	x	x	x	x	X	C	X	X	X	X	X	X								
Milestone 2: list																				
Process Samples		X	X	X	X	X	X	X	X	X	X	X								
Milestone 3: list																				

	FY20				FY21				FY22				FY23				FY24			
Annual Reports					X				X				X							
FY 21 Work Plan			x				X													
Final Report																				
													X							
New Milestone: list																				
Task 1																				

B. Explanation for not completing any planned milestones and tasks

For each milestone and task listed in the table that has not been completed as scheduled, please provide an explanation and when you expect to complete it. If all milestones and tasks have been completed, write a complete sentence stating that.

Reviewers will use this information in conjunction with annual program reports to assess whether the program is meeting its objectives and is suitable for continued funding.

Because of the Covid epidemic the some of the sampling trips have been postponed. The Kachemak Bay National Estuarine Research Reserve (KBNERR) completed its quarterly sampling event from T6_4,T4_4 (same as KBO3), and T9_6 which amounts to 18 samples. KBNERR expects to collect the 18 samples monthly through the remainder of 2020. This represents a loss of either 2 or 3 sampling transects from the 6 that were scheduled in 2020. Sampling has since resumed and should be completed as scheduled for the remainder of FY20.

The Prince William Sound Science Center has completed 1 sampling trip and missed 1 of the 5 scheduled for 2020. They are scheduled to collect samples as planned for the remainder of 2020.

APSH will be able to process all of the samples collected in 2020.

C. Justification for new milestones/tasks

Please provide justification for any new milestones or tasks that are being proposed. If none are proposed, write a complete sentence stating that.

Reviewers will use this information in conjunction with annual program reports to assess whether the program is meeting its objectives and is suitable for continued funding.

None

3. PROJECT COORDINATION AND COLLABORATION

A. Within an EVOSTC-funded Program

Provide a list and clearly describe the functional and operational relationships with any EVOSTC-funded Program (Herring Research and Monitoring, Long-Term Research and Monitoring or Data Management Programs). This includes any coordination that has taken or will take place and what form the coordination will take (shared field sites or researchers, research platforms, sample collection, data management, equipment purchases, etc.).

Gulf Watch Alaska

This project is a collaboration with the currently funded EVOSTC Gulf Watch under Long-Term Research and Monitoring Program. APSH has a long-standing relationship with PWSSC and KBNERR through collection and processing of a subset of ocean acidification samples for the aforementioned project funded by the BIA Landscape Conservation Program in 2016 among other partnerships and professional relationship relationships

throughout the years. This project is utilizing the existing Gulf Watch scheduled cruises and sampling sites to collect water samples to analyze for ocean acidification.

Herring Research and Monitoring

None at this time

Data Management

All data collected and sample results from the APSH lab is shared with the IPACOA web portal managed by Alaska Ocean Acidification Network. The raw data is calibrated from liquid and gas standards. APSH has undergone external reviews and is rated in the top 10 % of blind lab reviews for accuracy. The APSH lab produces climate data which means that the results are within 1% of the standards provided by Andrew Dickson's Lab, Scripps Institute of Oceanography.

All data results are processed by APSH under its quality assurance program and further reviewed by Hakai Institute and then shared to the IPCOA portal.

This project will also coordinate with the EVOSTC-funded Data Management Program objectives for submitting data and preparing metadata for publication as part of the Gulf of Alaska Data Portal, within the timeframes required.

B. With Other EVOSTC-funded Projects

Indicate how your proposed project relates to, complements, or includes collaborative efforts with other proposed or existing projects funded by the EVOSTC that are not part of an EVOSTC-funded program.

Water chemistry data is vital to all researchers involved with researching the marine environment in Prince William Sound and Lower Cook Inlet. The Gulf Watch Program is a well-developed water sampling program. The addition of processing ocean acidification sampling is limited to the cost of processing the samples at the Ocean Acidification Lab in Seward.

The Prince William Sound Science Center is testing innovative plankton monitoring systems at its profile site near Naked Island. Inorganic chemistry data will add another layer of data to help understand the dynamics of plankton populations. That research is funded by a variety of sources including Scripps Institute of Oceanography and the North Pacific Research Board (NPRB).

NA

C. With Trustee or Management Agencies

Please discuss if there are any areas which may support EVOSTC trust or other agency work or which have received EVOSTC trust or other agency feedback or direction, including the contact name of the agency staff. Please include specific information as to how the subject area may assist EVOSTC trust or other agency work. If the proposed project requires or includes collaboration with other agencies, organizations, or scientists to accomplish the work, such arrangements should be fully explained, and the names of agency or organization representatives involved in the project should be provided. If your proposal is in conflict with another project, note this and explain why.

This proposal will require lead scientists and staff at Kachemak Bay National Estuarine Research Reserve (Steve Baird) and Prince William Sound Science Center (Rob Campbell) to schedule and include ocean acidification sampling in their marine sampling trips. Collaborators will need to send samples to Seward and insure the QAPP is adhered to. If any sampling deficiencies are discovered the QAPP has provisions for samplers to make adjustments to ensure samples are being collected properly.

There are no known conflicts with other projects or programs.

4. PROJECT DESIGN

A. Overall Project Objectives

Identify the primary objectives for your project as submitted in your original proposal.

The objective of the proposal is to extend the sampling coverage of the Chugach Regional Resources Commission’s Ocean Acidification Program and take advantage of EVOSTC existing investments into the Gulf Watch Program. CRRRC has funded cooperation with the Gulf Watch Program through BIA funds which have expired. Long term data sets are important for documenting ocean acidification changes through time.

B. Changes to Project Design and Objectives

If the project design has changed from your original proposal, please identify any substantive changes and the reason for the changes. Include any information on problems encountered with the research or methods, if any. This may include logistic or weather challenges, budget problems, personnel issues, etc. Please also include information as to how any problem has been or will be resolved. This may also include new insights or hypotheses that develop and prompt adjustment to the project.

None

5. PROJECT PERSONNEL – CHANGES AND UPDATES

Note any staffing changes to Primary Investigators or other senior personnel. Please provide CV’s for any new personnel and describe their role on the project.

None

6. PROJECT BUDGET

A. Budget Forms (See GWA FY20 Budget Workbook)

Please see project budget forms compiled for the program.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL PROJECT BUDGET PROPOSAL AND REPORTING FORM

Budget Category:	Proposed FY 20	Proposed FY21	Proposed FY22	Proposed FY23	Proposed FY24	TOTAL PROPOSED	ACTUAL CUMULATIV
Personnel	\$15,075.0	\$15,075.0	\$15,075.0	\$0.0	\$0.0	\$45,225.0	
Travel	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Contractual	\$11,925.0	\$11,925.0	\$11,925.0	\$0.0	\$0.0	\$35,775.0	
Commodities	\$250.0	\$250.0	\$250.0	\$0.0	\$0.0	\$750.0	
Equipment	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Indirect Costs (<i>will vary by proposer</i>)	\$4,239.0	\$4,239.0	\$4,239.0	\$0.0	\$0.0	\$12,717.0	
SUBTOTAL	\$31,489.0	\$31,489.0	\$31,489.0	\$0.0	\$0.0	\$94,467.0	
General Administration (9% of subtotal)	\$2,834.0	\$2,834.0	\$2,834.0	\$0.0	\$0.0	\$8,502.0	
PROJECT TOTAL	\$34,323.0	\$34,323.0	\$34,323.0	\$0.0	\$0.0	\$102,969.0	
Other Resources (Cost Share Funds)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	N/A

COMMENTS:

This summary page provides an five-year overview of proposed funding and actual cumulative spending. The column titled 'Actual Cumulative' must be updated each fiscal year as part of the annual reporting requirements. Provide information on the total amount actually spent for all completed years of the project. On the Project Annual Report Form, if any line item exceeds a 10% deviation from the originally-proposed amount; provide detail regarding the reason for the deviation.

Additional text as needed.

B. Changes from Original Project Proposal

*If your **FY21** funding request differs from your original proposal, provide a detailed list of the changes and discuss the reason for each change.*

None

C. Sources of Additional Project Funding

Identify non-EVOSTC funds or in-kind contributions used as cost-share for the work in this proposal. List the amount of funds, the source of funds, and the purpose for which the funds will be used. Do not include funds that are not directly and specifically related to the work being proposed in this proposal. Please attach documentation from additional project funding sources which confirms and describes matching funds, including date(s) the matching funds are/will be authorized.

None

7. PROJECT PUBLICATIONS AND PRODUCTS

Products include publications (include in prep and in review), published and updated datasets, presentations, and outreach since the start of the project.

Publications

Chugach Regional Resources Commission (CRRC) 2018. Quality Assurance Project Plan, Sear Water Quality Monitoring Program. Prepared by: Alutiiq Pride Shellfish hatchery for the Chugach Regional Resources Commission. Funding from EPA's Indian Environmental General Assistance Program. September 2018

Published and updated datasets

NA

Presentations

NA

Outreach

NA