

Ecological Communities in Kachemak Bay – Iken and Konar (UAF, 15120114-L)

FY15 PROJECT PROPOSAL SUMMARY PAGE					
Continuing, Multi-Year Projects					
Project Title: Long-term monitoring: Benthic monitoring component - Long-term monitoring of Ecological Communities in Kachemak Bay: a comparison and control for Prince William Sound					
Project Period: February 1, 2015 – January 31, 2016					
Primary Investigator(s): Brenda Konar and Katrin Iken (UAF) Co-operating Investigator: Angie Doroff (KBNERR)					
Study Location: Kachemak Bay, lower Cook Inlet					
Project Website (if applicable): http://www.gulfwatchalaska.org/					
Abstract*: This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services. As part of this component, we monitor rocky intertidal, seagrass and clam gravel beach systems as well as the sea otter abundance and diet in Kachemak Bay. This component is complementary to work being conducted under this program in Prince William Sound, Kenai Fjords and Katmai.					
Estimated Budget:					
EVOSTC Funding Requested* (must include 9% GA):					
FY12	FY13	FY14	FY15	FY16	TOTAL
\$44	\$44.2	\$44.1	\$44.1	\$44.4	\$22.7
Non-EVOSTC Funds to be used:					
FY12	FY13	FY14	FY15	FY16	TOTAL
Date: September 2, 2014					

I. EXECUTIVE SUMMARY

The purpose of this study is to provide long-term monitoring data for the Gulf of Alaska regions, specifically the nearshore environment that is most affected by anthropogenic influences such as oil spills and to climate fluctuations and changes. The focus of the Gulf of Alaska Long-Term Monitoring program is on Prince William Sound but a larger area has to be monitored to be able to evaluate if any patterns in community dynamics that are seen are locally isolated or reflect larger-scale patterns. Kachemak Bay, contiguous to lower Cook Inlet, is one of these reference sites and is here monitored for rocky intertidal communities, seagrass beds, clam and mussel communities as well as sea otter abundance and diets. We find that Kachemak Bay communities differ in many aspects from other Gulf of Alaska regions and these regional data will be used to document these differences in detail and to create a better understanding of the potential environmental drivers that cause those differences.

II. COORDINATION AND COLLABORATION

A. Within a EVOTC-Funded Program

This project focused on Kachemak Bay is tightly linked conceptually and methodologically to other aspects of the Gulf Watch program, specifically the nearshore benthic monitoring and sea otter work being done in Prince William Sound, Katmai, and Kenai Fjords. Sampling protocols for assessing these communities have been standardized to create comparable data sets without jeopardizing historically available data. These project components share sampling protocols and data management.

B. With Other EVOSTC-funded Projects

This project links tightly with the Herring project funded by the EVOSTC. Herring are known to use kelp in the nearshore environment as essential spawning grounds, so the information collected through the nearshore benthic monitoring work is an important link to the life cycle of this important forage fish.

The Kachemak Bay component also builds on earlier work funded by the EVOSTC for nearshore biodiversity sampling under the NaGISA project. Those historical data are comparable to those collected now and build important components of a time series. Data management is shared for both historical and ongoing projects under the AOOS workspace and data portal.

C. With Trustee or Management Agencies

Within the sea otter component of this project we have partnerships with the USFWS and USGS for aerial-based population surveys. The USFWS Marine Mammals Management, Alaska Maritime National Wildlife Refuge, and the Alaska Marine Mammal Stranding Network all contribute to monitoring the sea otter mortality trends in the Kachemak Bay area. USFWS is conducting regular beach surveys for stranded live and dead sea otters on the north side of the bay (contact: Verena Gill). The Marine Mammal Stranding Network incorporates students from the Kachemak Bay Campus to fill this monitoring role year-around.

III. PROJECT DESIGN – PLAN FOR FY15

A. Objectives for FY15

- 7) Determine trends in sea otter abundance.
- 8) Determine the diet and dietary shifts of sea otters.
- 9) Determine trends in sea otter and seabird mortality.
- 10) Determine trends in marine debris.
- 11) Determine trends in the abundance and distribution of rocky intertidal plants and invertebrates
- 12) Determine trends in the abundance and size frequency of clams and mussels on gravel beaches.
- 13) Determine trends in selected environmental parameters and relate them to #1-6 above.

The field work for this proposal will be completed annually for four years and followed by a year of data synthesis (year 5), with the outlook of continuing this pattern of monitoring for up to 20 years.

B. Changes to Project Design

There have been no substantive changes to this project. We have experienced some challenges with the recovery of data loggers that are either removed by inclement weather or curious visitors to the beaches. Hence, the collection of temperature information alongside the biological information is not progressing as well as anticipated. Since the Kachemak Bay Research Reserve maintains long-term temperature monitoring in two locations in Kachemak Bay we are confident that we can obtain relevant and appropriate temperature data from those records for those times when we are missing data.

IV. SCHEDULE

A. Project Milestones for FY 15

- Objective 1.** Monitor intertidal communities in Kachemak Bay.
To be done annually from 2012-2016.
- Objective 2.** Monitor sea otter diet annually in Kachemak Bay.
To be done annually from 2012-2016.
- Objective 3.** Synthesize temporal (annual) patterns in intertidal communities and sea otter diet in Kachemak Bay.
To be met by September 2016.

B. Measurable Project Tasks for FY 15

FY 15, 1st quarter (February 1 – April 31, 2015)

February-April, 2015 *Plan field sampling on intertidal communities, conduct monthly sea otter scat sampling*

FY 14, 2nd quarter (May 1 – July 30, 2015)

May-June 2015 *Conduct field sampling on intertidal communities and sea otter diet*
July 30: *Enter data from field sampling, continue sea otter sampling*
August 30: *Continue data entry, preliminary data analysis, reporting (6-month report)*

FY 14, 3rd quarter (August 1 – October 31, 2015)

November 30: *Continue data analysis, project presentation at annual PI meeting, discussions with collaborators on joint synthesis products*

FY 14, 4th quarter (November 1, 2015 – January 31, 2016)

January 31: *Report writing, prepare presentation at scientific conference (Alaska Marine Science Symposium), continue work on synthesis products*

V. PROJECT PERSONNEL – CHANGES AND UPDATES

There are no changes to the project personnel

VI. BUDGET

A. Budget Forms

Please see program workbook for completed budget forms.

B. Changes from Original Proposal

Funding requests do not differ from the original proposal

C. Sources of Additional Funding

EVOS oil exposure of harlequin ducks and sea otters – Ballachey (USGS Alaska Science Center, 14120114-Q)

No funding is requested for this project as it has been completed. Findings from this work will be provided in the 2014 Science Synthesis Report and in the Year 3 Gulf Watch Alaska Annual Program Status Summary.