

## **EVOSTC ANNUAL PROJECT REPORT**

**Project Number:** 050750.....

**Project Title:** *Implementation of the GEM Nearshore Monitoring Plan: site selection, standard operating protocols, and data management*

**PI Name:** *JL Bodkin, TA Dean, and M. Sigman*

**Time period covered by report:** *9/2004-8/2005*

**Date of Report:** *16 Aug. 2005 .....*

**Report prepared by:** *JL Bodkin, TA Dean and M Sigman*

**Project website address (if applicable):** ...

**Work Performed:** Summarize work performed during the reporting period, including any results available to date and their relationship to the original project objectives. Explain deviations from the original project objectives, procedural or statistical methods, study area or schedule. Also describe any known problems or unusual developments, and whether and how they have been or can be overcome. Include any other significant information pertinent to the project.

**The Gulf Ecosystem Monitoring and Research Program (GEM) is being designed to provide a long-term foundation for supporting and facilitating important marine research and monitoring in the greater Gulf of Alaska ocean system, including the Nearshore habitat.**

The Gulf of Alaska nearshore habitats support populations that are economically, ecologically, and socially valuable to humans. Because of their importance to humans, detecting change in nearshore habitats, both natural and anthropogenic, plays a prominent role in the GEM plan. Over the past several years several steps have been taken toward implementing the GEM Nearshore Monitoring Program. These include a series of workshops to identify nearshore resources and sampling strategies, development of specific monitoring designs with cost estimates, and the creation of a spatially explicit GOA nearshore science bibliography. In this report we describe the work performed in FY 2005 in developing, designing a monitoring plan for the Nearshore habitat, within the GEM Program. We also describe the progress to date toward site selection and in designing and testing standard operating protocols.

Specific objectives for work in 2005/2006 are:

1. Select specific sites for sampling as prescribed in the sampling designs proposed (Bodkin and Dean 2003).
2. Develop Standard Operating Procedures (SOPs) for each task outlined in the alternative sampling designs. These are to address all aspects of each task, including field sampling procedures, required laboratory analyses, data analysis, and data management.
3. Develop a structure for a database management system to be used in the nearshore.
4. Test the sampling procedures and database management system for nearshore data.
5. Facilitate community involvement in selecting sites, developing SOPs, and testing field sampling protocols.

Progress toward each of the stated objectives has been satisfactory. A statistically valid protocol for site selection that allows for inclusion of additional sites in the future was adopted and site selection is proceeding. Input from scientists, managers, communities, and individuals has, and continues to be obtained and incorporated into community based selective extensive sampling sites and intensive sampling blocks.

Standard Operating Protocols (SOP's) for each of the sampling components have been identified and drafts completed. Work continues toward completing sampling SOP's.

Data base structures have been identified and tested. Work continues on refining the database management system. It is recognized that this component of the Nearshore GEM program must be compatible with the larger GEM program and should continue under the umbrella of the GEM program, and not independent of it.

In April and June of 2005 two field trips were taken to further design and testing of SOP's. One was in Prince William Sound, the other in Kachemak Bay. The April trip included a representative from the EVOS Trustee Council office that worked extensively with us on data base development and management.

Throughout FY 2005 extensive efforts toward engaging communities in site selection, SOP development, and sampling design were undertaken. Trips were made to Kodiak, Cordova, Valdez, Port Graham and Nanwalek (see below). Trips to Seward and Homer are planned for 2006.

**Future Work:** Summarize work to be performed during the upcoming year, if different from the original proposal. Describe any proposed changes in objectives, procedural or statistical methods, study area or schedule. *NOTE: Significant changes in a project's objectives, methods, schedule or budget require submittal of a new proposal subject to the standard process of proposal submittal, technical review and Trustee Council approval.*

Work in 2006 toward each of the objectives listed above will continue, as identified in the proposal. Proposed work is generally on schedule and no modifications to the proposed work are anticipated. It is noted that the data management plan adopted by this project should be a component of the larger GEM data management plan to assure compatibility and transfer of information and data among GEM habitats.

**Coordination/Collaboration:** Describe efforts undertaken during the reporting period to achieve the coordination and collaboration provisions of the proposal, if applicable.

The principal investigators continue to frequently coordinate and collaborate with scientists, managers, communities and interested individuals in the development of the Nearshore GEM monitoring program. PI's attended meetings in several communities in the EVOS region to establish and continue relations of interest to the GEM program.

In July 2005 we received support from the National Park Service to extend the EVOS Nearshore GEM program to include an additional region that includes the Lake Clark and Katmai National Park nearshore habitats. This partnership will extend the Nearshore GEM monitoring program geographically, as well as provide a working partnership toward the implementation of the Nearshore GEM Plan in 2007.

**Community Involvement/TEK & Resource Management Applications:** Describe efforts undertaken during the reporting period to achieve the community involvement/TEK and resource management application provisions of the proposal, if applicable.

The U.S. Geological Survey subcontracted with Marilyn Sigman and the Center for Alaskan Coastal Studies (CACS) to implement the community involvement component of the project. The community involvement objective for the project is to "facilitate community involvement in selecting sites, developing SOPs, and testing field sampling protocols."

Sigman and the CACS were contracted to complete the following tasks:

- 1) Soliciting and coordinating assistance from community members in the selection of sampling sites, development of SOPs, and collection of those data suitable for sampling by local residents.
- 2) Organization of community workshops in Cordova, Valdez, Kodiak, and Seward (and in Homer under GEM Project proposal 040692)

- 3) To facilitate the implementation of recommendations for nearshore monitoring developed at Wisdomkeeper meetings in Port Graham and Tatitlek
- 4) To facilitate workshop sessions for tribal environmental specialists and other community representatives at the Alaska Tribal Environmental Professional Conference in Anchorage.

The focus of the workshops is the engagement of citizens, organizations, local governments, and tribal entities in: 1) the review of proposed GEM Nearshore Monitoring alternative sampling designs and Standard Operating Procedures (SOPs), 2) the review of existing ShoreZone mapping and the solicitation of local/traditional resource information and ecological knowledge to identify potential long-term nearshore monitoring sites, and 3) assisting in pilot sampling programs where appropriate. Under the initial design for the Nearshore Monitoring Plan, the criteria for selection of extensive sampling/monitoring sites to be done in consultation with community members is their proximity to specific resources of interest (e.g. sites particularly important for subsistence use) or based on their proximity to sources of potential anthropogenic disturbance (e.g. near boat harbors or population centers).

### Community Workshops

CACS made use of the extensive regional database of potential GEM partners compiled to complete the regional capacity survey for community involvement under GEM Project G-030575 to invite representatives of community-based organizations, municipal governments, tribal governments, tribal organizations, educational institutions (including the Prince William Sound Science Center, Kachemak Bay Research Reserve, and RCACs), and Youth AreaWatch (YAW) program coordinators to participate in the workshops. A lead organization was identified for each community to schedule the community workshop and assist with publicity. An email list of key contacts for each community has been compiled.

Workshops consisted of a PowerPoint presentation developed by Project P.I.s Jim Bodkin and Tom Dean about the proposed nearshore monitoring SOPs and sampling approach and a PowerPoint presentation by Marilyn Sigman, the community involvement coordinator, about opportunities for involvement and Kachemak Bay CoastWalk as a model for community-based monitoring. The presentations were followed by an opportunity to comment on the monitoring approach or SOPs and to nominate potential monitoring sites. Tom Dean participated in the Cordova workshop and field review of nominated sites and Jim Bodkin participated in the Kodiak workshop and field review of a nominated site.

**Table 1. Community Workshops and Lead Organizations for Nearshore Monitoring**

<b>Community</b>	<b>Lead Organization(s)</b>	<b>Date of Workshop</b>
<b>Cordova</b>	<b>Prince William Sound Science Center</b>	<b>March 6, 2005</b>
<b>Kodiak</b>	<b>Prince William Sound RCAC</b>	<b>March 19, 2005</b>
<b>Valdez</b>	<b>Prince William Sound RCAC</b>	<b>March 21, 2005</b>
<b>Port Graham &amp; Nanwalek</b>	<b>Port Graham Village Council Nanwalek Village Council</b>	<b>January 31, 2005</b>
<b>Seward</b>	<b>None identified</b>	<b>To be accomplished through phone interviews of key contacts in FY06</b>
<b>Homer</b>	<b>Center for Alaskan Coastal Studies &amp; Kachemak Bay Research Reserve</b>	<b>Rescheduled for April, 2006</b>

No community-based organization could be identified in Seward with a focus on marine, coastal, or ecosystem-based stewardship, so it proved difficult to organize a community workshop or presentation. The Seward-based Ocean Alaska Science and Learning Center could provide outreach about coastal monitoring in Alaskan coastal National Parks that will employ a methodology coordinated with that of the GEM project by nearshore monitoring project P.I.s James Bodkin and Tom Dean. The Alaska SeaLife Center has served as the venue for collection and disposal during the annual beach clean-up effort coordinated with International Beach Clean-up Day but does not have a more extensive involvement in monitoring or stewardship efforts at local nearshore environments.

Homer community involvement is reported separately under GEM Project 040692. A change in the schedule for the Homer community-scientist workshop was requested in July and approved by the EVOSTC Executive Director. This workshop, originally scheduled for October, 2005, was rescheduled for April, 2006, in order to provide additional planning time for other sessions of the Kachemak Bay Science Conference and to expand scientist and community participation. CACS staff facilitated recommendations for extensive nearshore monitoring sites in Kachemak Bay from community members and Research Reserve research and education staff.

### School Presentations

In coordination with the EVOSTC-sponsored Youth Area Watch program, presentations to teachers and classes participating in coastal monitoring were scheduled in Cordova (Janet Clarke high school marine biology class) and Valdez (Jenny Heckathorn high school environmental science class). Sheryl Salasky, Chugach School District Youth Area Watch Coordinator for Prince William Sound coordinated additional input from Youth Area Watch teachers in Tatitlek and Chenega Bay.

### Identification of Monitoring Sites of Community Interest

Table 2. Nearshore monitoring sites proposed by community members

Community	Site
Port Graham & Nanwalek	Coal Mine – bidarki study site
Nanwalek	Nanwalek Reef
Port Graham & Nanwalek	Other bidarki study sites (See Table 3)
Seldovia	Jakalof Bay Clam Study Sites
	Kasitsna Bay Clam Study Sites
	Outside Beach, east of Seldovia Bay; NaGISA site
Homer	Mud Bay
	Beluga Slough/Bishop’s Beach
	Otter Rock, Peterson Bay
	China Poot Bay
	Neptune Bay
	Elephant Rock, Yukon Island, NaGISA site
Cordova	Hartney Bay
	Ferry Terminal/Cannery Beach
Kodiak	Fort Abercrombie State Park Sites (2)
	Cape Chiniak, Kodiak Island
	Fossil Beach, Narrow Cape, Kodiak Island
	Spruce Cape, Kodiak Island
	Middle Cape, Kodiak Island
	Pillar Creek, Kodiak Island
	Miner’s Point, Kodiak Island
	Old Harbor Site, Kodiak Island
	Ahkiok Site, Kodiak Island

	Point Banks, Shuyak Island
	Tonki Cape, Afognak Island
	Black Cape, Afognak Island
	Alligator Island, Shelikof Strait
Valdez	Valdez Harbor
	Hatchery/terminal area
	North side of Port Valdez
	Shoup Bay
	Jag Bay
Tatitlek	In front of village
Seward	Lowell Point Beach

**Table 3. Bidarki study site transect locations**

Site	End of Transect (North End)		Accuracy	Beginning of Transect (South End)		Accuracy
	Lat	Long		Lat	Long	
Outer Nanwalek	N 59° 21.441'	W 151° 55.887'	18 ft			
Pt. Adams	N 59° 15.523'	W 151° 58.727'		N 59° 15.510'	W 151° 58.711'	
Jagged Rock	N 59° 16.512'	W 151° 59.088'	22ft	N 59° 16.509'	W 151° 59.108'	
Golden Rocks	N 59° 17.407'	W 151° 59.086'		N 59° 17.402'	W 151° 59.060'	
Inner Nanwalek	N 59° 21.444'	W 151° 55.650'	20 ft	N 59° 21.438'	W 151° 55.621'	20 ft
Otter rock	N 59° 22.196'	W 151° 53.746'	23.4 ft	N 59° 22.198'	W 151° 53.702'	19.7 ft
Coal Mine	N 59° 23.703'	W 151° 54.474'	19ft	N 59° 23.696'	W 151° 54.455'	18 ft

Some sites were identified based on on-going coastal monitoring by YAW teachers and students programs near Valdez (Mineral Creek) and Tatitlek (beach in front of village) and CACS school and citizen monitoring sites in Kachemak Bay (Otter Rock, Peterson Bay; China Poot Bay, Neptune Bay, Mud Bay, Beluga Slough/Bishop's Beach). The Mineral Creek site was not included in the list of sites because it is a soft bottom site, but this should be considered if it meets the final site criteria.

**Information Transfer:** List (a) publications produced during the reporting period, (b) conference and workshop presentations and attendance during the reporting period, and (c) data and/or information products developed during the reporting period.

**NOTE:** Lack of compliance with the Trustee Council's data policy and/or the project's data management plan will result in withholding of additional project funds, cancellation of the project, or denial of funding for future projects.

**Sigman, M., J.L. Bodkin, T.A. Dean, and S. Baird. 2005. Community involvement in nearshore GEM monitoring. Marine Science in Alaska, 23-25 January, 2005, Anchorage, AK.**

**Dean, T.A. and J.L. Bodkin. 2005. Gulf Ecosystem Monitoring: a sampling design for the nearshore. Marine Science in Alaska, 23-25 January, 2005, Anchorage, AK.**

**Bodkin, J.L., B.E. Ballachey, and D.H. Monson. 2005. Restoration of Exxon Valdez oil contaminated habitats by sea otters in Prince William Sound: mechanisms and consequences. Marine Science in Alaska, 23-25 January, 2005, Anchorage, AK.**

**Bodkin, J.L. and T.A. Dean. 2005. Development of a long-term nearshore marine vital signs monitoring plan for the Southwestern Alaska Network. SWAN Investigators meeting, 2-3 March 2005, Anchorage, AK (invited speaker).**

**Sigman developed a poster presentation “Community Involvement in the GEM Nearshore Monitoring Program” with co-authors James Bodkin, Tom Dean, and Steve Baird. The poster described the opportunities for involvement as selection of long-term monitoring sites, participation in data collection, the contribution of important data, and data and information sharing. The poster highlighted the use of ShoreZone mapping and the Kachemak Bay CoastWalk program as a model for a GEM citizen monitoring program for nearshore habitats with an emphasis on its integration with the KBRR GIS.**

**The Kodiak workshop was part of the CommFish conference and tradeshow held annually in Kodiak. CACS co-sponsored a booth with PWSRCAC to provide information about the project.**

**Budget:** Explain any differences and/or problems between actual and budgeted expenditures, including any substantial changes in the allocation of funds among line items on the budget form. Also provide any new information regarding matching funds or funds from non-EVOS sources for the project.

*NOTE: Any request for an increased or supplemental budget must be submitted as a new proposal that will be subject to the standard process of proposal submittal, technical review, and Trustee Council approval.*

**There are no existing or anticipated discrepancies between actual and budgeted expenditures. It is noted that an amendment to this proposal was submitted to the Trustee Council recognizing the need for a centralized Gem data management plan that the Nearshore program would be a component of. This proposal recognizes the need for dedicated support to develop this centralized GEM Program data management plan.**

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*Thank you!*

*We appreciate your prompt submission of your annual report  
and thank you for your participation in and contribution to EVOS-related research.*

*revised August 2005*