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Exxon Valdez Oil Spill Trustee Council

WORK PLAN

FY 2005 – FY 2007

OCTOBER 8, 2004

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Notice

The abstracts were written by the authors of the proposals to describe their projects To the extent that the abstracts express opinions about the status of injured resources or priorities for GEM or other parts of the Restoration program they do not represent the views of the Executive Director, the Science Director or other staff of the *Exxon Valdez* Oil Spill Trustee Council, nor do they reflect policies or positions of the Trustee Council

Full scientific references for the literature cited may be found in the GEM Program document on the Trustee Council's web site, as they are not included here for the sake of brevity

Publication produced by staff at no additional cost Release authorized by the *Exxon Valdez* Oil Spill Trustee Council

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Gail Phillips, Executive Director

Phillip R Mundy, Science Director

Executive Summary

The function of the Executive Summary is to provide a brief account of projects funded by the Exxon Valdez Oil Spill Trustee Council for FY 2005 – FY 2007. The body of the Work Plan describes in detail a total of 40 external projects, comprised of 12 new projects approved by the Trustee Council at its meeting of August 23, 2004, and 28 continuing projects. In addition, the Work Plan also describes 5 internal projects. External projects are conducted by outside contractors, while internal projects are conducted by Council staff (Executive Summary Table 1). The new projects have been allocated $2.1 million for FY 2005 – 2007, and the total of all funding obligations for the three-year period is $7.6 million (Executive Summary Table 2). An outline of the record of decision on all proposals received in response to the FY 2005 – 2007 Invitation is provided as a reference (Executive Summary Table 3).

The body of the Work Plan describes the Restoration program that the projects have been selected to support. The last part of this Work Plan (Appendix A) contains basic information describing each proposal submitted for FY 2005 -2007 and its complete record of funding recommendations during the review and approval process.

The federal fiscal years, FY 2005 and FY 2006, are critically important pivot points in the transition from the conclusion of the court settlement process started in 1991 toward the long-term monitoring phase of the Restoration Program, Gulf of Alaska Ecosystem Monitoring and Research Program, GEM.

Executive Summary Table 1.

Funding by fiscal year for all internal and external projects funded by the EVOS Trustee Council for FY 2005 – 2007. External projects are conducted by contractors and internal projects are conducted by Council staff. The Agency column identifies the government agency that disperses funds to the projects.

	Author-FY-Short Title & Project number	FY05	FY06	FY 07	Agency
1	Adams-FY05-Pink Salmon Survival Models - 050757	$93,700	$0	$0	NOAA
2	Baird-FY05-Connecting with Coastwalk – 050743	$28,900	$20,300	$11,900	ADFG
3	Ballachey-FY04-Oil Exposure in Nearshore Vertebrate Predators 040774	$150,500	$0	$0	DOI
4	Ballachey-FY04-Oil Exposure in Sea Otters 040775	$126,900	$0	$0	DOI
5	Batten-FY04-CPR data 040624	$135,200	$135,200	$0	NOAA
6	Bechtol-FY04-Parameters in the N. Gulf of AK 040693	$56,100	$56,000	$0	ADFG
7	Bishop-FY04-Top-down and Bottom-up Processes 040635	$164,030	$151,390	$0	NOAA
8	Bodkin-FY04-Lingering Oil and Sea Otters 040620-2	$26,200	$6,500	$0	DOI
9	Bodkin-FY05-GEM Nearshore Monitoring Plan 050750	$227,300	$104,400	$0	DOI
10	Cokelet-FY04-AK Marine Highway System Ferries 040699	$185,900	$145,900	$0	Multiple

	Author-FY-Short Title & Project number	FY05	FY06	FY 07	Agency
11	Day-FY04-Sediment Quality Survey 040772	$57,200	$0	$0	DOL
12	DeLorenzo-FY04-Youth Area Watch 040210	$126,400	$133,200	$0	ADFG
13	Eckert-FY04-Natural Variability in the Nearshore 040702	$17,500	$0	$0	ADFG
14	EVOS TC-FY05-ARLIS (INTERNAL) 050550	$130,800	$0	$0	ADFG
15	EVOS TC-FY05-Data System (INTERNAL) 050455	$154,600	$0	$0	ADFG
16	EVOS TC-FY05-Project Management (INTERNAL) 050250	$255,500	$0	$0	Multiple
17	EVOS TC-FY5-Public Information and Administration (INTERNAL) 050100	$848,300	$0	$0	Multiple
18	EVOS TC-FY5-Scientific Management (INTERNAL) 050630	$381,000	$0	$0	Multiple
19	Fall-FY04-Status of Subsistence Uses 040471	$25,600	$0	$0	ADFG
20	Finney-FY04-Marine-terrestrial Linkages 040703	$80,154	$81,117	$0	ADFG
21	Heintz-FY04-Energy Allocation 040706	$42,300	$14,000	$0	NOAA
22	Honnold-FY04-Marine-derived Nutrients on Sockeye Salmon 040703-A	$82,400	$86,800	$0	ADFG
23	Hoover-Miller-FY05-Harbor Seal Monitoring 050749	$92,700	$130,300	$82,300	ADFG
24	Irons-FY05-Marine Bird Abundance 050751	$163,600	$32,700	$0	DOI
25	Irvine-FY04-Lingering Oil on Boulder-Armored Beaches 040708	$17,200	$0	$0	Multiple
26	Jacobs-FY04-Synthesis on injured resources 040776	$0	$0	$0	DOL
27	Mann-FY04-Reconstructing Sockeye Populations 040649	$90,400	$0	$0	ADFG
28	Matkin-FY05-Monitoring Killer Whales 2005-2007 050742	$20,500	$22,300	$23,800	NOAA
29	Moffitt-FY05-SEA Pink Salmon Survival Model 050758	$18,900	$0	$0	ADFG
30	Nelson-FY04-Hydrocarbon Database 040290	$22,200	$22,200	$0	NOAA
31	Okkonen-FY04-Monitoring Program in the NE Pacific Ocean 040614	$30,366	$31,455	$0	ADFG
32	Otis-FY05-Temporal Stability of Fatty Acids 050769	$67,700	$89,400	$25,100	ADFG
33	Rice-FY04-Contaminant Inputs and CYPIA Induction 040740	$130,100	$0	$0	NOAA
34	Rice-FY04-Lingering Population Status 040620-1	$61,000	$29,100	$0	NOAA
35	Rosenberg-FY05-Harlequin Duck Populations Dynamics 050759	$39,900	$0	$0	ADFG
36	Saupe-FY05-ShoreZone Mapping – Kodiak 050764	$201,300	$201,900	$0	NOAA
37	Schneider-FY04-Kodiak Archipelago 040610	$63,000	$63,000	$0	ADFG
38	Short-FY05-Monitoring of Anthropogenic Hydrocarbons 050763	$58,900	$58,900	$58,900	NOAA
39	Spies-FY05-EVOS Damage Assessment & Restoration 040600	$0	$0	$0	ADNR
40	Thorne-FY04-Seafood Waste Discharge 040725	$111,692	$108,943	$0	NOAA
41	Walker-FY04-Marine Derived Nutrients 040726	$153,400	$149,700	$0	ADFG

	Author-FY-Short Title & Project number	FY05	FY06	FY 07	Agency
42	Weingartner-FY04-Alaska Coastal Current 040340	$81,748	$64,950	$0	ADFG
43	Willette-FY04-Monitoring ACC Dynamics 040670	$68,000	$27,900	$0	ADFG
44	Willette-FY05-Salmon Smolt Monitoring 050765	$68,800	$65,900	$67,000	ADFG
45	Woody-FY04-Nutrient-Based Resource Management 040712 (Knudsen)	$177,002	$152,632	$0	DOI
	Grand Total	$5,134,892	$2,186,087	$269,000	

Notes:

- **Irvine project has been delayed to FY 2005 and 2006; no cost extension**
- **DOI and NOAA share the Irvine FY 05 project $14.4:$2.8 respectively**
- **ADF&G and NOAA share the Cokelet project $22.7:$163.2 respectively**
- **ADF&G, DOI, ADEC, DOL, USFS share the EVOSTC 040100 project $653.2:$178.4: $4.9:$4.9: $2.0 respectively**
- **ADF&G, NOAA, ADNR, and DOI share the EVOSTC 040250 project $98.1:$99.4:$9.2:$48.8 respectively**
- **ADF&G, ADNR, and DOI share the EVOSTC 040630 project $247.3:$:$103.6:$30.1 respectively**

New Funding FY 2005 – 2007

The Trustee Council approved 12 external projects for a cost of approximately $1.1 million in FY 05, $726 thousand for FY 2006, and $269 thousand for FY 2007, for a total of $2.1 million in new external projects for FY 2005 – 2007 (Executive Summary Table 2). Funding for the internal projects for FY 2005 is provided in the amount of $1.8 million. The grand total approved for new funding in FY 2005 is $2.9 million.

Executive Summary Table 2.

Thousands of dollars

Category	FY03	FY04*	FY05	FY06	FY07
External projects approved (8/23/04)	$0	$0	$1,082	$726	$269
External projects obligated	$4,400+	$3,303	$1,818	$1,460	$0
Other project costs approved May 14, 2004**	$0	$1,228	$465	$0	$0
Internal projects		$1,787	$1,770	$1,770***	$2,026***
Grand Total	*$4,400*	*$6,318*	*$5,135*	*$3,956*	*$2,295*

Amounts in shaded cells are from prior fiscal years for reference purposes

***Estimated expenditure**

****Project costs approved May 14, 2004 are outside of the $5 million dollar spending cap**

***** Projections only: internal projects are authorized annually**

+ Includes external and internal projects for FY03

Executive Summary Table 3.

An outline of the record of decision on each proposal received consisting of author and title, the amounts requested by fiscal year, the recommendations on each project of the Scientific Technical Advisory Committee, Science Director, Public Advisory Committee and Executive Director, and the action of the Trustee Council.

	FUNDING AMOUNTS				FUNDING RECOMMENDATIONS				
Listing	FY05	FY06	FY07		STAC	SD	PAC	ED	TC Action
Adams-FY05-Pink Salmon Survival Models - 050757 -	$93,700	$0	$0		Fund	Fund	Fund	Fund	Fund
Baird-FY05-Connecting with Coastwalk - 050743	$28,900	$20,300	$11,900		Fund	Fund	Fund	Fund	Fund
Bodkin-FY05-GEM Nearshore Monitoring Plan - 050750	$227,300	$104,400	$0		Fund	Fund	Fund	Fund	Fund
Brodie-FY05-Mineral Creek Trail - 050752	$79,600	$108,800	$1,255,700		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Cooper-FY05-Community-based Sampling - 050746	$102,500	$86,000	$96,900		Fund	Fund	Fund	Fund	Do Not Fund
Edmundson-FY05-Synthesis of Watershed Linkages - 050748	$84,000	$85,800	$67,200		Fund	Fund	Fund	Fund	Do Not Fund
Etnier-FY05-Holocene Biotic Baselines - 050753	$72,500	$90,400	$69,800		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Hoover-Miller-FY05-Harbor Seal Monitoring - 050749	$92,700	$130,300	$82,300		Fund	Fund	Fund	Fund	Fund
Irons-FY05-Marine Bird Abundance - 050751	$163,600	$32,700	$0		Fund	Fund	Fund	Fund	Fund
Kline-FY05-Exchange between Gulf of Alaska and PWS - 050744	$139,800	$193,900	$206,200		Do Not Fund	Do Not Fund	No Consensus	Do Not Fund	Do Not Fund

	FUNDING AMOUNTS			FUNDING RECOMMENDATIONS				
Listing	FY05	FY06	FY07	STAC	SD	PAC	ED	TC Action
Konar-FY05-SOP for Long-term Monitoring - 050761	$136,100	$106,600	$120,800	Fund	Fund	Fund	Fund	Do Not Fund
Lees-FY05-Climate Change and Human Activities - 050754	$197,800	$230,000	$0	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Logerwell-FY05-Productivity of capelin and Pollock - 050755	$32,700	$112,800	$66,900	Fund	Fund	Do Not Fund	Fund	Fund
Matkin-FY05-Monitoring Killer Whales 2005-2007 - 050742	$20,500	$22,300	$23,800	Do Not Fund	Do Not Fund	No Consensus	Fund	Fund
Mazumder-FY05-Marine-derived Nutrients - 050756	$179,500	$168,200	$165,700	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
McNutt-FY05-Infrastructure for GEM - 050766	$92,700	$95,300	$99,000	Fund	Fund	Fund	Fund	Do Not Fund
Merritt-FY05-Synthesis of Watershed-marine Linkage - 050760	$82,300	$71,900	$67,500	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Moffitt-FY05-SEA Pink Salmon Survival Model - 050758	$18,900	$0	$0	Fund	Fund	Fund	Fund	Fund
Otis-FY05-Temporal Stability of Fatty Acids - 050769	$67,700	$89,400	$25,100	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Fund
Rosenberg-FY05-Harlequin Duck Populations Dynamics - 050759	$39,900	$0	$0	Fund	Fund	Fund	Fund	Fund

	FUNDING AMOUNTS				FUNDING RECOMMENDATIONS				
Listing	**FY05**	**FY06**	**FY07**		**STAC**	**SD**	**PAC**	**ED**	**TC Action**
Saupe-FY05-ShoreZone Mapping – Kodiak - 050764	$201,300	$201,900	$0		Fund	Fund	Fund	Fund	Fund
Schoch-FY05-ShoreZone Mapping for PWS - 050768	$312,300	$291,400	$0		Fund	Fund	Fund	Fund	Do Not Fund
Schumacher-FY05-Infrastructure for GEM - 050745	$22,600	$24,700	$22,600		Fund	Fund	Fund	Fund	Do Not Fund
Short-FY05-Monitoring of Anthropogenic Hydrocarbons - 050763	$58,900	$58,900	$58,900		Fund	Fund	Fund	Fund	Fund
Szarzi-FY05-Salmon Smolt Abundance - 050747	$62,800	$59,200	$59,200		Fund	Fund	Fund	Fund	Do Not Fund
Vick-FY05-ACCOS - 050767	$223,300	$0	$0		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Weingartner-FY05-EVOS Synthesis Offshore - 050762	$95,300	$99,700	$98,900		Fund	Fund	Fund	Fund	Do Not Fund
Weingartner-FY05-GEM Synthesis: ACC Habitat - 050770	$105,900	$111,700	$105,000		Fund	Fund	Fund	Fund	Do Not Fund
Willette-FY05-Salmon Smolt Monitoring - 050765	$68,800	$65,900	$67,000		Fund	Fund	Fund	Fund	Fund
Weingartner-FY04-Alaska Coastal Current* - 040340	$6,200	-$10,500	$0			Fund		Fund	Fund

Introduction

The next two federal fiscal years, FY 2005 and FY 2006, are critically important pivot points in the transition from the conclusion of the court settlement process started in 1991 toward the long-term monitoring phase of the Restoration Program The actions approved in the FY 2005 Work Plan are intended to do two tasks to enable this transition, 1) Inform the Council and the public on the status of injured resources and oil in the environment, and 2) continue the process of building the foundation on which a long-term monitoring program, Gulf of Alaska Ecosystem Monitoring and Research, GEM, may be built starting in FY 2007 The FY 2005 Work Plan envisions bringing closure to the injured species list, developing recommendations on oil impacts studies for summer 2005, and developing measures of fate and effects of oil on the injured intertidal communities and other nearshore resources Details of the two transition tasks follow

The Conclusion of the Court Settlement Process

Adoption of the 2005 - 2007 Work Plan moves toward bringing the court settlement phase of the Restoration process to a successful conclusion A successful conclusion allows the Council to assure the governments and the public that 1) impacts on injured species and resources are known and are being addressed to the extent possible, 2) that the long-term direct impacts of oiling are being measured, and 3) that the information collected is being used, or is available to be used by government resource managers As explained in detail in the body of the Work Plan, the proposed work will extend knowledge of injured birds, fish, mammals, intertidal resources, and other injured resources In addition, identifying and understanding long-term direct impacts of oiling and measuring the fate of oil in the environment will be furthered by this work Finally, this Work Plan adds development of management applications as its own area in the Work Plan

The Injured Species List contains eight individual species still listed as injured, and eight more resources encompassing many species listed as recovering, and five more resources listed as recovery unknown The Council staff will serve as the focal point for bringing together the legal, policy, and biological interests of the Trustee Council to consider the issue of injured resources The goal of the process is to resolve the Injured Species List into "recovered" and "recovery unknown " The species and resources listed as "recovery unknown" will be referred to the GEM program for long term study The scientific criteria will be developed through workshops during FY 2005 and 2006 The relation of the status of injured species and resources to the needs for "lingering oil" work is taken into account, as this area will require increasing staff attention, as contractors start producing results from projects initiated in fiscal year FY 2004

The Science Plan is the point of origin for the Invitation for Proposals and ultimately the Work Plan, so it is a critically important document Due to staffing vacancy (Science Coordinator) and the lack of availability of synthesis proposals in response to past Invitations, the Science Plan is past due for an update The goal is to work with Trustee Council agency scientists, the STAC and Subcommittees, our contractors, and other interested parties to revise the Science Plan to the point where it can be released as a "color glossy" booklet The booklet will allow a wide audience to become familiar with what the Council plans to do and why, and the process of producing the booklet will provide the Trustees a chance to participate

The Long-term Monitoring Phase of the Restoration Program (GEM)

In establishing GEM the Trustee Council recognized that understanding the impact of oiling on injured natural resources requires a baseline of environmental information that was largely lacking at the time of the spill The Environmental Impact Statement (EIS) on the Restoration Program (1994) established an ecosystem approach to restoring injured species and services that was applied in the Sound Ecosystem Assessment project (SEA), the apex predator project (APEX), the Nearshore Vertebrate Predator project (NVP), and that is currently being applied in the Gulf of Alaska Ecosystem Monitoring and Research project (GEM) GEM is a truly unique opportunity to build the environmental baseline data necessary to interpret measures of oil in the environment and its impacts on populations of plants and animals As also established in the EIS, GEM emphasizes public access by converting monitoring data into information products that serve the needs of the public and government regulators

In establishing the GEM Program, the Trustee Council also recognized that complete recovery from the oil spill may not occur for decades and that full restoration of injured resources will most likely be achieved through long-term observation and necessary restoration activities The Council further recognized that conservation and improved management of injured resources and services will require substantial ongoing investment to improve understanding of the marine and coastal ecosystem that supports the resources, as well as the people, of the spill region In addition, prudent use of the natural resources of the spill area without compromising their health and recovery requires increased knowledge of critical ecological information about the northern Gulf of Alaska This knowledge can only be provided through a long-term monitoring and research program that may span decades

As a brief overview of what GEM is trying to learn, the largest information gaps in the northern Gulf of Alaska relate to how food and energy originating in the offshore marine environments are transported through the Alaska Coastal Current and nearshore areas to the watersheds Accordingly, detecting changes in the variables that characterize the transfer of food and energy through the northern Gulf of Alaska is a top priority for the GEM Program The GEM Program calls for building upward from oceanography through food and energy toward the large body of information that has accumulated within the management agencies over the past century on the abundance and biology of single species of large vertebrates such as seabirds, pelagic and anadromous fish, and marine and coastal mammals In watershed and nearshore habitats where human activities are most prominent, it is important to find measures of how anthropogenic factors combine with human factors to influence these ecosystems By filling gaps in how physical and human forces alter the transport of food and energy, changes in the large vertebrate species and prominent invertebrates, such as birds, shellfish, fish and mammals, can be understood in relation to a broad array of biological and physical observations throughout the region In the long run, this comprehensive understanding of the ecosystems of the Gulf of Alaska is intended to lead to predictions useful to resource managers In terms of types of long time series in these habitat types, observations on smaller to microscopic species of marine plants and animals, and physical and chemical observations from below the sea surface are widely lacking (GEM Program Document, Appendix D)

Efforts in FY 05 continue to focus on development of long-term moorings, stations, transects, and surveys in the nearshore and Alaska Coastal Current habitats, recognizing that the most expensive sampling zones to reach on a frequently recurring basis are the ACC and, at some point in the future, the offshore Gulf of Alaska The limits on GEM fiscal resources require maximum use of volunteer observing ships (VOS), which are commercial vessels that carry various monitoring instruments (i e the Batten, Okkonen and Cokelet projects)

In addition, the GEM Science Plan calls for developing a whole ecosystem (natural resource) model, as recommended by the National Research Council (NRC 2002) that links biological and physical observations across the habitat types, as well as the North Pacific, in order to understand changes in single species of interest to managers and concerned others The GEM ecosystem model must be developed with a global perspective given the large spatial scales over which biological and physical phenomena operate Identification and prioritization of the variables for the GEM program depend in large part on what is needed to operate the GEM ecosystem model High priority variables needed in the GEM program are a composite of the variables essential to the workings of the GEM ecosystem model and its components the ocean current model, the nutrient-phytoplankton-zooplankton (NPZ) models, and the Sound Ecosystem Assessment (SEA) pink salmon model (Willette et al 2001, Patrick et al 2003) (see Appendix F of the GEM Program Document) In assembling the GEM ecosystem model, emphasis will be placed on detecting changes in the variables that characterize the currents and the transfer of food and energy throughout the north Gulf of Alaska In this way, changes in the large vertebrate species that are routinely monitored by state and federal government agencies can be better understood in relation to a broad array of biological and physical observations throughout the region

Summary of the FY 2005 – 2007 Work Plan

The Work Plan covers 40 external projects in the amount of $2 9 million for FY 2005, $2 2 million for FY 2006, and $270K for FY 2007, for a total of $5 4 million in external projects for FY 2005 – 2007 (Table 1) The total amount approved for FY 2005 is $5 1 million which consists of the 40 external projects and $1 8 million in five internal projects, and other projects funded at the May 14, 2004 TC meeting The total funds approved for the 2005 - 2007 Work Plan is $7 6 million

The distribution of funding across program areas shows that Nearshore, including lingering oil effects ($1 7M), is the leading area of emphasis in FY 2005 After Nearshore and lingering oil the largest dollar value of external projects is Alaska Coastal Current ($578K), followed by Watersheds ($535K), Community Involvement ($218K), Management Strategy ($167K) Modeling ($113K), and Synthesis ($108K) (Table 2 and Figure 1)

The Trustee Council has an open, competitive contracting process that is designed to allow proposals from any source to be considered for funding as an external project The system works well for this purpose as demonstrated by the fairly even distribution of funding across the home institutions of the principal investigators of external projects in FY05 – FY06 (Figure 2) Alaska Department of Fish and Game is the top recipient of EVOSTC funding for external projects at 40% percent The low end is represented by Department of Law at 1% percent

Funds are disbursed to projects by government agencies (Figure 3). The leading agency in the amount of funds disbursed in FY 2005 is ADF&G. ADF&G is scheduled to disburse $1.7M. The amount scheduled for disbursement by the next closest agency, NOAA, which is closely matched at $1.69M. The amounts disbursed by DOL are $889 hundred thousand respectively; however DOI has a relatively small share at $57 thousand.

Table 2. Program Area Funding Levels by Fiscal Year

Program Area	FY 2005	FY 2006	FY 2007
EVOSTC INTERNAL	$1,770,200	$0	$0
ALASKA COASTAL CURRENT	$577,814	$483,705	$23,800
COMMUNITY INVOLVEMENT	$218,300	$216,500	$11,900
LINGERING OIL EFFECTS	$879,300	$149,400	$58,900
MANAGEMENT STRATEGY	$136,500	$155,300	$92,100
MODELING	$112,600	$0	$0
NEARSHORE	$797,022	$696,933	$82,300
SYNTHESIS	$107,900	$0	$0
WATERSHEDS	$535,256	$484,249	$0
	$5,134,892	$2,186,087	$269,000

Figure 1. Annual Funding by Program Area

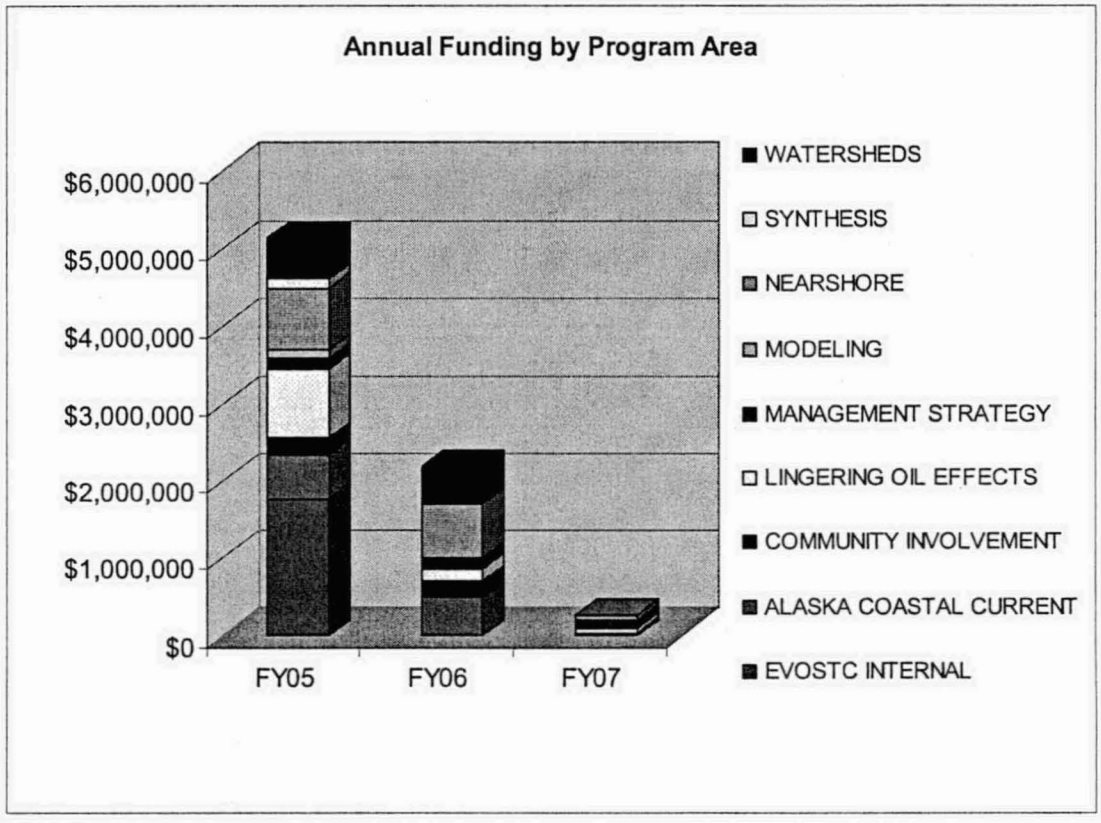
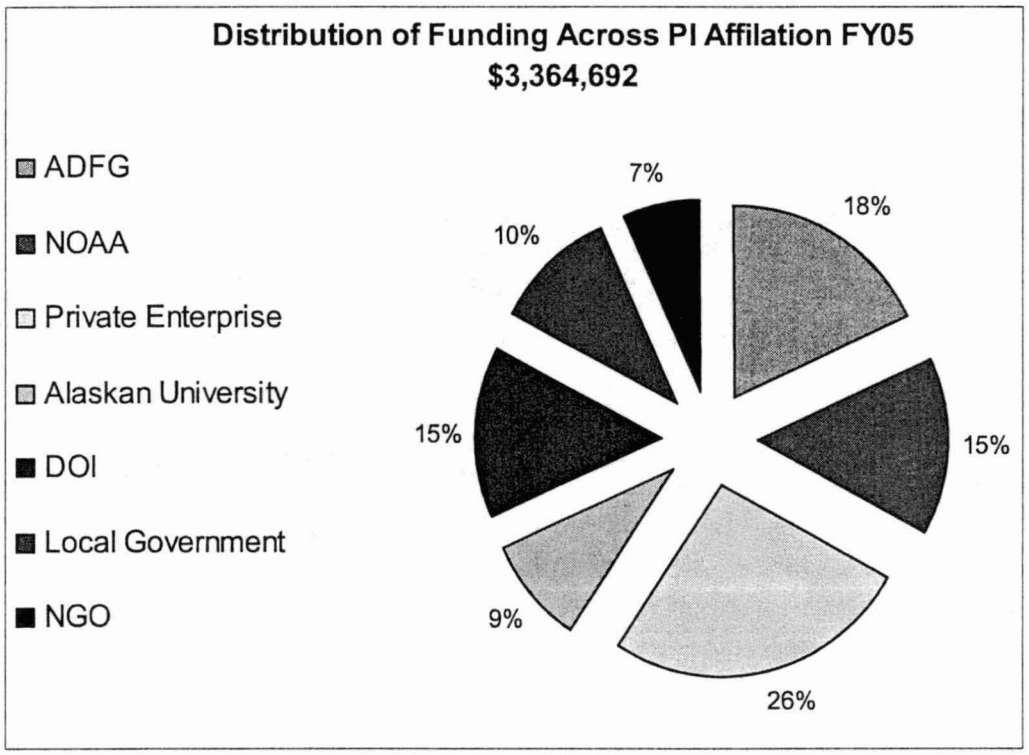
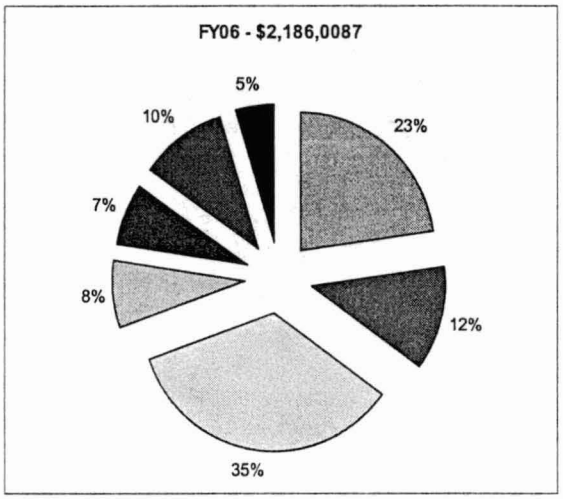


Figure 2. Distribution of Funding Across PI Affiliation for FY 2005 - 2007





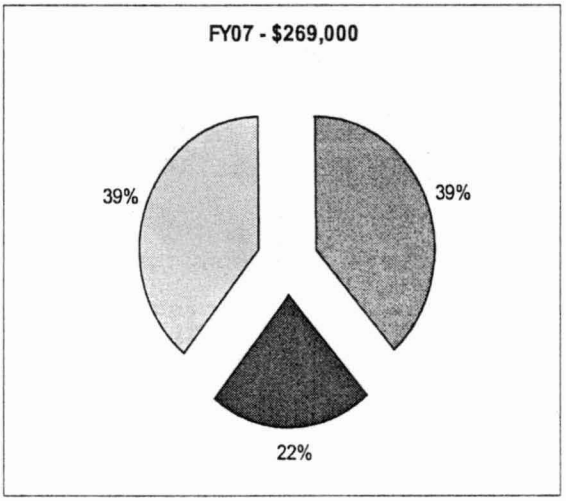
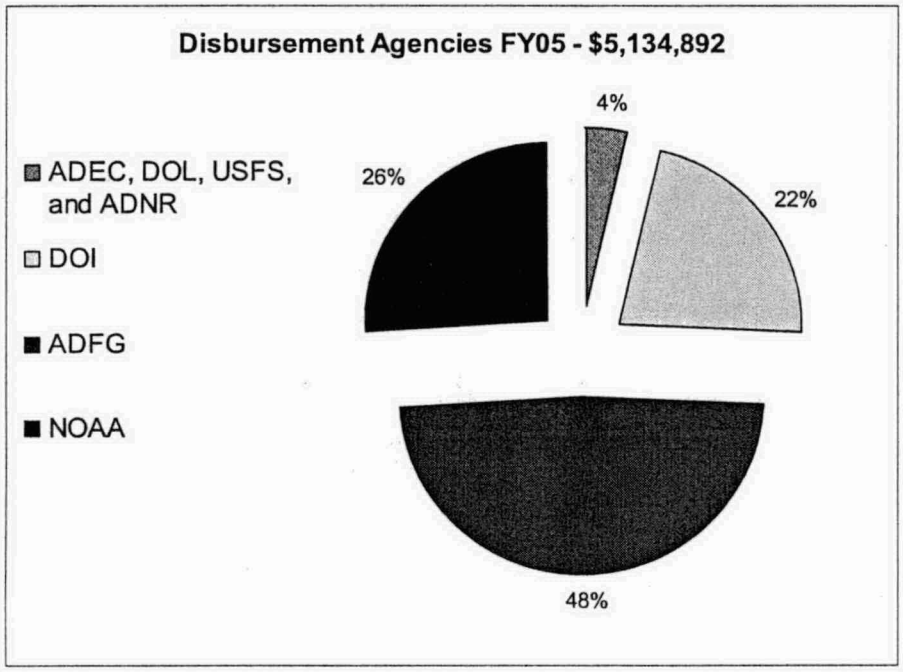
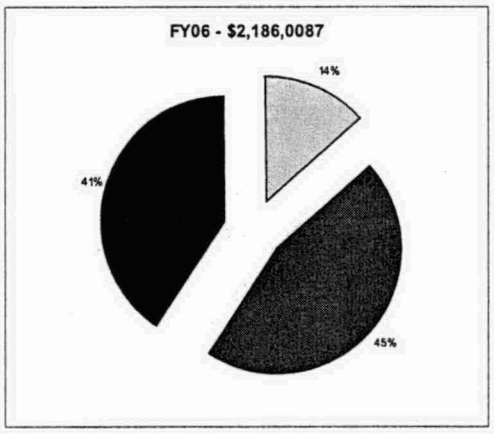


Figure 3. Disbursement of Funds by Agency for FY 2005 - 2007





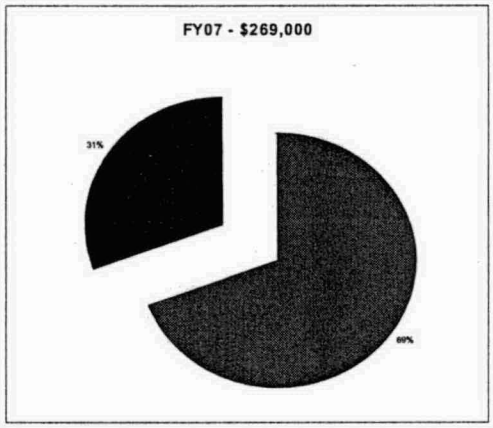


Table 1. This table identifies all projects that the EVOS Trustee Council is currently funding. Identified in "BOLD/ITALICS" are projects recently funded by the Trustee Council at its meeting on August 23, 2004, this includes all internal and external projects receiving funding for FY 2005 – 2007.

	Author-FY-Short Title & Project number	FY05	FY06	FY 07	Agency
1	Adams-FY05-Pink Salmon Survival Models - 050757	$93,700	$0	$0	NOAA
2	Baird-FY05-Connecting with Coastwalk – 050743	$28,900	$20,300	$11,900	ADFG
3	Ballachey-FY04-Oil Exposure in Nearshore Vertebrate Predators 040774	$150,500	$0	$0	DOI
4	Ballachey-FY04-Oil Exposure in Sea Otters 040775	$126,900	$0	$0	DOI
5	Batten-FY04-CPR data 040624	$135,200	$135,200	$0	NOAA
6	Bechtol-FY04-Parameters in the N. Gulf of AK 040693	$56,100	$56,000	$0	ADFG
7	Bishop-FY04-Top-down and Bottom-up Processes 040635	$164,030	$151,390	$0	NOAA
8	Bodkin-FY04-Lingering Oil and Sea Otters 040620-2	$26,200	$6,500	$0	DOI
9	Bodkin-FY05-GEM Nearshore Monitoring Plan 050750	$227,300	$104,400	$0	DOI
10	Cokelet-FY04-AK Marine Highway System Ferries 040699	$185,900	$145,900	$0	Multiple
11	Day-FY04-Sediment Quality Survey 040772	$57,200	$0	$0	DOL
12	DeLorenzo-FY04-Youth Area Watch 040210	$126,400	$133,200	$0	ADFG
13	Eckert-FY04-Natural Variability in the Nearshore 040702	$17,500	$0	$0	ADFG
14	EVOS TC-FY05-ARLIS (INTERNAL) 050550	$130,800	$0	$0	ADFG
15	EVOS TC-FY05-Data System (INTERNAL) 050455	$154,600	$0	$0	ADFG
16	EVOS TC-FY05-Project Management (INTERNAL) 050250	$255,500	$0	$0	Multiple
17	EVOS TC-FY5-Public Information and Administration (INTERNAL) 050100	$848,300	$0	$0	Multiple
18	EVOS TC-FY5-Scientific Management (INTERNAL) 050630	$381,000	$0	$0	Multiple
19	Fall-FY04-Status of Subsistence Uses 040471	$25,600	$0	$0	ADFG
20	Finney-FY04-Marine-terrestrial Linkages 040703	$80,154	$81,117	$0	ADFG
21	Heintz-FY04-Energy Allocation 040706	$42,300	$14,000	$0	NOAA
22	Honnold-FY04-Marine-derived Nutrients on Sockeye Salmon 040703-A	$82,400	$86,800	$0	ADFG
23	Hoover-Miller-FY05-Harbor Seal Monitoring 050749	$92,700	$130,300	$82,300	ADFG
24	Irons-FY05-Marine Bird Abundance 050751	$163,600	$32,700	$0	DOI
25	Irvine-FY04-Lingering Oil on Boulder-Armored Beaches 040708	$17,200	$0	$0	Multiple
26	Jacobs-FY04-Synthesis on injured resources 040776	$0	$0	$0	DOL
27	Mann-FY04-Reconstructing Sockeye Populations 040649	$90,400	$0	$0	ADFG
28	Matkin-FY05-Monitoring Killer Whales 2005-2007 050742	$20,500	$22,300	$23,800	NOAA
29	Moffitt-FY05-SEA Pink Salmon Survival Model 050758	$18,900	$0	$0	ADFG
30	Nelson-FY04-Hydrocarbon Database 040290	$22,200	$22,200	$0	NOAA

	Author-FY-Short Title & Project number	FY05	FY06	FY 07	Agency
31	Okkonen-FY04-Monitoring Program in the NE Pacific Ocean 040614	$30,366	$31,455	$0	ADFG
32	Otis-FY05-Temporal Stability of Fatty Acids 050769	$67,700	$89,400	$25,100	ADFG
33	Rice-FY04-Contaminant Inputs and CYPIA Induction 040740	$130,100	$0	$0	NOAA
34	Rice-FY04-Lingering Population Status 040620-1	$61,000	$29,100	$0	NOAA
35	Rosenberg-FY05-Harlequin Duck Populations Dynamics 050759	$39,900	$0	$0	ADFG
36	Saupe-FY05-ShoreZone Mapping – Kodiak 050764	$201,300	$201,900	$0	NOAA
37	Schneider-FY04-Kodiak Archipelago 040610	$63,000	$63,000	$0	ADFG
38	Short-FY05-Monitoring of Anthropogenic Hydrocarbons 050763	$58,900	$58,900	$58,900	NOAA
39	Spies-FY05-EVOS Damage Assessment & Restoration 040600	$0	$0	$0	ADNR
40	Thorne-FY04-Seafood Waste Discharge 040725	$111,692	$108,943	$0	NOAA
41	Walker-FY04-Marine Derived Nutrients 040726	$153,400	$149,700	$0	ADFG
42	Weingartner-FY04-Alaska Coastal Current 040340	$81,748	$64,950	$0	ADFG
43	Willette-FY04-Monitoring ACC Dynamics 040670	$68,000	$27,900	$0	ADFG
44	Willette-FY05-Salmon Smolt Monitoring 050765	$68,800	$65,900	$67,000	ADFG
45	Woody-FY04-Nutrient-Based Resource Management 040712 (Knudsen)	$177,002	$152,632	$0	DOI
	Grand Total	$5,134,892	$2,186,087	$269,000	

Notes:

- **Irvine project has been delayed to FY 2005 and 2006; no cost extension**
- **DOI and NOAA share the Irvine FY 05 project $14.4:$2.8 respectively**
- **ADF&G and NOAA share the Cokelet project $22.7:$163.2 respectively**
- **ADF&G, DOI, ADEC, DOL, USFS share the EVOSTC 040100 project $653.2:$178.4: $4.9:$4.9: $2.0 respectively**
- **ADF&G, NOAA, ADNR, and DOI share the EVOSTC 040250 project $98.1:$99.4:$9.2:$48.8 respectively**
- **ADF&G, ADNR, and DOI share the EVOSTC 040630 project $247.3:$:$103.6:$30.1 respectively**

Overview of Newly Funded Projects

Modeling and Synthesis

As identified by an EVOSTC funded project over the last two years (Adams and Mullins), the pink salmon modeling projects (Adams and Moffitt) are designed to support economic development in the commercial pink salmon fishing industry of Prince William Sound by improving the forecasting of adult abundance

No new projects were funded under the Synthesis category in this FY 2005 – 2007 Work Plan Ongoing synthesis projects are expected to help guide planning for the Nearshore habitat type (Eckert), and to summarize the results from the Restoration program (Spies)

Nearshore and Lingering Oil

Newly funded projects in the Nearshore habitat type (Bodkin, Saupe, and Hoover-Miller) are closely allied to the new Lingering Oil investigations (Short, Rosenberg and Irons) Completion of the three-year process of planning for the implementation of the Council's Nearshore monitoring program (Bodkin) will be facilitated by completion of the mapping of the intertidal and adjacent areas using the ShoreZone methodology Hoover-Miller offers an extension of the Nearshore work to an oil-injured species, harbor seals, in a part of the oil spill affected area not now covered by other surveys using an innovative cost-reducing technology (still videography)

Projects newly funded in the Lingering Oil program area will integrate monitoring for hydrocarbons into the Nearshore sampling program (Short) and examine the status of an injured species, harlequin duck that is known to be exposed to Exxon Valdez oil (Rosenberg) The marine bird survey (Irons) provides an estimate of population trends in the majority of species still considered to be not recovering from injuries of the 1989 oil spill The three newly funded projects are expected to contribute critical information for determining the status of restoration of injured species in the short-term (Rosenberg and Irons) and in the long-term (Short)

Management Applications

The newly funded Willette salmon smolt project is expected to meet a gap in Watershed information identified in the Science Plan by providing information on the amount of marine derived elements in salmon smolt as they leave the Kenai River In addition the Willette project will also test sampling methods for juvenile salmon through a combination of independent methods, providing a benefit to management programs in salmon on a coast-wide basis The benefits to management Willette will be immediate as a forecasting tool and as a guide to sustainable harvest levels for salmon in the localities sampled

The Otis project will use chemistry of fats as a proxy for measuring differences in diets of herring from different geographic localities The measures are intended to provide managers with information on stock composition for purposes of planning harvest management activities

Community Involvement

Community Involvement projects engage the public in collecting information relevant to restoration of injured species, and address community concerns regarding impacts of the oil spill One new project was funded in FY 2005 as a community-based supplement to Nearshore sampling efforts It will make available a long standing community-based time series of Nearshore observations to other projects of the Council's Nearshore program for a modest amount of funding (Baird)

Alaska Coastal Current

A long-standing effort to survey killer whales received new funding (Matkin) The project will continue the long-term monitoring of the AB pod and other killer whales in the oil spill affected areas of southcentral Alaska The project is highly leveraged by other funding sources, and it addresses a recovering oil-injured species that is of wide public interest

Discussion of Projects by Program Area

Modeling

Introduction

Modeling is the highest priority for the EVOSTC because it is the process of turning basic data into useful information for managers, policy makers and other consumers. Modeling assembles the building blocks provided by data-generating projects in the NRDA, Restoration and GEM activities into an understandable explanation of the causes of changes in injured resources and related bird, fish and mammal species. Synthesis goes hand-in-glove with modeling, because it combines the best available information from NRDA, Restoration and GEM with current information from the scientific literature into a useful report format to guide the Council, modelers, and other users in the decision-making process. Modeling and Synthesis will focus the existing works of the last fifteen years to produce information relevant to the 1991 court settlement agreement, as well as to guide the current development of long-term monitoring of resources that continue to be injured by the 1989 oil spill.

Synopsis of Modeling Projects

The modeling projects (Adams and Moffitt) provide for economic development in the commercial fishing industry of Prince William Sound as identified by the community. Models of pink salmon production were promised by the SEA project under the Restoration Program (Project 320), and there is still strong community-based support for seeing this modeling work come to fruition.

Table of Modeling Projects

Modeling	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Adams-FY05-Pink Salmon Survival Models	$93,700	$0	$0
Moffitt-FY05-SEA Pink Salmon Survival Model	$18,900	$0	$0
Totals	**$112,600**	**$0**	**$0**

Abstracts of Modeling Projects

Project **Adams-FY05-Pink Salmon Survival Models - 050757**

Project Title Implementing the Pink Salmon Survival Model Phase I - Project Development

Location PWS

Proposer Ken Adams **Proposer Affiliation** PWSFRAP

Disbursing Agency NOAA

Funding Levels

FY05 $93,700 **FY06** $0 **FY07** $0

Abstract

Funds are requested to plan the implementation of a numerical model of pink salmon survival within a framework of long- term monitoring and resource prediction The plan will be prepared by an interdisciplinary team PWSFRAP will coordinate workshops, internet assets, conferencing, report and proposal preparation and submission and will facilitate information exchange between the resource dependent community and the planners The resulting plan will identify a team of implementers, a design and schedule for field sampling, modeling activities and parameterization, data management and information protocols stipulated by GEM It is anticipated that this planning effort will be followed by a multi-year implementation phase When fully implemented, the pink salmon modeling program will become a functional component of the GEM whole-ecosystem model and responsive to questions of pink salmon production, harvest, management and enhancement This proposal is a companion to the interrelated ADF&G proposal (Moffitt Management Applications Implementing the Pink Salmon Survival Model-Tagging technology)

Project **Moffitt-FY05-SEA Pink Salmon Survival Model**

Project Title Management Applications Implementing the SEA Pink Salmon Survival Model -
Tagging Technology

Location PWS

Proposer Steve Moffitt **Proposer Affiliation** ADF&G

Disbursing Agency ADFG

Funding Recommendations

FY05 $18,900 **FY06** $0 **FY07** $0

Abstract

This project will conduct tagging technology studies needed to develop management applications from the SEA pink salmon model This project was conceived during a pink salmon predictive workshop recently held in Cordova March 16-18, 2004 Workshop participants recommended that preseason forecasting and numerical model validation could be approached by a direct census of juveniles as they are leaving Prince William Sound (PWS) Catching juveniles emigrating from PWS will also enable application of a second mark to partition survival between the early marine and oceanic life stages At

present, all juveniles of hatchery origin in PWS are otolith thermal marked Combining estimates of stock composition obtained from otolith thermal marks and early marine survival will enable estimation of survivals of each hatchery release group and a very robust evaluation of pink salmon model simulations The estimates will also be used to evaluate the accuracy of preseason forecasts of salmon run size obtained from a direct census of juveniles emigrating from PWS This project will test the feasibility of using passive integrated transponder tags to partition early marine and oceanic survival of pink salmon The project will estimate tag loss and tagging-induced mortality of juvenile pink salmon and tag detection rates at area salmon processors

Synthesis

Introduction

The required scientific guidance for implementing the GEM program is based on putting together ideas, pieces of information from the scientific literature, and the potential relations among existing data gathering programs, including GEM (see Chapter 3 of the GEM Program Document for further information), to form a larger picture. Synthesis is the entry point to the cycle of monitoring and research. Synthesis builds on past experience to update the current understanding of the northern Gulf of Alaska marine ecosystems. It brings together existing data and information from any number of disciplines, times and regions to evaluate different aspects of the GEM Program's conceptual foundation, central hypotheses and related ideas, working from the perspective of a habitat type.

The primary purposes of the synthesis activities in FY 2005 and beyond are to point out options for projects that might be implemented in FY 06 and beyond.

Synopsis of Synthesis Projects

The two primary synthesis projects are providing information essential to development of the nearshore habitat type in the Science Plan and the implementation of the GEM program (Eckert and Spies). The synthesis for the nearshore habitat type (Eckert) comes at a critical time in program development (see Nearshore section above). Thanks to the early start for GEM nearshore projects in Phase II of FY 2003 (see FY 2003 Work Plan), enough progress has been made in the nearshore to issue a call for implementation of monitoring in FY 2007.

A need is met in the synthesis area by the analysis of the remaining sockeye nursery lake bottom-cores (Mann). The collection of the cores has already been funded by the Trustee Council. These lake cores have the potential to allow us to see hundreds of years into the past of salmon populations which are bellwethers for a series of marine and freshwater ecosystems. Completion of the sockeye lake core work was recommended by the Public Advisory Committee in FY 2004 as a much needed project that will help guide development of the watershed monitoring program.

Table of Synthesis Projects

Synthesis	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Eckert-FY04-Natural Variability in the Nearshore	$17,500	$0	$0
Mann-FY04-Reconstructing Sockeye Populations	$90,400	$0	$0
Spies-FY04-EVOS Damage Assessment & Restoration	$0	$0	$0
Grand Total	**$107,900**	**$0**	**$0**

Abstracts of Synthesis Projects

Project Eckert-FY04-Natural Variability in the Nearshore

Project Title A Synthesis of Natural Variability in the Nearshore Can We Detect Change?

Location Alaska (Synthesis)

Proposer Ginney Eckert **Proposer Affiliation** Alaskan University

Disbursing Agency ADFG

Funding Levels

FY04 $36,300 **FY05** $17,500 **FY06** $0

Abstract

One of the primary goals of the GEM program is to detect anthropogenic changes within the four focal habitats in the Gulf of Alaska, however natural variability in these systems can be so high that it prevents detection of human-induced effects The goal of this proposal is to synthesize existing data to identify, within the nearshore habitat, environments and species that have less natural variability so that these variables can be included in the GEM monitoring plan Data will be synthesized from the Gulf of Alaska and across a broad range of geographic areas to identify general characteristics that predict lower levels of natural variability in nearshore marine populations The principal investigator is well suited to conduct this analysis because she was a coauthor of the current GEM nearshore monitoring plan, and she has conducted extensive analyses of natural population variability in nearshore organisms

Project Mann-FY04-Reconstructing Sockeye Populations

Project Title Reconstructing Sockeye Populations in the Gulf of Alaska over the Last Several Thousand Years The Natural Background to Future Changes

Location Prince William Sound, Kodiak, Kenai Peninsula

Proposer Daniel Mann **Proposer Affiliation** Alaskan University

Disbursing Agency ADFG

Funding Levels

FY04 $45,000 **FY05** $90,400 **FY06** $0

Abstract

We are reconstructing changes in sockeye salmon abundance over the last 10,000 years using the 15N record left by salmon carcasses in the sediments of spawning lakes Our research question is What is the normal variability in sockeye salmon populations in the Gulf of Alaska and how does it relate to climatic changes in the Gulf of Alaska region? Our results provide a much-needed background to monitoring studies within the GEM program and to fisheries managers who are working to preserve and restore natural salmon runs Results from 2002 and 2003 include two, new and unexpectedly complete records of salmon abundance in lakes on the Kenai Peninsula Both records extend back to the time of regional deglaciation around 10,000 years ago These new cores provide records of changing 15N that are five times longer than any previous record of salmon-run history The unexpected length and richness of these new lake-core records have motivated us to request additional funds from EVOS to cover an additional year of full funding followed by a final year of analysis and synthesis

Project Spies-FY04-EVOS Damage Assessment & Restoration

Project Title A synthesis of the ecological findings from the EVOS Damage Assessment and Restoration Programs, 1989-2001

Location No field work

Proposer Robert Spies **Proposer Affiliation** NOAA

Disbursing Agency ADNR

Funding Levels

FY04 $201,700 **FY05** $0 **FY06** $0

Abstract

This project is synthesizing the results from 12 years of post-spill study in the EVOS damage assessment and restoration programs in the context of anthropogenic and natural factors causing change in the northern Gulf of Alaska ecosystem The results of the work will be an integrated synthesis book The book will consist of three major sections 1 The basic structure and function of the ecosystem, 2 How does it change over time and in respond to disturbances? and, 3 The effect of the spill, a summary of the spill effects and recovery as well as how our understanding of the ecosystem has matured and what future path will help us better understand this valuable marine ecosystem? The book will be a major product of the EVOS restoration program and help set the foundation for the Gulf Ecosystem Monitoring Program

Nearshore

Introduction

The nearshore environments are the best understood of the four GEM habitat types Basic scientific concepts of how ecosystems in the nearshore (intertidal and subtidal) are structured by physical and biological phenomena have been well developed for some time (GEM Program Document, Chapter 7 9) For the organization of sampling strategies, the most fundamental substratum distinctions are hard bottom (rocks, boulders, cobbles) and soft bottom (mobile sedimentary habitats like sands and muds) Within these two types, geomorphology varies substantially, with biological implications that often induce further habitat partitioning Synthesis work and workshops in 2002 – 2003 have provided a strong foundation for implementing nearshore monitoring stations under GEM

Synopsis of Nearshore Projects

Activities in the Nearshore habitat type (Bishop, Bodkin, Hoover-Miller, Saupe, and Thorne) are closely allied to the Lingering Oil investigations (Short, Rosenberg and Irons) Bodkin is the lead project for completing the three-year process of planning for the implementation of the Council's Nearshore monitoring program Bodkin is supported closely by the mapping of the intertidal and adjacent areas using the ShoreZone methodology in areas outside of Prince William Sound (Saupe), which was called for by the Bodkin proposal Hoover-Miller offers an extension of the Nearshore work to an oil-injured species, harbor seals, in a part of the oil spill affected area not now covered by other surveys using an innovative cost-reducing technology (still videography)

The top priorities in the Lingering Oil program area (details in section following) are to integrate monitoring for hydrocarbons into the Nearshore sampling program (Short) and to examine the status of an injured species that is known to be exposed to Exxon Valdez oil (Rosenberg) A close second in Lingering Oil priority is the marine bird survey (Irons) that provides an estimate of population trends in the majority of species still considered to be injured by the 1989 oil spill All three Lingering Oil projects are expected to contribute critical information for determining the status of restoration of injured species in the short-term (Rosenberg and Irons) and in the long-term (Short) One project (Bodkin-Nearshore) is the conclusion of an effort to build a geographically referenced database of past nearshore investigations to guide site selection and design of nearshore monitoring stations An additional project (Thorne) adds the dimensions of seafood waste discharge monitoring to research into the design of nearshore monitoring stations not present in any of the other nearshore projects

Taken together, the nearshore projects provide a strong start to implementing the nearshore monitoring program, making it likely that the nearshore will be the first of the habitat types to enter the monitoring phase envisioned in the Science Plan The presence of a nearshore synthesis effort in FY 2004-2005 (Eckert) combined with earlier planning efforts funded by EVOSTC that were led by Carl Schoch, Ginny Eckert and Tom Dean, makes the nearshore habitat type the most advanced As a result of these five projects, the Synthesis project, and their precursors, the call for nearshore monitoring implementation proposals should be part of the FY 2006 Invitation for Proposals

Future efforts should initiate the much needed formal coordination of nearshore mapping efforts that goes well beyond that provided by the low cost website (Saupe) being conducted under Data Management. The coordination effort was originally recommended for funding because it was endorsed by the EVOS sponsored workshop on mapping of coastal habitats earlier this year, and it will contribute valuable resources to the process of site selection and implementation of nearshore monitoring stations. Short's FY05 project supports efforts that allow the Science Director and the Executive Director to develop a partnership with the Prince William Sound Regional Citizen's Advisory Council to incorporate an existing time series of data on contaminants into nearshore monitoring (the PWSRCAC's Long Term Environmental Monitoring Project).

Table of Nearshore Projects

Nearshore	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Bishop-FY04-Top-down and Bottom-up Processes	$164,030	$151,390	$0
Bodkin-FY05-GEM Nearshore Monitoring Plan	$227,300	$104,400	$0
Hoover-Miller-FY05- Harbor Seal Monitoring	$92,700	$130,300	$82,300
Saupe-FY05-ShoreZone Mapping - Kodiak	$201,300	$201,900	$0
Thorne-FY04-Seafood Waste Discharge	$111,692	$108,943	$0
Grand Total	**$797,022**	**$696,933**	**$82,300**

Abstracts of Nearshore Projects

Project: Bishop-FY04-Top-down and Bottom-up Processes

Project Title: Trophic Dynamics of Intertidal Soft-Sediment Communities: Interaction between Top-down and Bottom-up Processes (Renewal, Submitted under the BAA)

Location: Southeast Prince William Sound (Orca Inlet) and the Copper River Delta

Proposer: Mary Anne Bishop **Proposer Affiliation:** NGO

Disbursing Agency: NOAA

Funding Levels:

FY04: $149,529 **FY05:** $164,030 **FY06:** $151,390

Abstract:

Vast expanses of intertidal sand/mudflats serve as a critical link in the food web of nearshore communities along the southcentral Alaska coastline. The rich abundance of benthic invertebrates residing within the sediments of intertidal flats and the large network of subtidal channels that bisect these flats provide a significant prey resource for numerous species of fish, crabs, birds, and marine mammals. One of the largest expanses of intertidal mud/sand flats occurs in the Copper River Delta and southeastern Prince William Sound (Orca Inlet). Here we propose a large-scale field study that examines the physical/chemical and biological factors that limit and/or regulate invertebrate community dynamics. The largely "bottom-up" approach we propose (physical/chemical parameters – phytoplantkon/epibenthic production – invertebrate production) is balanced

by the largely "top-down" focus of a companion project funded by the Prince William Sound Oil Spill Recovery Institute that examines predator dynamics and assesses their role in invertebrate community dynamics At the completion of this project (FY 06), the results of both projects will be synthesized and a subset of key physical/chemical parameters will be identified for long- term monitoring

Project Bodkin-FY05-GEM Nearshore Monitoring Plan

Project Title Implementation of the GEM Nearshore Monitoring Plan Site selection, standard operating procedures, and data management

Location PWS, Kenai Penninsula, Cook Inlet, Kodiak

Proposer James Bodkin **Proposer Affiliation** NGO

Disbursing Agency DOI

Funding Levels

FY05 $227,300 **FY06** $104,400 **FY07** $0

Abstract

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, play 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 We are proposing to build upon the monitoring designs offered by Bodkin and Dean (2003) by selecting specific sites, developing and testing sampling protocols, and developing and testing a data management plan specific for long term sampling within the framework of existing monitoring designs Upon completion of these tasks the Nearshore GEM monitoring plan should be well prepared for implementation

Project Hoover-Miller-FY05-Harbor Seal Monitoring

Project Title Harbor Seal Monitoring in Southern Kenai Peninsula Fjords

Location Kenai Penninsula

Proposer Anne Hoover-Miller **Proposer Affiliation** Private Enterprise

Disbursing Agency ADFG

Funding Levels

FY05 $92,700 **FY06** $130,300 **FY07** $82,300

Abstract

This proposal supports an existing remote video monitoring system in Aialik Bay, a tidewater glacial fjord This system is used to observe harbor seals in glacial ice habitats and the impacts of vessels on seals Haulout activity, numbers of seals, vessel impacts on seals, ambient behaviors of undisturbed seals, glacial activity, ice conditions, weather, and other events affecting seals are recorded daily Seed funding is requested to test prototype digital still cameras at land-based haulouts in Day harbor for documenting seals in a fjord lacking tidewater glaciers Integrations of the remote monitoring into GEM, provides ecological measures of conditions at the heads of fjords that will complement long-term oceanographic monitoring in adjacent waters This study is augmented by ancillary studies and support from the ASLC and National Park Service through a partnership in the Oceans Alaska Science and Learning Center, the University of Alaska, Fairbanks, Alaska National Maritime Wildlife Refuge System, and Port Graham Corporation

Project Saupe-FY05-ShoreZone Mapping - Kodiak

Project Title ShoreZone Mapping for Kodiak Island

Location Kodiak Island archipelago

Proposer Susan Saupe **Proposer Affiliation** Private Enterprise

Disbursing Agency NOAA

Funding Levels

FY05 $201,300 **FY06** $201,900 **FY07** $0

Abstract

This project will complete a Kodiak ShoreZone mapping program initiated in 2002 by the EVOSTC and the Cook Inlet RCAC by mapping the rest of the Kodiak Island archipelago following the existing Alaska ShoreZone Mapping Protocols (Harper and Morris 2003) Aerial Video Imagery (AVI) will be collected in two 6-day surveys and will be the primary source for completing the subsequent biophysical mapping database of intertidal and shallow subtidal areas These data will complement the 1600 km of existing mapping on Kodiak and the 7000 km so far within the GEM area In addition to the agency and researcher support that ShoreZone has gained in Alaska--- most specifically to provide needed GEM-area habitat data---there was significant community support for completing the coastal mapping shown during a recent workshop (15 March 2004) in Kodiak when the ShoreZone mapping data and products completed to date were described and demonstrated

Project Thorne-FY04-Seafood Waste Discharge

Project Title Impacts of Seafood Waste Discharge in Orca Inlet, Prince William Sound

Location Orca Inlet, Prince William Sound

Proposer Richard Thorne **Proposer Affiliation** NGO

Disbursing Agency NOAA

Funding Levels

FY04 $72,680 **FY05** $111,692 **FY06** $108,943

Abstract

This proposal brings together several entities with concerns over the impacts of seafood waste discharge into Cordova Harbor (Orca Inlet) The Prince William Sound Science Center (PWSSC) is acting as the facilitator of this effort because of its strategic location and long-term interest in the problem Primary collaborators are DEC, ADF&G and Cordova seafood processors Anticipated collaborators include the Native Village of EYAK and the City of Cordova The proposed research will investigate possible impacts seafood waste discharge through a series of experiments that will evaluate the nearshore community response to alternate techniques of seafood waste discharge, including different grind sizes and whole carcasses, as well as a pile remediation study These experiments will not only aid our understanding of the historic impacts, but will form the basis for a more healthy and productive approach to seafood waste recycling A three-year project is proposed, with the first year devoted to baseline observations and experimental design

Lingering Oil Effects

Introduction

The Trustee Council continues to be concerned about *Exxon Valdez* oil remaining in the marine environment and the effects it may be having on injured resources Injured resources are identified and their current status described on the Trustee Council's web site at http //www evostc state ak us/facts/status html Current objectives for the Lingering Oil Effects component of the Council's program are focused on examining the fate and effects of the remaining oil on injured resources and services, and especially populations of two species in western Prince William Sound, harlequin ducks and sea otters These populations have shown continuing exposure to hydrocarbons in localities where potentially toxic forms of oil from the *Exxon Valdez* are known to persist Objectives for FY 05 also include preparing a report about the status of subsistence uses of the injured resources in the spill affected areas for comparison to an earlier survey in 1998

The reasons that some populations of injured species in Prince William Sound have not met the criteria established for their recovery in the 15 years since the oil spill are still not clear For some species it has not been possible to clearly separate the possible toxic effects of oiling from the possible effects of natural causes such as climate change and predation For this reason, GEM projects that address injured species and ecosystems are designed to understand the effects of natural forces on populations and their productivity The knowledge gained may permit at least a retrospective understanding of oil injury versus other impacts for species injured by *Exxon Valdez* oil, and provide the background on natural forces necessary to understand effects of oiling in future oil spills

Synopsis of Lingering Oil Projects

The lingering oil projects relate directly to the Trustee Council's basic responsibilities to monitor the long-term effects of the oil spill and the status of injured species (Fall, Irons, Lees, Rosenberg), to maintain evidence of oiling (Nelson), look at the fate of the *Exxon Valdez* oil outside Prince William Sound (Irvine), and at the fate and effects of oil inside Prince William Sound (Bodkin-Lingering, Ballachey-Otters, Ballachey-NVP, Rice-Population and Rice-Contaminants) A synthesis transition project (Short) offers to address the tasks necessary to integrate long-term monitoring of lingering oil effects into GEM nearshore monitoring projects

In addition, a re-survey of sediment quality (Day-Sediment) is designed to assess in situ levels of toxicity of sediments in areas most likely to remain oil impaired A synthesis of scientific information relevant to injury from lingering oil (Jacobs) will provide information on the status of injured resources and options for future restoration

Table of Lingering Oil Projects

Lingering Oil	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Ballachey-FY04-Oil Exposure in Nearshore Vertebrate Predators	$150,500	$0	$0
Ballachey-FY04-Oil Exposure in Sea Otters	$126,900	$0	$0
Bodkin-FY04-Lingering Oil and Sea Otters	$26,200	$6,500	$0
Day-FY04-Sediment Quality Survey	$57,200	$0	$0
Fall-FY04-Status of Subsistence Uses	$25,600	$0	$0
Irons-FY05-Marine Bird Abundance	$163,600	$32,700	$0
Irvine-FY04-Lingering Oil on Boulder-Armored Beaches*	$17,200	$0	$0
Nelson-FY04-Hydrocarbon Database	$22,200	$22,200	$0
Rice-FY04-Contaminant Inputs and CYPIA Induction	$130,100	$0	$0
Rice-FY04-Lingering Population Status	$60,000	$61,000	$29,100
Rosenberg-FY05-Harlequin Duck Populations Dynamics	$39,900	$0	$0
Short-FY05-Monitoring of Anthropogenic Hydrocarbons	$58,900	$58,900	$58,900
Grand Total	**$878,300**	**$181,300**	**$88,000**

* Project delayed to be conducted in FY 05

Abstracts of Lingering Oil Projects

Project: Ballachey-FY04- Oil Exposure in Nearshore Vertebrate Predators

Project Title: Oil Exposure in Nearshore Vertebrate Predators

Location: Prince William Sound

Proposer: Brenda Ballachey **Proposer Affiliation:** USGS

Disbursing Agency: DOI

Funding Levels:

FY04: $178,000 **FY05:** $150,500 **FY06:** $0

Abstract:

Some of the strongest evidence of continuing effects of lingering oil from the Exxon Valdez oil spill comes from long term monitoring of vertebrate populations and their exposure to hydrocarbons. Population recovery of sea otters remained incomplete as of 2002, and individual sea otters continue to exhibit elevated levels of the Cytochrome P450 1A biomarker in areas where lingering oil deposits are most prominent. Surveys of population size and individual P450 measures of sea otters and marine birds will provide continuing information on population trend and individual exposure to lingering oil.

Project Ballachey-FY04- Oil Exposure in Sea Otters

Project Title Lingering Oil and Sea Otters Pathways of Exposure and Recovery Status (continuation of work on project 040620)

Location Prince William Sound

Proposer Brenda Ballachey **Proposer Affiliation** USGS

Disbursing Agency DOI

Funding Levels

FY04 $20,500 **FY05** $126,900 **FY06** $0

Abstract

Some of the strongest evidence of continuing effects of lingering oil from the Exxon Valdez spill comes from long term monitoring of sea otter populations and their exposure to hydrocarbons Sea otters in heavily oiled areas of western PWS had not recovered as of 2003 Through 2002, sea otters continue to exhibit elevated levels of the cytochrome P4501A biomarker in areas where lingering oil deposits are most prominent In 2002/03, sea otters at northern Knight Island were instrumented with radiotransmitters and time-depth recorders Ongoing monitoring of these individuals is quantifying home ranges relative to known intertidal lingering oil deposits, and when the dive data are retrieved and analyzed, we will link foraging behaviors of individual sea otters to oiled shorelines, and relate patterns of habitat use to individual variation in cytochrome levels For FY2005, we propose to conduct surveys of population size and distribution, continue to monitor instrumented sea otters to obtain habitat use and survival information, and obtain an additional sample of cytochrome P4501A This will allow evaluation of continuing exposure to residual oil, population trends, and the status of recovery of sea otters in western PWS

Project Bodkin-FY04-Lingering Oil and Sea Otters

Project Title Lingering Oil and Sea Otters Pathways of Exposure and Recovery Status (continuation of project 030620)

Location Prince William Sound

Proposer James Bodkin **Proposer Affiliation** DOI

Disbursing Agency DOI

Funding Levels

FY04 $134,300 **FY05** $26,200 **FY06** $6,500

Abstract

Some of the strongest evidence of continuing effects of lingering oil from the Exxon Valdez oil spill comes from long term monitoring of sea otter populations and their exposure to hydrocarbons Population recovery remained incomplete as of 2002, and individual sea otters continue to exhibit elevated levels of the Cytochrome P450 1A biomarker in areas where lingering oil deposits are most prominent Work in progress is quantifying home ranges of sea otters at northern Knight Island relative to known intertidal lingering oil deposits, but relocation sampling limits our ability to link foraging behaviors to oiled shorelines To address the question of where individuals are foraging relative to lingering oil requires data on foraging depths In 2003 USGS will be

instrumenting 20 of the radio-instrumented sea otters at Knight Island with time-depth-recorders These instruments will provide accurate information on the proportion of each individuals foraging that occurs in intertidal habitats, the area where known oil deposits remain, for one full year Surveys of population size and individual P450 measures will provide continuing information on population trend and individual exposure to lingering oil

Project Day-FY04-Sediment Quality Survey

Project Title Sediment Quality Survey of Heavily-Oiled Beaches in PWS

Location Prince William Sound

Proposer Betsy Day **Proposer Affiliation** Private Enterprise

Disbursing Agency DOL

Funding Levels

FY04 $151,000 **FY05** $57,200 **FY06** $0

Abstract

Recent work by Short et al (2004) demonstrated that lingering oil is found in subsurface intertidal sediments in 43 of the 91 beaches sampled during the summer of 2001 This proposed research project is directed at understanding potential ecological effects to invertebrate populations resulting from lingering oil in subsurface intertidal sediments Sediments from five locations containing heavily-oiled subsurface sediments, and five nearby reference areas, will be collected concurrently with the NMFS continuing lingering oil studies, and evaluated for PAHs, sediment toxicity using the mussel larvae bioassay, and benthic community structure The results will provide information on the potential ecological impacts from lingering subsurface oil and will be evaluated using a weight-of-evidence approach If this project shows that the heavily-oiled sediments are not causing impacts to benthic invertebrates then it can be assumed that benthic invertebrate populations in moderately or lightly-oiled sediments will not be affected by the lingering oil

Project Fall-FY04-Status of Subsistence Uses

Project Title Update of the Status of Subsistence Uses in Exxon Valdez Oil Spill Area Communities

Location Prince William Sound, Kodiak, Kenai Peninsula, and Alaska Peninsula

Proposer James Fall **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Levels

FY04 $298,700 **FY05** $25,600 **FY06** $0

Abstract

The project will provide information for an update of the status of subsistence uses in the Exxon Valdez oil spill area Subsistence uses are a vital natural resource service that was injured by the spill and has not recovered The project will be a partnership between the Alaska Department of Fish and Game, the Chugach Regional Resources Commission, the Kodiak Area Native Association, and the Bristol Bay Native Association In early 2004 local research assistants and department researchers will interview face-to-face approximately 760 households in 14 communities about their subsistence activities in 2003 The questionnaire will be similar to that used in previous rounds of interviews A planning workshop and data review workshop will be held involving study community representatives A database with study findings and a final report will be produced Training of local researchers and capacity building are key goals of the project

Project· Irons-FY05-Marine Bird Abundance

Project Title Surveys to Monitor Marine Bird Abundance in PWS during Winter and Summer 2005

Location PWS

Proposer David Irons **Proposer Affiliation** Local

Disbursing Agency DOI

Funding Levels

FY05 $163,600 **FY06** $32,700 **FY07** $0

Abstract

This project will conduct small boat surveys to monitor abundance of marine birds and sea otters (Enhydra lutris) in Prince William Sound, Alaska during March and July 2005 Seven previous surveys have monitored population trends for >65 bird and 8 marine mammal species in Prince William Sound after the Exxon Valdez oil spill We will use data collected in 2005 to examine trends from summer 1989-2005 and from winter 1990-2005 by determining whether populations in the oiled zone changed at the same rate as those in the unoiled zone We will also examine overall population trends for the Sound from 1989-2005 Due to the lack of data prior to the Exxon Valdez oil spill, continued monitoring of marine birds and sea otters is needed to determine whether populations injured by the spill are recovering Data collected in 2000 indicated that bald eagles (Haliaeetus leucocephalus) are increasing in winter and summer throughout Prince William Sound, harlequin ducks (Histrionicus histrionicus) are increasing in the oiled

area in winter, and black oystercatchers are increasing throughout Prince William Sound in summer Numbers of all other injured species are either not changing or are declining in the oiled area Common loons (Gavia immer), cormorants (Phalacrocorax spp), and common murres (Uria aalgae) are showing no trend in the oiled area, pigeon guillemots (Cepphus columba) and marbled murrelets (Brachyramphus marmoratus) are declining in the oiled areas of Prince William Sound and Kittlitz's Murrelet (Brachyramphus brevirostris) is declining throughout Prince William Sound Results of these surveys up through 1998 have been published by Irons et al (2000) and Lance et al 2001) Analyses of these survey data are the only ongoing means to evaluate the recovery of most of these injured species A Final Report will be written upon completion of the project that will address population status of species observed during the survey

Project Irvine-FY04-Lingering Oil on Boulder-Armored Beaches

Project Title Monitoring Lingering Oil on Boulder-Armored Beaches in the Gulf of Alaska

Location Kenai Peninsula, Alaska Peninsula

Proposer Gail Irvine **Proposer Affiliation** DOI

Disbursing Agency DOI

Funding Levels The project has been delayed and it is now (7/16/2004) scheduled to be conducted in federal fiscal years 2005 – 2006, as a no-cost extension Funding impacts within fiscal years remain as written

FY04 $71,700 **FY05** $17,200 **FY06** $0

Abstract

We propose to continue monitoring the persistence and degradation of oil at boulder-armored Gulf of Alaska beaches that have been studied since 1992 and investigate how stability of the boulder armors affects both persistence and weathering These sites were re-sampled in 1994 and 1999, 2004 will be the next targeted study date The continued contamination of these sites, arrayed along the Katmai and Kenai Fjords National Park coasts, compromises the aesthetics and wilderness values of some of the most pristine wilderness-coast parklands in the world The lack of weathering of much of the oil means that the oil, if released, could pose a risk to biota Subsurface oil persisted at these sites in 1999 with little change in extent or chemical weathering since 1994 Data also suggests that the boulder armors are largely stable We propose to assess changes in surface and subsurface oiling, chemical weathering of the oil, and stability of the boulder armors Results will be published

Project Nelson-FY04-Hydrocarbon Database

Project Title The Exxon Valdez Trustee Hydrocarbon Database and Interpretation Service

Location entire spill area

Proposer Bonita Nelson **Proposer Affiliation** NOAA

Disbursing Agency NOAA

Funding Levels

FY04 $22,200 **FY05** $22,200 **FY06** $22,200

Abstract

This project is an on-going service project providing data and sample archiving services for all samples collected for hydrocarbon analysis in support of Exxon Valdez Oil Spill Trustee Council projects These data represent samples collected since the oil spill in 1989 to the present and include environmental and laboratory Response (National Resource Damage Assessment - NRDA) and Restoration data Additionally, we provide interpretive services for the hydrocarbon analysis provide public releases of the database (including FOIA requests) and maintain the hydrocarbon sample archives

Project Rice-FY04-Contaminant Inputs and CYPIA Induction

Project Title Lingering Oil Contaminant Inputs to PWS and CYPIA Induction in Fish

Location Prince William Sound

Proposer Stanley Rice **Proposer Affiliation** NOAA

Disbursing Agency NOAA

Funding Levels

FY04 $177,300 **FY05** $130,100 **FY06** $0

Abstract

Recently lingering oil studies have found that Exxon Valdez oil persists, and continued CYP1A induction in sea otters and sea ducks have become the best documented long-term impacts of the spill Exxon scientists suggest there are many other potential pollutant sources in PWS that confound measurements of CYP1A induction The project proposed here will definitively assess contributions, if any, from other contaminant sources to contaminant stresses on biota in Prince William Sound (PWS) At a suite of sites, passive sampling devices will be deployed and then analyzed to evaluate their induction potential Aliquots of concentrated extracts from the samplers will be injected into cultured rainbow trout (Oncorhynchus mykiss), and the induction of cytochrome P450A1A (CYP1A) measured These measurements will compliment the on-going sea otter studies of FY04, where a final measurement of CYP1A will be made in summer 2004

Project Rice-FY04-Lingering Population Status

Project Title Lingering Oil Pathways of Exposure and Population Status (ABL)

Location Prince William Sound

Proposer Stanley Rice **Proposer Affiliation** NOAA

Disbursing Agency NOAA

Funding Levels

FY04 $60,000 **FY05** $61,000 **FY06** $29,100

Abstract

Lingering oil from the Exxon Valdez oil spill remains throughout Western Prince William Sound and appears to have chronic effects on sea otter and sea duck populations in these areas Studies conducted in 2001-02 have documented the extent of oiling throughout the sound, and as of this writing, we have determined that oil is bioavailable to predators Bioavailability defines potential for exposure, but is not equal to exposure or significance In 2003 and 2004, we are determining the significance of lingering oil by quantifying the probability of oil encounters in areas where sea otters and sea ducks have not recovered Prey and passive samplers collected in 2003 will be analyzed in 2004, and will be supplemented with additional samples in 2004 to meet the needs of the on-going tagging studies of otters and ducks by USGS With the mechanism of exposure from lower intertidal oil deposits determined, the research theme will move toward the goal of determining the extent and probability of oil exposure in three restricted areas Herring Bay, Lower Passage, and Bay of Isles Information gained in this project could aid in the decision process regarding future mitigation, litigation, or clean-up actions

Project Rosenberg-FY04-Harlequin Duck Population

Proposer Dan Rosenberg **Proposer Affiliation** ADF&G

Location Prince William Sound

Disbursing Agency ADFG

Funding Recommendations

FY05 $39,900 **FY06** $0 **FY07** $0

Abstract

This project will address the effects of lingering oil in nearshore habitats of Prince William Sound on populations of harlequin ducks We will also address GEM objectives for long-term monitoring of harlequin and other sea duck species We will conduct winter boat surveys to test if harlequin ducks have recovered from the effects of the EVOS by comparing population structure and trends between oiled and unoiled treatments in four areas (2 oiled, 2 unoiled) of PWS Similar structure and trends between oiled and unoiled areas will indicate populations have recovered or are in a position to recover Work will be complimentary to studies addressing cytochrome P450 induction and over winter survival of female harlequin ducks to give a complete picture of the effects of lingering oil We will also test for geographic differences in population structure and trend for oiled and unoiled treatments This is a continuation of surveys begun in 1997 Up to 3 years of surveys are proposed with the results of each year determining the need for continuation

Project Short-FY05-Monitoring of Anthropogenic Hydrocarbons

Project Title Long-term Monitoring of Anthropogenic Hydrocarbons in the Exxon Valdez Oil Spill Region

Location PWS, Kodiak, Kenai Peninsula

Proposer Jeff Short **Proposer Affiliation** NMFS

Disbursing Agency NOAA

Funding Recommendations

FY05 $58,900 **FY06** $58,900 **FY07** $58,900

Abstract

This proposal seeks support to expand the Long Term Environmental Monitoring (LTEMP) of the Prince William Sound Regional Citizens' Advisory Council in a manner that will make it substantially more powerful in its ability to detect environmental changes induced by petroleum contamination, and possibly other contaminants that have recently been identified as potential insults to the region This expansion is designed to address the needs of both the PWSRCAC and the GEM programs, in part by combining resources of both organizations The proposed design incorporates and integrates the existing NOAA and LTEMP monitoring datasets, and proposes a modest enlargement of effort to monitor at a substantially larger spatial scale Most of the expansion is intended to implement a random-sampling based design that is currently being developed under an FY2004 Trustee Council funded project (Project 040724 Monitoring Exxon Valdez Oil)

*Management Applications**

Introduction

Management Applications is an implementation strategy that is woven throughout all the Council's funded projects to the extent feasible and appropriate. All monitoring data collected at Council expense are ultimately expected to be applied to management through their use in detecting, understanding and predicting changes in populations of birds, fish and mammals (GEM Program Document). The Council requested in FY 2004 that Management Applications be emphasized as its own program area in the FY 2005 Invitation to accelerate the pace of development of applications.

Synopsis of Management Applications

The Willette project is expected to provide complementary information for Watersheds on stable isotope composition of salmon smolts leaving the Kenai River. In addition, the project will help managers understand productivity of Kenai sockeye salmon. The Willette project will also test sampling methods for juvenile salmon through a combination of independent methods, providing a benefit to management programs in salmon on a coast-wide basis. The benefits to management of Willette will be immediate as a forecasting tool and as a guide to sustainable harvest levels for salmon in the localities sampled. Target species are important parts of the food web, and thus are expected to factor into the management of other species in ecosystem-based management.

The Otis project will provide herring stock composition information of potential use in herring harvest management.

Table of Management Applications

Management	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Otis-FY05- Temporal Stability of Fatty Acids	$67,700	$89,400	$25,100
Willette-FY05-Salmon Smolt Monitoring	$68,800	$65,900	$67,000
Grand Total	**$136,500**	**$155,300**	**$92,100**

**Program area appeared in Invitation of FY 05 for the first time.*

Abstracts of Management Applications

Project Otis-FY05-Temporal Stability of Fatty Acids

Project Title Temporal Stability of Fatty Acids used to Discriminate Pacific Herring in Alaska

Location Gulf of Alaska and Bering Sea

Proposer Ted Otis **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Levels

FY05 $67,700 **FY06** $89,400 **FY07** $25,100

Abstract

This project follows up on a promising pilot study that demonstrated the ability to discriminate Alaska herring stocks at relatively fine spatial scales (> 100 km) based on the fatty acid composition of their heart tissue The investigators propose to assess the temporal stability and biological variability of stock discrimination criteria derived from fatty acid analysis of herring cardiac tissues Samples will be collected during the spring and fall/winter of 2005 and 2006 from putative herring stocks from Sitka, PWS, Kamishak, Kodiak, Dutch Harbor, Togiak, and Kuskokwim Bay Results should allow managers to better define ecologically significant stock boundaries, which will likely affect how commercially exploited herring populations are assessed and managed Results will be published in a peer-reviewed report and may lead to revision of fishery management plans for affected areas Keywords Pacific herring, stock identification, fatty acid analysis, Gulf of Alaska

Project. Willette-FY05-Salmon Smolt Monitoring

Project Title Management Applications Improving Preseason Forecasts of Kenai River Sockeye Salmon Runs through Smolt Monitoring - Technology Development

Location Cook Inlet

Proposer Mark Willette **Proposer Affiliation** ADF&G

Disbursing Agency ADFG

Funding Recommendations

FY05 $68,800 **FY06** $65,900 **FY07** $67,000

Abstract

This project will develop and implement a smolt-monitoring program for Kenai River sockeye salmon as a tool for managing one of the largest and most accessible salmon stocks in Upper Cook Inlet Sockeye salmon smolt population estimates will be used to develop preseason forecasts of run size for this stock The Alaska Board of Fisheries has specified that the Kenai River sockeye salmon run will be managed based upon preseason and inseason forecasts of run strength, and inriver escapement goals for this system vary

as a function of these forecasts This management structure causes relative uses of the resource by recreational, personal use, and commercial fishers to be strongly dependent on the accuracy of forecasts The project will use two independent methods to estimate the population size of sockeye salmon smolt emigrating from the Kenai River watershed GEM funding is requested to support estimation of smolt population size using mark-recapture methods ADF&G funding will support estimation of smolt population size using side-looking sonar During the first two years of the project, we will evaluate the accuracy and precision of our estimates and identify the methodology that provides the best estimate at the lowest cost In the third year, we will implement this new method to estimate smolt population size The project will also estimate the proportion of marine-derived elements in smolts, beginning a database needed to evaluate the effect of marine nutrient contributions on salmon production in this and other systems

Watersheds

Introduction

Most coastal watersheds in south-central Alaska and elsewhere in the North Pacific are thought to be heavily influenced by marine nutrients (MDN) and carbon carried inland by animals such as salmon, river otters, bald eagles, and harlequin ducks Yet, very little is actually known about the extent of this influence, and no monitoring programs currently measure marine effects Without MDN information, human non-point source pollution often cannot be distinguished from natural events such as the effects of salmon spawning Commercial and recreational fisheries for salmon are at risk of curtailment without MDN information, since the actual degree of dependence of potentially threatened or endangered terrestrial mammals, such as brown bear, on marine sources is not known, but is now presumed to be high Without adequate measures and routine monitoring of MDN, regulations to reduce pollution and lower risks to listed species may be unnecessarily injurious to the economy, ineffectual, or both Understanding of past oil spill injuries will be enabled and future oil related injuries will be more readily diagnosed

The initial focus of the GEM watershed program is to conduct research on how to measure the known marine related indicators stable isotopes of carbon, nitrogen and sulfur (C, N, S) and proxies for marine related sources of nutrients and food, such as standard water quality indicators (nitrates, ammonium) Answers are needed to the following questions What are the best indicators? Are C, N, and S equally useful as indicators of marine linkages in all types of watersheds? Are concentrations of nitrates and ammonium in freshwater suitable proxies for stable isotopes? Are there other suitable proxies for marine-related indicators? What is the variability of marine related indicators in bodily tissues among species within watersheds? Which species or species guilds are best suited to measuring marine linkages? How do suitable species vary among different types of watersheds, i e , heavily forested, anadromous, non-anadromous, recently glaciated, heavy human development, pristine, and so forth? What are the indicators of terrestrial influences in nearshore marine environments?

Synopsis of Watershed Projects

The watershed projects represent a well coordinated and integrated package of research to be conducted throughout the spill affected areas that will lead to the implementation of an initial GEM watershed monitoring program in FY 2007 (Finney, Heintz, Honnold, Woody, and Walker) Geographic coverage is provided for a broad variety of coastal watersheds adjacent to Prince William Sound (Woody), Cook Inlet (Walker and Heintz), and Kodiak (Finney and Honnold) All projects except Heintz offer to study stable isotopes as indicators of terrestrial-marine linkages However, the studies offer complementary coverage of different types of watersheds (lake-bearing, peat wetlands, and glacial runoff), localities within and nearby watersheds (headwaters, mid-reaches, mouth, delta and nearshore), resident and anadromous fish species, measures of water quality, limnological observations and primary productivity All projects

incorporate community based sampling strategies to some extent, however the since the Trustee Council chose not to fund the Cooper proposal, the Walker-Heintz projects have been left with a diminished community involvement component, and only the Finney-Honnold projects are incorporating an existing water quality monitoring program into their study plans. The Heintz project alone is expected to provide near-term management applications through measures of the allocation of marine derived resources among growth and bodily structures of fish that can be used to understand survival. Survival of species is basic information for fishery managers.

Taken together, the watershed projects will provide enough information in three years (FY 2004 – FY 2006) to design sampling for terrestrial-marine linkages that will lead to a call for proposals for a GEM watershed monitoring program in FY 2007. As pointed out in the Science Plan, the current understanding of terrestrial-marine linkages and how to measure them is not well developed enough to expect that the final monitoring program will be initiated in FY 2007, but at least enough should be known before then to permit a useful body of systematic observations to be identified. Research and modeling may be needed for an additional decade before the final GEM watershed monitoring program can be put in place.

Table of Watershed Projects

Watersheds	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Finney-FY04-Marine-terrestrial Linkages	$80,154	$81,117	$0
Heintz-FY04-Energy Allocation	$42,300	$14,000	$0
Honnold-FY04-Marine-derived Nutrients on Sockeye Salmon	$82,400	$86,800	$0
Walker-FY04-Marine Derived Nutrients	$153,400	$149,700	$0
Woody-FY04-Nutrient-Based Resource Management	$177,002	$152,632	$0
Grand Total	**$535,256**	**$484,249**	**$0**

Abstracts of Watershed Projects

Project Finney-FY04-Marine-terrestrial Linkages

Project Title Marine-terrestrial Linkages in northern GOA Watersheds Towards Monitoring the effects of Anadromous Marine-derived Nutrients on Biological Production

Location Karluk Lake, Spiridon Lake, Kodiak, Alaska

Proposer Bruce Finney **Proposer Affiliation** Alaskan University

Disbursing Agency ADFG

Funding Levels

FY04 $79,197 **FY05** $80,154 **FY06** $81,117

Abstract

The proposed project is a comprehensive study to be done in conjunction with the Honnold project examining the role of marine-derived nutrients (MDNs) in the productivity of a sockeye nursery lake ecosystem The research plan integrates studies of nutrient cycling, primary productivity, zooplankton dynamics, and juvenile sockeye abundance and growth, within a framework of stable isotope natural abundance The study sites are an ideal pair, very similar in characteristics except for access by spawning salmon (anadromous Karluk Lake and control Spiridon Lake) The project will take advantage of the wealth of previous research including relatively long-term limnological data for both sites Based on previous work, signals from MDNs are anticipated to be relatively strong, which will help elucidate nutrient pathways The research design is the first to utilize detailed vertical and temporal sampling of the water column, coupled with measurements of rates of primary productivity, and fully integrated stable isotope analyses, with contemporaneous sampling in a well-matched pair of salmon and control lakes The overall goal of this project is to provide the framework for designing monitoring projects to detect changes in marine terrestrial linkages in Gulf of Alaska sockeye

Project Heintz-FY04-Energy Allocation

Project Title The Influence of Adult Salmon Carcasses on Energy Allocation in Juvenile Salmonids

Location Kenai Peninsula

Proposer Ron Heintz **Proposer Affiliation** NOAA

Disbursing Agency NOAA

Funding Levels

FY04 $48,400 **FY05** $42,300 **FY06** $14,100

Abstract

This proposal seeks to examine the effect of adult salmon carcasses on the energy allocation in juvenile salmon Juvenile salmon allocate energy between the competing demands of growth and energy storage to minimize exposure to predation while forestalling starvation over winter This proposal will contrast annual energy dynamics in age-0 Dolly Varden from Kenai Peninsula streams with and without salmon carcasses present Fatty acid analysis will be used to identify marine signal strength and persistence in the lipids of the juveniles The investigators will combine proximate and lipid class analyses to determine the proportions of their total energy allocated to storage versus structure, and examine how seasonal variation in allocation differs among streams and carcass densities They also will examine the influence of carcasses on growth rate and the relation between growth and energy allocation

Project Honnold-FY04-Marine-derived Nutrients on Sockeye Salmon

Project Title Monitoring the Effects of Anadromous Marine-derived Nutrients on Sockeye Salmon

Location Kodiak Island, Alaska

Proposer Steve Honnold **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Levels

FY04 $83,200 **FY05** $82,400 **FY06** $86,800

Abstract

We propose to work in conjunction with the Finney project to comprehensively examine the role of MDN in sockeye salmon nursery lake ecosystem productivity by integrating studies of nutrient cycling, primary productivity, zooplankton dynamics, and juvenile sockeye abundance and growth, within a framework of stable isotope natural abundance The project will take advantage of previous research including relatively long-term limnological data for Karluk Lake on Kodiak Island We will utilize detailed vertical and temporal sampling of the water column, coupled with measurements of rates of primary productivity, and fully integrated stable isotope analyses, with contemporaneous sampling in a well matched pair of salmon (Karluk) and control (Spiridon) lakes We propose to determine the extent to which the functioning and productivity of watersheds

depends on marine-nutrient inputs and how this marine-terrestrial linkage can be better detected and understood The overall goal of this project is to provide the framework for designing monitoring projects to detect changes in marine terrestrial linkages in Gulf of Alaska sockeye watersheds

Project Walker-FY04-Marine Derived Nutrients

Project Title Presence and Effects of Marine Derived Nutrients (MDN) in Stream, Riparian and Nearshore Ecosystems on Southern Kenai Peninsula, Alaska

Location

Proposer Coowe Walker **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Levels

FY04 $169,000 **FY05** $153,400 **FY06** $149,700

Abstract

Marine derived nutrients and carbon (MDN) delivered by salmon and other anadromous fishes are considered important drivers in riverine ecosystems, providing nutrients and food to these land-based food webs However, we know little about the relative value of MDN compared to other nutrient and carbon sources (e g , watershed-derived) in the Gulf of Alaska region The objectives of this study are to develop a water chemistry proxy for monitoring salmon returns, and to track and measure MDN effects in stream, riparian and nearshore environments, on the southern Kenai Peninsula We will accomplish this by linking stream chemistry, marine isotope signatures, marine terrestrial fatty acid ratios, and key animal and plant community density, growth, and lipid measures along a gradient from river mouth to headwaters in key watersheds This study will be integrated with related studies proposed in other areas of southcentral Alaska to develop a broader retinal understanding and widely-applicable long-term monitoring program for the GEM region

Project Woody-FY04-Nutrient-Based Resource Management

Project Title Research for Nutrient-Based Resource Management in Watersheds and Estuaries

Location Prince William Sound

Proposer Carol Woody (Eric Knudsen) **Proposer Affiliation** DOI

Disbursing Agency DOI

Funding Levels

FY04 $173,216 **FY05** $177,002 **FY06** $152,632

Abstract

Proposal offers a strategy for developing a monitoring program for watersheds that will form the basis for a comprehensive understanding of water quality and biological production in relation to natural and human induced variability Sampling strategy effectively leverages existing funding from Oil Spill Recovery Institute and North Pacific

Research Board to minimize costs Data derived on isotopic signatures of C, N, and S will be invaluable in designing monitoring throughout the GEM area Important new information will be produced on effects of watersheds on productivities of nearshore environments, the feasibility of using sulfur as indicator of marine related effects, and the relation of MDN to freshwater residence time in juvenile salmon

Community Involvement

Introduction

Meaningful public and community participation has long been an essential part of the Trustee Council's process and an essential strategy for implementing the GEM Program (GEM Program Document, Chapters 1 and 3; NRC 2002). Current and future GEM monitoring projects are encouraged to have a strong community involvement component whenever possible.

Synopsis of Community Involvement Projects

The community involvement projects contribute directly to the Trustee Council objectives of 1) involving communities in the oil spill affected area in decisions on the questions addressed and the projects implemented (Baird), and 2) involving members of the community in collecting long-term data sets relevant to the Science Plan (Schneider, DeLorenzo). In FY 2005 the Baird project will start the process of making a long standing community-based time series of Nearshore observations available to other projects of the Council's Nearshore program for a modest amount of funding.

Table of Community Involvement Projects

Community Involvement	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Baird-FY05-Connecting with Coastwalk	$28,900	$20,300	$11,900
DeLorenzo-FY04-Youth Area Watch	$126,400	$133,200	$0
Schneider-FY04-Kodiak Archipelago	$63,000	$63,000	$0
Total	**$218,300**	**$216,500**	**$11,900**

Abstracts of Community involvement Projects

Project Baird-FY05-Connecting with Coastwalk

Project Title Connecting with Coastwalk Linking Shoreline Mapping with Community-based Monitoring

Location Kachemak Bay

Proposer Steve Baird **Proposer Affiliation** ADF&G

Disbursing Agency ADFG

Funding Recommendations

FY05 $28,900 **FY06** $20,300 **FY07** $11,900

Abstract

The project will evaluate and merge citizen-generated biological and human impact data collected over 20 years of an annual Kachemak Bay CoastWalk shoreline survey with high-resolution mapping of the physical structure of the nearshore environment in Kachemak Bay that nests geographically within ShoreZone mapping Evaluation of data and data collection protocols and the geographic alignment of CoastWalk zones with ShoreZone units and KBRR's shoreline segments will occur during Year 1 Citizen-based data collection efforts aligned with GEM nearshore monitoring SOPs and methods will be pilot-tested in Kachemak Bay During Year 2, a Kachemak Bay community/scientist workshop will be held to further integrate and synthesize local information into the Kachemak Bay Research Reserve GIS and to apply the GIS results to the selection of nearshore monitoring sites for community-based monitoring Piloting will continue, with emphasis on involvement of K-12 teachers and students During Year 3, nearshore monitoring data collection and data management will be further refined and a WEB site and data entry interface developed This project will advance the development of a community-based nearshore monitoring program for the GEM program

Project DeLorenzo-FY04-Youth Area Watch

Project Title Youth Area Watch

Location PWS, Kenai Peninsula

Proposer Richard DeLorenzo **Proposer Affiliation** Local Government

Disbursing Agency ADFG

Funding Levels

FY04 $121,100 **FY05** $126,400 **FY06** $133,200

Abstract

This project links students in the oil spill impacted area with research and monitoring projects funded by the Trustee Council and outside agencies Youth conduct research identified and delegated by principal investigators who have indicated interest in working with students The project involves students in the acquisition and monitoring of oceanographic and meteorological data over time Students also develop a local restoration project, which provides them the skills to participate in community-based science Youth Area Watch fosters long-term commitment to the goals set out in the

restoration plan and is a positive community investment in that process Participating communities in FY 04-06 will be Chenega Bay, Cordova, Seward, Tatitlek, Valdez and Whittier

Project. Schneider-FY04-Kodiak Archipelago

Project Title Kodiak Archipelago Youth Area Watch

Location Kodiak Archipelago

Proposer Teri Schneider **Proposer Affiliation** Local Government

Disbursing Agency ADFG

Funding Levels

FY04 $63,000 **FY05** $63,000 **FY06** $63,000

Abstract

The Kodiak Archipelago Youth Area Watch is an ongoing community involvement project designed to engage students in projects with goals aligned with the general restoration efforts of the Trustee Council Students and site coordinators will conduct interviews with local experts and document TEK, publishing it in a District oral history magazine Participation of KAYAW adults and students in the annual Academy of Elders/Science Camp will be strongly encouraged Participants will share their research during annual gatherings Such participation will serve as another avenue for more tribal members to learn about restoration efforts, scientific monitoring techniques, and occupations related to such work Students will explore local knowledge as it relates to marine mammal populations, inter-tidal environment, impact of humans on the coastal environment, human use overtime and intergenerational changes and cultural beliefs and practices that may provide insight in scientific studies The value and implications of TEK will be strongly emphasized throughout the implementation of the KAYAW project

Data Management

Introduction

The Data Management and Information Transfer component of GEM includes the following functions: data receipt, quality control (QC), storage and maintenance, archiving and retrieval, administrative support, and the systems necessary to automate as many of these procedures as possible. This component also includes programs needed to create the custom data and information products that will be provided to the modeling and applications components, and to the users of this information. Data Management and Information Transfer provides the essential function of extracting the full scientific and societal benefits from GEM projects (NRC 2002; GEM Program Document, Chapter 9). Data generated by GEM projects need to be converted into useful information that is readily available in a timely fashion to the scientific communities, resource managers, resource dependent people and their communities, policy makers, and other members of the public. In addition, data sets and information regarding other research and monitoring activities in the GEM region must be readily accessible to EVOS staff and contractors, GEM committees and working groups (if any), state and federal resource agencies, and concerned members of the public in order to facilitate gap analysis during project selection and implementation, and maximize the use of all data collected (GEM Program Document, Chapter 3).

Table of Data Management Projects

Data Management	*Funding*		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
There were no external Data Management projects funded in FY 2005			
Grand Total	**$0**	**$0**	**$0**

Alaska Coastal Current

Introduction

Much of the Gulf of Alaska is a very deep (circa 4000m) reservoir of salty water bearing carbon and nutrients that will fuel biological production if transported to the surface waters of the GEM habitat types Paradoxically, the ocean processes such as thermohaline circulation and upwelling that transport deeper waters toward the relatively shallow depths in other parts of the world appear to be absent or short-lived in the northern Gulf The opposite condition from upwelling, coastal downwelling, is usually the case in the Gulf, particularly in winter It is known that cross-shelf, surface Ekman transport in winter cannot account for the high nutrient concentrations observed on the inner shelf in spring (Childers 2000, Whitledge 2000) Other mechanisms are possible In summer, when downwelling relaxes, salty, nutrient-rich water from offshore invades the inner shelf (Royer 1975), but the annual extent of the invasion varies and may be controlled by forces with periods of approximately two decades (Parker et al 1995) Vertical mixing is strong through the winter and redistributes fresh water, salt and possibly nutrients throughout the water column, so a combination of mechanisms is possibly involved in the annual nutrient re-supply to the inner shelf (GEM Program Document, Chapter 7 6 4)

Even though upwelling appears to occur only briefly in the Gulf (GEM Program Document, Chapter 7 6 2, Royer 1982, 2000, Reed and Schumacher 1986), the northern and western Gulf and adjacent waters are nonetheless highly productive of benthic, pelagic and littoral vertebrates (fish, birds and mammals) and benthic invertebrates such as crustaceans and mollusks (i e Feder and Jewett 1986, Cooney 1986, Martin 1997, Witherell 1999, Kruse et al 2000, Rogers et al 1986, Highsmith et al 1994, Purcell et al 2000, Rooper and Haldorson 2000) Solving the mystery of the missing ecological mechanisms is essential to explain how the ingredients necessary for biological production of plants and animals (nutrients and food) are transported to be converted into the populations of fish, shellfish, birds, and mammals that are the centers of attention for natural resource management agencies and coastal economies

A reasonable working solution to the mystery of the missing ecological mechanisms starts with the processes that change the strength of the factors driving the currents of the region (GEM Program Document, Chapter 7 6 4) Both the area of the ACC and adjacent shelf and slope are strongly affected by advection (mostly horizontal transport of momentum, energy, and dissolved and suspended materials by ocean currents), implying that climate perturbations, even those occurring far from the GEM study area, can be efficiently communicated into the northwestern GOA by ocean circulation (GEM Program Document, Chapter 7 6 2, p 130) The strong advection also implies that processes occurring as far upstream as the northwestern contiguous United States might substantially influence biological production within the GEM habitat types

Synopsis of ACC Projects

GEM is now making progress by measuring the biological and physical variables that are needed to solve the mystery of the missing ecological mechanisms that transfer nutrients from the Gulf of Alaska coastward to the watersheds These basic physical and

biological observations are being acquired for relatively low cost because most of the work now underway in the Alaska Coastal Current also responds to the top priority of the Science Plan by using ships of opportunity that do not charge for carrying oceanographic instruments (Batten, Bechtol, Cokelet, Okkonen) Ships of opportunity are being used by GEM to document annual changes in the distributions, species composition and relative abundance of plankton (Batten) and physical and chemical conditions on the surface including temperature, salinity, fluorescence and nitrates in the Gulf of Alaska from coastal waters to the central gyre (Bechtol, Cokelet, Okkonen) The Alaska Marine Highway System has joined GEM as a partner by providing the ferry *Tustamena* as a platform for observations (Cokelet), and Polar Tankers continues as a partner by carrying a thermosalinograph on a vessel operating between Valdez and Long Beach (Okkonen) The scarcity of observations from below the surface continues to be a major challenge for GEM Nonetheless, temperature, salinity at depth and shallow fluorescence in coastal waters are being observed from a mooring at Seward Line Station One (GAK1), which is the second oldest continuous set of subsurface observations in the North Pacific (Weingartner)

The Willette project in the Alaska Coastal Current provides the combination of a management application in salmon fisheries regulation with the opportunity to take basic physical oceanographic measurements that can define the northern extent of the intrusion of the Alaska Coastal Current into Cook Inlet in the summer By matching the catch in the sockeye salmon fishery and the counts of escapement to sample catches, currents, temperature and salinity from the Willette research vessel, the project is designed to give advice to fishery regulators on when to open and close salmon fisheries in central Cook Inlet

Although observations of upper trophic level vertebrates are not a priority established in the Science Plan for the ACC, leveraging of funds from partners is one of GEM's programmatic goals, and building on established time series is a pragmatic strategy For these reasons, continuation of the killer whale time series (Matkin) for a very nominal price is a bargain, and a welcome opportunity

Taken as a whole, the ACC projects provide the starting point for the backbone of long-term biological and physical observations to drive the GEM biophysical modeling effort recommended for funding below The backbone to be provided by the GEM ship of opportunity projects is as yet incomplete, lacking extensive coverage in Prince William Sound The full implementation of the GEM ACC monitoring program must go hand in glove with the development of the GEM Model (see Modeling section below), since the exact placement of moorings, cruise transects and other monitoring platforms depends on the questions to be answered and the precision desired in the answers, which can only be understood through modeling The data provided by GEM ACC projects will be invaluable in getting the models to the point where they can be used to advise and inform the implementation of the full GEM ACC monitoring program, perhaps in FY 2010, depending on the support provided by the Integrated and Sustained Ocean Observing System (IOOS)

The challenge for GEM in the ACC in FY 2007 and beyond is to complete the basic geographic coverage of surface measurements for the spill affected area Reliable long term coverage of basic physical and biological variables is essential to understanding changes in salmon and herring resources in Prince William Sound, as well as fluctuations of bird and mammal populations in the northern Gulf of Alaska

Table of ACC Projects

Alaska Coastal Current	Funding		
Trustee Council Approved Projects	**FY 2005**	**FY 2006**	**FY 2007**
Batten-FY04-CPR data	$135,200	$135,200	$0
Bechtol-FY04-Parameters in the N. Gulf of AK	$56,100	$56,000	$0
Cokelet-FY04-AK Marine Highway System Ferries	$185,900	$145,900	$0
Matkin-FY05-Monitoring Killer Whales 2005-2007	$20,500	$22,300	$23,800
Okkonen-FY04-Monitoring Program in the NE Pacific Ocean	$30,366	$31,455	$0
Weingartner-FY04-Alaska Coastal Current	$81,748	$64,950	$0
Willette-FY04-Monitoring ACC Dynamics	$68,000	$27,900	$0
Grand Total	**$577,814**	**$483,705**	**$23,800**

Abstracts of ACC Projects

Project: Batten-FY04-CPR data

Project Title: Acquisition and Application of CPR data in the Gulf of Alaska - Submitted under the BAA

Location: Alaskan shelf and Gulf of Alaska

Proposer: Sonia Batten **Proposer Affiliation:** Non Alaskan University

Disbursing Agency: NOAA

Funding Levels:

FY04: $135,200 **FY05:** $135,200 **FY06:** $135,200

Abstract:

Plankton are a critical link in the marine food chain that respond rapidly to climate change and form the link between the atmosphere and upper trophic levels. Many important marine resources in the GoA are strongly influenced by changes in ocean climate. Recent CPR data have shown significant changes occurring in all plankton communities in the GoA, associated with the recent climate shift. We will continue the acquisition of CPR data in the Gulf of Alaska on the current transect that crosses the ACC and add an additional transect in FY05 that will sample the ACC further 'downstream' and provide baseline, seasonal plankton data for the lower Cook Inlet and it's transition to the Gulf of Alaska. We also propose analysis of data already collected to investigate the links between plankton and juvenile salmon migrations, and the larval distribution of commercially important decapods sampled by the CPR.

Project Bechtol-FY04-Parameters in the N Gulf of AK

Project Title Monitoring Ecosystem Parameters in the Northern Gulf of Alaska

Location Kachemak Bay, Cook Inlet

Proposer William Bechtol **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Levels

FY04 $37,600 **FY05** $56,100 **FY06** $56,000

Abstract

This project will refine long-term monitoring of forage species populations in Cook Inlet, an area representative of ecosystem conditions and changes in the northern Gulf of Alaska Finfish and shellfish will be sampled annually in May with a small-mesh, bottom trawl to determine whether competitive and predatory interactions or different responses to the environment may be favoring the abundance of one species over another Project funding includes mounting a thermosalinograph on the survey platform to collect surface temperature and salinity data during all fieldwork conducted by the survey vessel throughout the calendar year Products will include annual reports, presentations at scientific meetings, and a manuscript submission to a peer-reviewed journal Project data will be also made available to other researchers to facilitate broader ecosystem modeling for the Gulf of Alaska The study will incorporate community outreach and education involving local science classes in the collection of field data

Project Cokelet-FY04-AK Marine Highway System Ferries

Project Title Biophysical Observation aboard Alaska Marine Highway Systems Ferries

Location Alaska Coastal Current, Prince William Sound

Proposer Edward Cokelet **Proposer Affiliation** NOAA

Disbursing Agency NOAA

Funding Levels

FY04 $171,500 **FY05** $185,900 **FY06** $145,900

Abstract

The Alaska Coastal Current flows counterclockwise along the edge of the Gulf of Alaska carrying the river runoff, nutrients and plankton that fuel the productive coastal-marine ecosystem As seen in satellite images, a strong "chlorophyll front" develops in summer between the nutrient-poor region to seaward and a productive region around Kodiak Island that extends northward to the Kenai Peninsula Conventional wisdom predicts that the Gulf ecosystem should not be productive because the average wind pattern favors downwelling oceanic conditions that fail to restore nutrients to the sunlit upper layers The chlorophyll front presents a natural study area over which low- and high-productivity regions lie in close proximity The Alaska Marine Highway System ferry M/V Tustamena crosses this front over 280 times each year We propose to instrument the Tustamena to measure physical and biological oceanographic parameters across the Alaska Coastal Current and in Prince William Sound This will begin a GEM oceanographic monitoring program in the Gulf that will lead to understanding nutrient replenishment and document ecosystem trends for years to come

Project Matkin-FY05-Monitoring Killer Whales 2005-2007

Project Title Monitoring of Killer Whales in Prince William Sound/Kenai Fjords in 2005-2007

Location PWS, Kenai Fjord

Proposer Craig Matkin **Proposer Affiliation** North Gulf Oceanic Society

Disbursing Agency NOAA

Funding Recommendations

FY05 $20,500 **FY06** $22,300 **FY07** $23,800

Abstract

This project continues monitoring of the damaged resident AB pod and other resident pods and the petitioned as depleted AT1 transient population into a cooperative program with additional collaborative support from the Alaska Sea Life Center, NMFS and various foundations Monitoring has occurred on a yearly basis since 1984 and was crucial in evaluating the continuing effects from the oil spill In addition, the role of killer whales in the nearshore ecosystem and possible effects on sea otters will be examined Community based initiatives such as Youth Area Watch and tour operator educational programs will be integrated New techniques such as lipid fatty acid analysis for food habit study and radio tagging will be explored and contaminant monitoring will continue The proposed work will augment current research directed at transient killerwhales(ASLC) and provide for annual monitoring of AB pod and other resident pods The project will be integrated with oceanographic monitoring as possible

Project Okkonen-FY04-Monitoring Program in the NE Pacific Ocean

Project Title A Monitoring Program for Near-Surface Temp, Salinity, and Fluorescence Fields in the northeast Pacific Ocean Transition to an Operational Program

Location N Gulf of Alaska

Proposer Stephen Okkonen **Proposer Affiliation** Alaskan University

Disbursing Agency ADFG

Funding Levels

FY04 $27,289 **FY05** $30,366 **FY06** $31,455

Abstract

This proposed project responds to the Gulf Ecosystem Monitoring and Research Program invitation category F 2 (Alaska Coastal Current / Collecting physical and biological observations from non-AMHS ships-of-opportunity) Funds are requested to continue (1) the maintenance and operation of a thermosalinograph (TSG) that was installed on the tanker vessel Polar Alaska in July 2002 and (2) the analyses of the collected data The TSG was originally funded as a pilot project by the EVOS Trustee Council in FY02

Project Weingartner-FY04-Alaska Coastal Current

Project Title Long-Term Monitoring of the Alaska Coastal Current

Location Gulf of Alaska Shelf offshore of Resurrection Bay

Proposer Thomas Weingartner **Proposer Affiliation** Alaskan University

Disbursing Agency ADFG

Funding Levels

FY04 $80,387 **FY05** $81,748 **FY06** $64,950

Abstract

This proposal is for monitoring temperatures, salinities, and spring bloom characteristics of the Alaska Coastal Current (ACC) from a mooring and monthly sampling at station GAK 1 near Seward The project builds upon the 33-year record at this station These data can predict ACC (baroclinic) transport anomalies so this variable is obtained indirectly The results will be examined with respect to variations in terrestrial runoff and atmospheric heat fluxes We will provide daily maps of satellite scatterometer-derived winds, make theses available to the public via a website, and archive them for future analyses All variables affect biological production at higher trophic levels The results have value for interpreting continuous plankton recorder data to be obtained from ferries under GEM sponsorship, evaluating performance of numerical ocean circulation models, and conducting retrospective analyses of biological productivity Logistics costs are shared with the NSF-NOAA funded GLOBEC program

Project Willette-FY04-Monitoring ACC Dynamics

Project Title Monitoring Dynamics of the Alaska Coastal Current and Development of Applications for Management of Cook Inlet Salmon

Location Cook Inlet

Proposer Mark Willette **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Levels

FY04 $89,800 **FY05** $68,000 **FY06** $27,900

Abstract

This project will use a vessel of opportunity to collect physical oceanographic and fisheries data along a transect, across lower Cook Inlet from Anchor Point to the Red River delta Logistical support for the field sampling will be provided in part by the Alaska Department of Fish and Game which has chartered a vessel annually to fish along this transect each day during July providing in season projections of the size of salmon runs returning to the inlet The work proposed here is for long-term monitoring of oceanographic conditions in Cook Inlet as part of these ongoing fisheries surveys Investigators will also use physical oceanographic data collected by the project to improve management of Cook Inlet salmon through improved in season salmon run projections Several hypotheses regarding effects of changing oceanographic conditions on salmon migratory behavior will be tested The oceanographic data collected by the project will also provide for valuable validation of remote sensing products, improved understanding of ocean dynamics in lower Cook Inlet, and a highly powerful statistical evaluation of the oil spill risk analysis models

Appendix A. Disposition of FY 2005 Proposals

Twenty-nine proposals were received in response to the Invitation (Master Table Appendix A). The proposals were not evenly distributed across the areas of the Invitation, with the Nearshore including Lingering Oil Effects receiving the largest response (10), followed by Synthesis, Modeling and Management Strategies (4 each), Alaska Coastal current (3) and Community Involvement and Watersheds (2 each) (see Appendix Table below). Overall, most proposals received were directly responsive to the invitation. Proposals that passed peer review and were recommended for funding by the Executive Director for funding in FY 2004, but not funded, were invited to re-apply in their respective program areas.

Each proposal received a thorough and independent peer review in a two stage process (Table 1 App. A). In the first stage, the proposals were reviewed for technical competency by volunteers drawn from a world wide pool of scientists and other professionals who have agreed to help the GEM Program. Reviewers were recruited at scientific meetings and they submitted their credentials through an automated web-based process to a database of peer review services. In the second stage, each proposal received additional review for technical competency and relevance to the GEM Program by the Scientific Advisory Committee with the assistance of Dr. Robert Spies, Chair, Lingering Oil Subcommittee and Mr. Rob Bochenek, EVOSTC Data Systems Manager. At the end of the two-stage review process, each proposal had been read by at least two qualified persons, and some proposals were read by as many as eight reviewers (Table 1 App. A).

Table 1 Appendix A. Summary statistics for peer review results; number of non-STAC peer reviewers, number of non-STAC peer reviews received, range of non-STAC peer reviews received for each proposal, range of total (non-STAC + STAC) peer reviews for each proposal, average non-STAC peer reviews per proposal, and average total peer reviews per proposal.

Number of non-STAC Peer Reviewers Participating	49
Number of Non-STAC Peer Reviews Received	65
Number of STAC Reviews	71
Range of Non-STAC Peer Reviews Per Proposal	0-4*
Range of Non-STAC + STAC Peer Reviews Per Proposal	2-8
Average Number of Non-STAC Peer Reviews Per Proposal	2.24
Average Number of Total Peer Reviews Per Proposal	4.69

* Proposals receiving zero non-STAC reviews were re-submittals that had been peer reviewed during calendar 2003.

The results of the peer review were distilled into recommendations from the STAC for each proposal. The Executive Director's first recommendations were prepared in close consultation with the Science Director following the STAC meeting and they were circulated July 30, 2004 to all parties for public comment via e-mail to the approximately 1,000 people who have requested to receive Trustee Council information. The agency liaisons were briefed on the recommendations by the Science Director on July 15, 2004. The PAC subsequently met on July 21, 2004 at EVOSTC offices with the

Executive Director, the Science Director, Data Systems Manager and Dr Brenda Norcross, recent past Co-Chair of the STAC, to discuss the proposals, the STAC recommendations, and to provide their own opinions on the proposals For the first time this year, the proposals were provided to all PAC members on request at the same time as they were made available to the STAC

Some of the Executive Director's Recommendations changed as a result of additional information that became available during the public review period (June 30 – July 23, 2004, Table, Appendix A)

ALASKA COASTAL CURRENT

Listing	FY05	FY06	FY07	ED Rec	TC Action
Etnier-FY05-Holocene Biotic Baselines-050753	$72,500	$90,400	$69,800	Do Not Fund	Do Not Fund
Kline-FY05-Exchange between Gulf of Alaska and PWS-050744	$139,800	$193,900	$206,200	Do Not Fund	Do Not Fund
Matkin-FY05-Monitoring Killer Whales 2005-2007-050742	$20,500	$22,300	$23,800	Fund	Fund

Etnier-FY05-Holocene Biotic Baselines-050753

Project Title: Late Holocene Biotic Baselines in the Gulf of Alaska

Location: GOA

Proposer: Michael Etnier **Proposer Affiliation:** NOAA

Disbursing Agency: NOAA

Funding Requested:

FY05: $72,500 **FY06:** $90,400 **FY07:** $69,800

Abstract:

The research proposed here will evaluate the variability in biotic communities of the Gulf of Alaska throughout the late Holocene (i.e., the past 4-5000 years) in support of status evaluations for resources injured by the Exxon Valdez oil spill. To do this, we will compile a comprehensive database of archaeological collections in the GOA that contain zoological samples. Selected species will be used for additional demographic, isotopic, and molecular studies. As we are not proposing to excavate any archaeological sites, per se, we will rely entirely on existing sampling platforms (i.e., samples have already been excavated and curated). This will greatly enhance the efficiency of the project, and will keep costs to a minimum.

Funding Recommendations:

STAC: Do Not Fund

Science Director: Do Not Fund

Public Advisory Committee: Do Not Fund

Trustee Council Decision: Do Not Fund

Rationales for Funding

STAC:

This proposal is not recommended for funding. As presently structured many details required to judge the value and feasibility of the proposal and to clearly understand the intended final product are lacking. No example of the proposed database is included. The programming structure is not discussed, nor is the issue of maintenance of the database. The feasibility of access to collections listed is not addressed. Objective 2 references the conduct of studies, but the proposal does not define those specifically and provide methodology. Beyond these issues, the proposal is premature. Documentation of the types and specific uses of such data that present and likely future GEM efforts might find valuable is critical, but lacking. The linkage to the specific goals of GEM and

the various recovery studies is not solid The authors do not provide a compelling argument that the lack of such data is constraining the forward progress of GEM

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Kline-FY05-Exchange between Gulf of Alaska and PWS-050744

Project Title Detecting the Exchange between Gulf of Alaska and Prince William Sound

Location PWS

Proposer Thomas Kline **Proposer Affiliation** Private

Disbursing Agency NOAA

Funding Requested

FY05 $139,800 **FY06** $193,900 **FY07** $206,200

Abstract

Stable isotope analysis will be used to understand how exchange between the Gulf of Alaska (GOA) and Prince William Sound (PWS) via the Alaska Coastal Current affects the biology of PWS through assessment of the influx of diapausing Neocalanus copepods, the keystone zooplankton taxon of the subarctic Pacific and PWS from the GOA in the Black Hole of PWS The project will first resolve the hypothesized summer timing of the Neocalanus inflow using archived samples collected from 2001-2004 During the fall-winter of 2004-2006 the project will determine how best to assess net inflow with the minimal number of sampling stations During the fall-winter 2006-2007 the project will begin to assess stage timing and population dynamics of diapausing and reproducing Neocalanus so as to lead to monitoring and predictive modeling The project will recommend a sampling strategy for long-term sampling to monitor changes in the nature of the GOA inflow

Funding Recommendations

STAC Do Not Fund

Science Director Do Not Fund

Public Advisory Committee No Consensus

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is not recommended for funding The use of stable isotope analyses to address the exchange of Neocalanus between the Gulf of Alaska and Prince William Sound is of value, however there are doubts regarding the validity of the new sampling program that cannot be resolved without additional data We recommend that the analysis and work up of the existing samples be made before resubmitting any revised proposal We further recommend that the stable isotope analyses for the samples gathered since 2001 be submitted to the GLOBEC synthesis announcement of opportunity The results of this analysis should then be used to develop a discussion of the differences

between the central Gulf of Alaska and Prince William Sound This will lead to a better posed sampling design It should be noted that this is an interdisciplinary problem that depends on the measurement of inflow/outflow to PWS However, it is uncertain that the measurements of inflow and outflow have been done correctly in the past Data from GLOBEC cruises should provide adequate estimates of inflow and outflow A serious problem in the proposed sampling was the lack of physical variables (temperature and salinity) While the proposal describes the distribution of copepods on depth surfaces, they will actually be distributed on density surfaces that must be determined from depth, salinity and temperature

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Encourages funding of the processing and analysis of existing samples, additional funding should be contingent upon availability of appropriate equipment before the sampling period—at which time the Trustee Council should consider a special allocation of funds to the project to continue sampling

Executive Director

Concur with the STAC recommendation

Matkin-FY05-Monitoring Killer Whales 2005-2007-050742

Project Title Monitoring of Killer Whales in Prince William Sound/Kenai Fjords in 2005-2007

Location PWS, Kenai Fjord

Proposer Craig Matkin **Proposer Affiliation** Private

Disbursing Agency NOAA

Funding Requested

FY05 $20,500 **FY06** $22,300 **FY07** $23,800

Abstract

This project continues monitoring of the damaged resident AB pod and other resident pods and the petitioned as depleted AT1 transient population into a cooperative program with additional collaborative support from the Alaska Sea Life Center, NMFS and various foundations Monitoring has occurred on a yearly basis since 1984 and was crucial in evaluating the continuing effects from the oil spill In addition, the role of killer whales in the nearshore ecosystem and possible effects on sea otters will be examined Community based initiatives such as Youth Area Watch and tour operator educational programs will be integrated New techniques such as lipid fatty acid analysis for food habit study and radio tagging will be explored and contaminant monitoring will continue The proposed work will augment current research directed at transient killer whales (ASLC) and provide for annual monitoring of AB pod and other resident pods The project will be integrated with oceanographic monitoring as possible

Funding Recommendations

STAC Do Not Fund

Science Director Do Not Fund

Public Advisory Committee No Consensus

Trustee Council Decision Fund

Rationales for Funding

STAC

This proposal is not recommended for funding It is premature with respect to the development of GEM monitoring programs in the ACC and the nearshore, since it has not been determined how monitoring of higher vertebrates will be accomplished Other agencies, and particularly National Marine Fisheries Service, appear to have management responsibility for this species It therefore appears appropriate to other funding sources such as activities associated with implementation of the Marine Mammal Protection Act This proposal was not recommended for funding by the STAC last year for the same reasons

Science Director

The GEM Program was structured around four habitat types (Watersheds, Nearshore, Alaska Coastal Current and Offshore) in part in order to avoid conflicts and competitions for funds among geographic localities and among advocates for individual species Funding work on killer whales is not consistent with the lack of Council funding for abundance surveys on other injured species, such as harbor seals The EVOSTC has the guiding principles of avoiding duplication of effort and not taking over the responsibilities of other government institutions As a number of different government entities have mandates and budgets devoted to measuring abundances of charismatic megafauna, as well as economically important species, Council funding for continued work on killer whales is not a priority

Public Advisory Committee

Members of the PAC expressed a split view with support for both the STAC and the Executive Director recommendations

Executive Director

Although the STAC and Science Director rationales are correct, they fall short by not taking into account the continuing strong public interest in killer whales as a species injured by the Exxon Valdez Oil Spill In addition, the proposed work is already highly leveraged by funding from the appropriate management agencies and other federal sources, so the STAC recommendation of alternate funding sources already has been accomplished by the project As also noted last year, the modest cost of this project is a small price to pay for continuing a long-time series on an oil-injured species

COMMUNITY INVOLVEMENT

Listing	FY05	FY06	FY07	ED Rec	TC Action
Baird-FY05-Connecting with Coastwalk-050743	$28,900	$20,300	$11,900	Fund	Fund
Brodie-FY05-Mineral Creek Trail-050752	$79,600	$108,800	$1,255,700	Do Not Fund	Do Not Fund

Baird-FY05-Connecting with Coastwalk-050743

Project Title: Connecting with Coastwalk: Linking Shoreline Mapping with Community-based Monitoring

Location: Kachemak Bay

Proposer: Steve Baird **Proposer Affiliation:** ADFG

Disbursing Agency: ADFG

Funding Requested:

FY05: $28,900 **FY06:** $20,300 **FY07:** $11,900

Abstract:

The project will evaluate and merge citizen-generated biological and human impact data collected over 20 years of an annual Kachemak Bay CoastWalk shoreline survey with high-resolution mapping of the physical structure of the nearshore environment in Kachemak Bay that nests geographically within ShoreZone mapping. Evaluation of data and data collection protocols and the geographic alignment of CoastWalk zones with ShoreZone units and KBRR's shoreline segments will occur during Year 1. Citizen-based data collection efforts aligned with GEM nearshore monitoring SOPs and methods will be pilot-tested in Kachemak Bay. During Year 2, a Kachemak Bay community/scientist workshop will be held to further integrate and synthesize local information into the Kachemak Bay Research Reserve GIS and to apply the GIS results to the selection of nearshore monitoring sites for community-based monitoring. Piloting will continue, with emphasis on involvement of K-12 teachers and students. During Year 3, nearshore monitoring data collection and data management will be further refined and a WEB site and data entry interface developed. This project will advance the development of a community-based nearshore monitoring program for the GEM program.

Funding Recommendations:

STAC: Fund

Science Director: Fund

Public Advisory Committee: Fund

Trustee Council Decision: Fund

Rationales for Funding

STAC:

The proposal is recommended for funding. The proposal is responsive to the invitation (shore zone mapping of the nearshore target area, integrate community involvement) and is consistent with GEM strategies (incorporate community involvement and local knowledge) and goals (detect change, provide information to facilitate understanding of causes of change). The project provides a link between nearshore community-based information and long-term monitoring applicable to GEM. The project will build on an existing (19 year) citizen-based, volunteer monitoring program (that is presumably responsive to community concerns) and combine it with a GEM-funded GIS mapping

project to assess the utility of this method for future GEM monitoring

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC and Executive Director recommendations

Executive Director Concur with STAC recommendation The project is exemplary of exploring cost effective approaches to collecting baseline data in environments that are vulnerable to oil spills

Brodie-FY05-Mineral Creek Trail-050752

Project Title Mineral Creek Commemorative Trail and Interpretation

Location West Mineral Creek

Proposer Margaret Brodie **Proposer Affiliation** Local

Disbursing Agency ADNR

Funding Requested

FY05 $79,600 **FY06** $108,800 **FY07** $1,255,700

Abstract

Mineral Creek overlooks the Port Of Valdez The property was purchased through the EVOS small-parcel program The proposed Project will not only fulfill the requirements of the Small parcel program in providing replacement and restored injured resources but will provide the essential information and interpretation of the GEM program, including the cause, the effects, the continuing aftermath of research, restoration and the natural processes of the 1989 event The public will be involved in the planning and design of this road-accessible 92-acre parcel The City of Valdez donated an additional 50 acres adjacent to the parcel for the purposes of restoration and public benefit A system of trails, boardwalks and interpretive panels may be developed including support facilities of parking area and latrine at the conclusion of an on-going public involvement process

Funding Recommendations

STAC Do Not Fund

Science Director Do Not Fund

Public Advisory Committee Do Not Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is not recommended for funding While the proposal is responsive to the information transfer portion of the invitation for proposals, it does not describe the type of information that will be displayed and how the display will specifically address the EVOS program Furthermore, there was a lack of public support for interpretive/educational exhibits According to the Mineral Creek state Recreation Site Development Questionnaire in the proposal, 13 percent of the respondents who answered, "What do you consider important," answered "Interpretative/educational exhibits " Thirty-five percent of those who responded considered interpretative/education exhibits "somewhat important," while nearly half (48 percent) considered them "not important " This $1 4M proposal will contribute minimally to the scientific, public involvement and monitoring goals of GEM

Science Director

Concur with the STAC recommendation The proposal was not responsive to the Invitation

Public Advisory Committee

Concur with the Executive Director and Science Director recommendations

Executive Director

Concur with the STAC and Science Director recommendations

LINGERING OIL EFFECTS

Listing	FY05	FY06	FY07	ED Rec	TC Action
Irons-FY05-Marine Bird Abundance-050751	$163,600	$32,700	$0	Fund	Fund
Rosenberg-FY05-Harlequin Duck Populations Dynamics-050759	$39,900	$0	$0	Fund	Fund
Short-FY05-Monitoring of Anthropogenic Hydrocarbons-050763	$58,900	$58,900	$58,900	Fund	Fund

Irons-FY05-Marine Bird Abundance-050751

Project Title: Surveys to Monitor Marine Bird Abundance in PWS during Winter and Summer 2005

Location: PWS

Proposer: David Irons **Proposer Affiliation:** Local

Disbursing Agency: DOI

Funding Requested:

FY05: $163,600 **FY06:** $32,700 **FY07:** $0

Abstract:

This project will conduct small boat surveys to monitor abundance of marine birds and sea otters (Enhydra lutris) in Prince William Sound, Alaska during March and July 2005. Seven previous surveys have monitored population trends for >65 bird and 8 marine mammal species in Prince William Sound after the Exxon Valdez oil spill. We will use data collected in 2005 to examine trends from summer 1989-2005 and from winter 1990-2005 by determining whether populations in the oiled zone changed at the same rate as those in the unoiled zone. We will also examine overall population trends for the Sound from 1989-2005. Due to the lack of data prior to the Exxon Valdez oil spill, continued monitoring of marine birds and sea otters is needed to determine whether populations injured by the spill are recovering. Data collected in 2000 indicated that bald eagles (Haliaeetus leucocephalus) are increasing in winter and summer throughout Prince William Sound, harlequin ducks (Histrionicus histrionicus) are increasing in the oiled area in winter, and black oystercatchers are increasing throughout Prince William Sound in summer. Numbers of all other injured species are either not changing or are declining in the oiled area. Common loons (Gavia immer), cormorants (Phalacrocorax spp.), and common murres (Uria aalgae) are showing no trend in the oiled area; pigeon guillemots (Cepphus columba) and marbled murrelets (Brachyramphus marmoratus) are declining in the oiled areas of Prince William Sound and Kittlitz's Murrelet (Brachyramphus brevirostris) is declining throughout Prince William Sound. Results of these surveys up through 1998 have been published by Irons et al. (2000) and Lance et al. 2001). Analyses of these survey data are the only ongoing means to evaluate the recovery of most of these injured species. A Final Report will be written upon completion of the project that will address population status of species observed during the survey.

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

The proposal is recommended for funding The proposal is a straightforward continuation of a well-proven and valuable survey of marine birds and marine mammals (e g sea otters) within PWS Previous surveys have been conducted and the authors demonstrate the increasing level of statistical confidence to detect change that results from each previous and the proposed survey Power to detect change, assuming a constant pattern of change, is reaching useful levels >70% With the addition of the 2005 survey, a much better assessment of not only recovery status, but also required survey frequency into the future, can be gained The project is cost-effective for the spatial and species extent for which data will be obtained Additional information on abundance trends in injured species is particularly useful during implementation of the GEM Program, as it aids in design of the monitoring program

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Rosenberg-FY05-Harlequin Duck Populations Dynamics-050759

Project Title Harlequin Duck Populations Dynamics in Prince William Sound Measuring Recovery

Location PWS

Proposer Dan Rosenberg **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Requested

FY05 $39,900 **FY06** $0 **FY07** $0

Abstract

This project will address the effects of lingering oil in nearshore habitats of Prince William Sound on populations of harlequin ducks We will also address GEM objectives for long-term monitoring of harlequin and other sea duck species We will conduct winter boat surveys to test if harlequin ducks have recovered from the effects of the EVOS by comparing population structure and trends between oiled and unoiled treatments in four areas (2 oiled, 2 unoiled) of PWS Similar structure and trends between oiled and unoiled areas will indicate populations have recovered or are in a position to recover Work will be complimentary to studies addressing cytochrome P450 induction and over winter survival of female harlequin ducks to give a complete picture of the effects of lingering oil We will also test for geographic differences in population structure and trend for oiled and unoiled treatments This is a continuation of surveys begun in 1997 Up to 3

years of surveys are proposed with the results of each year determining the need for continuation

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

The proposal is recommended for funding The harlequin duck is an injured species of special concern due to evidence of continuing exposure to oil contamination resulting from the 1989 spill Its status as an injured species is based in part on trends in abundance in oiled and unoiled areas, which this proposal will address The proposal will continue a valuable time series of abundance that will minimize the equivocal nature of various harlequin duck data sets relative to population status and recovery The additional surveys over time can both increase power to detect change and extend the value of time post-spill series for understanding status of the injured species The project is highly cost effective, has well respected investigators, and should result in valuable information Given the specific sampling requirements to properly survey harlequin ducks, it seems appropriate that a specific survey is required above, and complementary to, the more general marine bird survey proposed by Irons The STAC points out that it strongly supports projects such as this one that are aimed at demonstrating statistically that they are no longer necessary

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Short-FY05-Monitoring of Anthropogenic Hydrocarbons-050763

Project Title Long-term Monitoring of Anthropogenic Hydrocarbons in the Exxon Valdez Oil Spill Region

Location PWS, Kodiak, Kenai Peninsula

Proposer Jeff Short **Proposer Affiliation** NOAA

Disbursing Agency NOAA

Funding Requested

FY05 $58,900 **FY06** $58,900 **FY07** $58,900

Abstract

This proposal seeks support to expand the Long Term Environmental Monitoring (LTEMP) of the Prince William Sound Regional Citizens' Advisory Council (PWSRAC) in a manner that will make it substantially more powerful in its ability to detect environmental changes induced by petroleum contamination, and possibly other contaminants that have recently been identified as potential insults to the region This expansion is designed to address the needs of both the PWSRCAC and the GEM

programs, in part by combining resources of both organizations The proposed design incorporates and integrates the existing NOAA and LTEMP monitoring datasets, and proposes a modest enlargement of effort to monitor at a substantially larger spatial scale Most of the expansion is intended to implement a random-sampling based design that is currently being developed under an FY2004 Trustee Council funded project (Trustee Project 040724 Short - FY04 - Monitoring Exxon Valdez Oil)

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

The proposal is recommended for funding It is a good fit to the Invitation under Lingering Oil and Nearshore development of standard operating procedures (SOP) It also complements and will directly utilize the results of current GEM Lingering Oil study Short - FY04 - Monitoring Exxon Valdez Oil (040724) The FY 04 study is designed to provide recommendations on how to integrate monitoring for the lingering effects of the Exxon Valdez oil spill into GEM Nearshore monitoring programs The proposal responds directly to the Science Plan (Establish a strategy for monitoring persistence of Exxon Valdez oil, and its relationship to other sources of contamination in PWS) by establishing a background hydrocarbon reference station at Hinchinbrook Entrance and by developing a random sampling approach that will serve as a proxy measure for human development pressure on the nearshore environment The random sampling approach will simultaneously track the persistence of lingering oil from the EVOS, and serve as a large geographic scale monitoring "station" reflecting human development pressure over a long time scale The technical merit of the sampling protocols and laboratory analyses is established by adopting the methods of the long-established Long Term Environmental Monitoring Program (LTEMP)

Science Director

Concur with the STAC recommendation This proposal makes the lingering oil investigations an integral part of the GEM Nearshore Program

Public Advisory Committee

Concur with STAC and Science Director recommendations

Executive Director

Concur with STAC and Science Director recommendations

MANAGEMENT STRATEGY

Listing	FY05	FY06	FY07	ED Rec	TC Action
Logerwell-FY05-Productivity of capelin and pollock-050755	$32,700	$112,800	$66,900	Fund	Do Not Fund
Otis-FY05-Temporal Stability of Fatty Acids-050769	$67,700	$89,400	$25,100	Do Not Fund	Fund
Szarzi-FY05-Salmon Smolt Abundance-050747	$62,800	$59,200	$59,200	Fund	Do Not Fund
Willette-FY05-Salmon Smolt Monitoring-050765	$68,800	$65,900	$67,000	Fund	Fund

Logerwell-FY05-Productivity of capelin and pollock-050755

Project Title: Processes affecting the productivity of capelin and pollock in the Gulf of Alaska

Location: Kodiak Island

Proposer: Elizabeth Logerwell **Proposer Affiliation:** NOAA

Disbursing Agency: NOAA

Funding Requested:

FY05: $32,700 **FY06:** $112,800 **FY07:** $66,900

Abstract:

The goal of our research is to understand the physical and biological processes affecting the productivity of capelin and pollock in the Gulf of Alaska. We will investigate physical processes, such as the formation of fronts, that may drive spatial variability in zooplankton abundance and thus capelin and juvenile pollock feeding opportunities. We will investigate biological processes, such as competition between capelin and juvenile pollock, which can also impact feeding opportunities. Our work will also contribute to a growing time series on the physical and biological characteristics of capelin and pollock habitat and the potential for competition between the two. These data will eventually be applicable to understanding the influence of climate change on these populations. The study will be conducted in coordination with ichthyoplankton and juvenile fish surveys conducted in September 2005 and 2006 off the east coast of Kodiak Island.

Funding Recommendations:

STAC: Fund

Science Director: Fund

Public Advisory Committee: Do Not Fund

Trustee Council Decision: Do Not Fund

Rationales for Funding

STAC:

This proposal is recommended for funding. The proposal is an appropriate response to Management Applications in the Invitation as it fits the criteria of developing management applications or extension of existing multi-species survey to non-commercial species; however the management applications will not result for many

years NOAA/AFSC has been funding research on larval and juvenile pollock around Kodiak Island for more than 20 years In doing so, they have made great strides in the understanding of this species and its relationship to oceanography The background supplied in this proposal shows that this project is well developed and that the PIs are well qualified to continue this research While it is certainly of scientific interest for fisheries management in the northern Gulf of Alaska to have the time series continue, the value of continuing this particular time series that the federal government has been funding has not been established in relation to other GEM activities in the Alaska Coastal Current

Science Director

Concur with the STAC recommendation

Public Advisory Committee

The PAC recommends not to fund this project There is concern that it appears to be a normal agency function that should not be funded by the TC The group discussed concerns about possible funding of National Oceanic and Atmospheric Administration ship and personnel time with this proposal and the need to examine more species

Executive Director

Concur with the STAC recommendation but designate this as a lower priority for funding in response to concerns expressed by the PAC

Otis-FY05-Temporal Stability of Fatty Acids-050769

Project Title Temporal Stability of Fatty Acids used to Discriminate Pacific Herring in Alaska

Location Gulf of Alaska and Bering Sea

Proposer Ted Otis **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Requested

FY05 $67,700 **FY06** $89,400 **FY07** $25,100

Abstract

This project follows up on a promising pilot study that demonstrated the ability to discriminate Alaska herring stocks at relatively fine spatial scales (> 100 km) based on the fatty acid composition of their heart tissue The investigators propose to assess the temporal stability and biological variability of stock discrimination criteria derived from fatty acid analysis of herring cardiac tissues Samples will be collected during the spring and fall/winter of 2005 and 2006 from putative herring stocks from Sitka, PWS, Kamishak, Kodiak, Dutch Harbor, Togiak, and Kuskokwim Bay Results should allow managers to better define ecologically significant stock boundaries, which will likely affect how commercially exploited herring populations are assessed and managed Results will be published in a peer-reviewed report and may lead to revision of fishery management plans for affected areas Keywords Pacific herring, stock identification, fatty acid analysis, Gulf of Alaska

Funding Recommendations

STAC Do Not Fund

Science Director Do Not Fund

Public Advisory Committee Do Not Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

This proposal is not recommended for funding If this project were successful, the results will be highly advantageous to management of herring stocks in Alaska The proposal is highly leveraged as it depends heavily on ADF&G platforms and existing data collection programs and thus is quite cost effective Nonetheless, a positive recommendation can not be given until there is scientific peer validation of the method Other methods such as molecular genetics may work as well and should be addressed as alternatives in any subsequent proposal

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation, however herring are important to investigate Encourage the PI to respond to reviewer comments and resubmit the project as a pilot next year The Trustee Council should encourage herring proposals since this is still an injured species

Executive Director

Concur with the STAC recommendation and support PAC recommendation by calling for herring workshop as part of re-examining Injured Species list in FY 2005

Szarzi-FY05-Salmon Smolt Abundance-050747

Project Title Chinook and Coho Salmon Smolt Abundance in the Anchor River, Alaska

Location Anchor River, Alaska

Proposer Nicole Szarzi **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Requested

FY05 $62,800 **FY06** $59,200 **FY07** $59,200

Abstract

This project will provide the marking portion of a capture-recapture study to estimate abundance of Chinook and coho salmon smolt emigrating from the Anchor River annually from 2005 through 2007 Smolt of each species will be captured and marked each year Non-EVOS funding of an adult weir will allow for recapturing marked adults in subsequent years A subsample of Chinook and coho salmon smolt will be sacrificed for analysis of the concentration of marine derived nutrients (C, N, S isotopes) contained in the fish This work will compliment several existing projects that will monitor adult Chinook and coho salmon escapements and estimate sport harvests, and measure marine derived nutrients and chemical and physical characteristics of the Anchor River watershed Smolt abundance estimates will provide information to relate production of

smolt to freshwater and marine habitats as well as adult escapement and exploitation rates

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is recommended for funding The proposal is a good fit with the Invitation, responding directly to the Management Applications solicitation In that regard, it complements an ongoing watershed project (Walker-FY04-Marine Derived Nutrients) However, it omits an important part of the Invitation requirement, which is preserving samples of smolts for estimation of the proportion of marine derived nutrients in the smolt In so doing it could provide important information described by the Science Plan as, "Identify and demonstrate statistically rigorous sampling strategies for detecting marine signals and proxies from plants and animals in the marine watersheds " Such an MDN determination will be in addition to existing objectives of enabling detection of a potential change in the trend in marine survival separate from a potential change in the trend in freshwater survival The proposal has substantial technical merit for estimating smolt abundance, age and size distributions of known precision that will be useful to interpreting the results from Walker-FY04-Marine Derived Nutrients Potential management applications are substantial and include 1) predictors of future adult salmon returns

Science Director

Concur with the STAC recommendation This proposal is a strong response to the Management Applications section of the Invitation

Public Advisory Committee

Concur with the STAC and Science Director recommendations, however the proposal needs to make better connections with the communities it serves In particular the ADF&G Regional Planning Team and the regional aquaculture associations have relevant information to share and interests in the outcome of the work and they should be consulted

Executive Director

Concur with the STAC, Science Director and PAC recommendations and direct project to make appropriate community contacts as advised by PAC

Willette-FY05-Salmon Smolt Monitoring-050765

Project Title Management Applications Improving Preseason Forecasts of Kenai River Sockeye Salmon Runs through Smolt Monitoring - Technology Development

Location Cook Inlet

Proposer Mark Willette **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Requested

FY05 $68,800 **FY06** $65,900 **FY07** $67,000

Abstract

This project will develop and implement a smolt-monitoring program for Kenai River sockeye salmon as a tool for managing one of the largest and most accessible salmon stocks in Upper Cook Inlet Sockeye salmon smolt population estimates will be used to develop preseason forecasts of run size for this stock The Alaska Board of Fisheries has specified that the Kenai River sockeye salmon run will be managed based upon preseason and inseason forecasts of run strength, and inriver escapement goals for this system vary as a function of these forecasts This management structure causes relative uses of the resource by recreational, personal use, and commercial fishers to be strongly dependent on the accuracy of forecasts The project will use two independent methods to estimate the population size of sockeye salmon smolt emigrating from the Kenai River watershed GEM funding is requested to support estimation of smolt population size using mark-recapture methods ADF&G funding will support estimation of smolt population size using side-looking sonar During the first two years of the project, we will evaluate the accuracy and precision of our estimates and identify the methodology that provides the best estimate at the lowest cost In the third year, we will implement this new method to estimate smolt population size The project will also estimate the proportion of marine-derived elements in smolts, beginning a database needed to evaluate the effect of marine nutrient contributions on salmon production in this and other systems

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

The proposal is recommended for funding The proposal responds to the Management Application section of the Invitation that calls for, "utilize or augment existing biological monitoring programs to develop a new application or enhance an existing application to management, while building the basic data to implement the GEM ecosystem model " It is responsive to the Science Plan call to, "Identify and demonstrate

Science Director

Concur with the STAC recommendation This proposal is a strong response to the Management Applications section of the Invitation

Public Advisory Committee

Concur with the STAC and the Science Director recommendations, however the proposal needs to make better connections with the communities it serves In particular the ADF&G Regional Planning Team and the regional aquaculture associations have relevant information to share and interests in the outcome of the work and they should be consulted

Executive Director

Concur with the STAC, Science Director and PAC recommendations and direct project to make appropriate community contacts as advised by PAC

MODELING

Listing	FY05	FY06	FY07	ED Rec	TC Action
Adams-FY05-Pink Salmon Survival Models-050757	$93,700	$0	$0	Fund	Fund
McNutt-FY05-Infrastructure for GEM-050766	$92,700	$95,300	$99,000	Fund	Do Not Fund
Moffitt-FY05-SEA Pink Salmon Survival Model-050758	$18,900	$0	$0	Fund	Fund
Schumacher-FY05-Infrastructure for GEM-050745	$22,600	$24,700	$22,600	Fund	Do Not Fund

Adams-FY05-Pink Salmon Survival Models-050757

Project Title: Implementing the Pink Salmon Survival Model: Phase I - Project Development

Location: PWS

Proposer: Ken Adams **Proposer Affiliation:** Private

Disbursing Agency: NOAA

Funding Requested:

FY05: $93,700 **FY06:** $0 **FY07:** $0

Abstract:

Funds are requested to plan the implementation of a numerical model of pink salmon survival within a framework of long- term monitoring and resource prediction. The plan will be prepared by an interdisciplinary team. PWSFRAP will coordinate workshops, internet assets, conferencing, report and proposal preparation and submission and will facilitate information exchange between the resource dependent community and the planners. The resulting plan will identify a team of implementers, a design and schedule for field sampling, modeling activities and parameterization, data management and information protocols stipulated by GEM. It is anticipated that this planning effort will be followed by a multi-year implementation phase. When fully implemented, the pink salmon modeling program will become a functional component of the GEM whole-ecosystem model and responsive to questions of pink salmon production, harvest, management and enhancement. This proposal is a companion to the interrelated ADF&G proposal (Moffitt: Management Applications: Implementing the Pink Salmon Survival Model-Tagging technology).

Funding Recommendations:

STAC: Fund

Science Director: Fund

Public Advisory Committee: Fund

Trustee Council Decision: Fund

Rationales for Funding

STAC

The proposal is recommended for funding It is highly responsive to the Invitation in both modeling and fisheries management applications It is exemplary of meaningful community involvement, as it originates from non-scientists who reside in Cordova, an oil spill-affected community It is supportive of the Science Plan as a contribution to development of the GEM whole ecosystem fisheries model It was rated highly by non-STAC peer reviewers for technical merit and the abilities of the PI's Its relevance to fisheries management is that it will provide a solid basis for managing pink salmon fisheries and for forecasting adult returns one year in advance The PI's are community based commercial fishermen who have long promoted community involvement through workshops and distribution of information and collection of public feedback The project will provide products relevant to all five GEM goals (detect, understand, inform, solve, predict) using methods and approaches that are consistent with several GEM programmatic goals in that it will leverage Council funds through using information resources from local organizations such as the Prince William Sound Science Center, ADF&G and other ongoing monitoring work funded by other entities, it involves other government agencies, non-governmental organizations, stakeholders, policy makers, and the general public in a collaborative process to achieve the mission and goals of GEM, it increases community involvement and uses local knowledge for the purposes of enhancing long-term stewardship of living marine resources, and it facilitates application of GEM research and monitoring results to benefit conservation and management of marine resources The costs are reasonable to the tasks at hand and are necessary to insure participation of all necessary parties

Science Director

Concur with the STAC recommendation This project is an integral part of the modeling program area (McNutt, Schumacher, Adams and Moffitt) The Adams project will continue the process of using data from past Restoration projects to generate understanding of the status of injured species in Prince William Sound In addition the Adams project will lead to salmon fishery management products (survival estimates, abundance forecasts) The modeling program area is the highest priority among all program areas Modeling is the process of turning basic data into useful information for managers, policy makers and other consumers Modeling assembles the building blocks provided by data-generating projects in the other program areas (four habitats, lingering oil, and) into an understandable explanation of the causes of changes in injured species and other bird, fish and mammal species

Public Advisory Committee

Concur with the STAC and Executive Director recommendations

Executive Director

Concur with STAC and Science Director recommendations This project provides essential support for a Modeling project that is a top priority for the GEM Program

McNutt-FY05-Infrastructure for GEM-050766

Project Title Building the Infrastructure for the Gulf Ecosystem Monitoring (GEM) Program

Location GEM Monitoring Region

Proposer Lyn McNutt **Proposer Affiliation** Alaskan

Disbursing Agency ADFG

Funding Requested

FY05 $92,700 **FY06** $95,300 **FY07** $99,000

Abstract

The goal of this project is to identify and define models and observations to describe, manage and predict the status and health of the ecosystem, provide data as information to managers and coastal communities, and communicate publicly the current state of the ecosystem in the northern Gulf of Alaska (GOA) Agreement on this implementation strategy is critical to effective resource management and problem solving in the GOA The Principal Investigators (PIs) will assemble an interdisciplinary team of scientists, managers and local stakeholders to investigate and report on ways to put in place a biophysical model, the infrastructure necessary to implement and maintain a monitoring and data dissemination system, agreements and partnerships, software and hardware requirements, identification of existing products, and data management and information transfer requirements The PIs will report to the EVOS Trustee Council, and will provide recommendations on how to meet the GEM Program objectives within project guidelines

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

The proposal is recommended for funding It is a collaborative proposal with Dr James Schumacher (Two Crow) The proposal directly responds to the Invitation in the Modeling category The proposal is directly designed to meet a major need identified by the Science Plan, a whole ecosystem (natural resource) model The model was also recommended by the National Research Council in its review of the GEM program, and is a requisite for converting monitoring observations into information useful to resource managers, stakeholders and members of the concerned public This proposal will provide the first step in developing a GEM model that will link biological and physical observations across the habitat types, as well as the North Pacific, in order to understand trends in injured species and related species of interest to managers and concerned others in the oil spill affected areas The proposal has high technical merit in that it will bring together the top modelers in the North

Science Director

Concur with the STAC recommendation Modeling is a basic prerequisite to converting data into information useful to managers, policy makers and others The full value of the data from the Restoration Program and from GEM cannot be realized without the effective modeling program this proposal will provide

Public Advisory Committee

Concur with the STAC, Science Director and Executive Director recommendations

Executive Director

Concur with STAC and Science Director recommendations Modeling is a top priority not only for the GEM Program, but for all other aspects of tracking and understanding the status of oil-injured species as well

Moffitt-FY05-SEA Pink Salmon Survival Model-050758

Project Title Management Applications Implementing the SEA Pink Salmon Survival Model - Tagging Technology

Location PWS

Proposer Steve Moffitt **Proposer Affiliation** ADFG

Disbursing Agency ADFG

Funding Requested

FY05 $18,900 **FY06** $0 **FY07** $0

Abstract

This project will conduct tagging technology studies needed to develop management applications from the SEA pink salmon model This project was conceived during a pink salmon predictive workshop recently held in Cordova March 16-18, 2004 Workshop participants recommended that preseason forecasting and numerical model validation could be approached by a direct census of juveniles as they are leaving Prince William Sound (PWS) Catching juveniles emigrating from PWS will also enable application of a second mark to partition survival between the early marine and oceanic life stages At present, all juveniles of hatchery origin in PWS are otolith thermal marked Combining estimates of stock composition obtained from otolith thermal marks and early marine survival will enable estimation of survivals of each hatchery release group and a very robust evaluation of pink salmon model simulations The estimates will also be used to evaluate the accuracy of preseason forecasts of salmon run size obtained from a direct census of juveniles emigrating from PWS This project will test the feasibility of using passive integrated transponder tags to partition early marine and oceanic survival of pink salmon The project will estimate tag loss and tagging-induced mortality of juvenile pink salmon and tag detection rates at area salmon processors

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

This proposal is recommend for funding The proposal will provide an important measure to the modeling program, an estimate of the estuarine survival of pink salmon As a forecast tool, the measure will also have fishery management applications In addition, it will advance the use of an important tagging technology in Alaska by creating a base of knowledgeable individuals who could transfer the technology to other areas

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation The PAC wants question of timing for insertion of tags in young fish and then counting tagged fish addressed in the work Is another year needed for the project to capture same year class?

Executive Director

Concur with the STAC recommendation

Schumacher-FY05-Infrastructure for GEM-050745

Project Title Building the Infrastructure for the Gulf of Alaska Monitoring (GEM) Program

Location GEM Monitoring Region

Proposer James Schumacher **Proposer Affiliation** Private

Disbursing Agency NOAA

Funding Requested

FY05 $22,600 **FY06** $24,700 **FY07** $22,600

Abstract

The goal of this project is to identify and define models and observations to describe, manage and predict the status and health of the ecosystem, provide data as information to managers and coastal communities, and communicate publicly the current state of the ecosystem in the northern Gulf of Alaska (GOA) Agreement on this implementation strategy is critical to effective resource management and problem solving in the GOA The Principal Investigators (PIs) will assemble an interdisciplinary team of scientists, managers and local stakeholders to investigate and report on ways to put in place a biophysical model, the infrastructure necessary to implement and maintain a monitoring and data dissemination system, agreements and partnerships, software and hardware requirements, identification of existing products, and data manage men and information transfer requirements The PIs will report to the EVOS Trustee Council, and will provide recommendations on how to meet the GEM Program objectives within project guidelines

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is recommended for funding It is a collaborative proposal with Dr Lyn McNutt The proposal directly responds to the Invitation in the Modeling category The proposal is directly designed to meet a major need identified by the Science Plan, a whole ecosystem (natural resource) model The model was also recommended by the National Research Council in its review of the GEM Program, and is a requisite for converting monitoring observations into information useful to resource managers, stakeholders and members of the concerned public The proposal is the first step in developing a GEM model that will link biological and physical observations across the habitat types, as well

as the North Pacific, in order to understand trends in injured species and related species of interest to managers and concerned others in the oil spill affected areas The proposal has high technical merit in that it will bring together the top modelers in the North Pacific to recommend state-of-the-art approaches to building the GEM model The proposal is highly relevant to the Council's implementation strategies of management

Science Director

Concur with the STAC recommendation Modeling is a basic prerequisite to converting data into information useful to managers, policy makers and others The full value of the data from the Restoration Program and from GEM cannot be realized without the effective modeling program this proposal will provide

Public Advisory Committee

Concur with STAC, Science Director and Executive Directors recommendations

Executive Director

Concur with the STAC recommendation Modeling is a basic prerequisite to converting data into information useful to managers, policy makers and others The full value of the data from the Restoration Program and from GEM cannot be realized without the effective modeling program this proposal will provide

NEARSHORE

Listing	FY05	FY06	FY07	ED Rec	TC Action
Bodkin-FY05-GEM Nearshore Monitoring Plan-050750	$227,300	$104,400	$0	Fund	Fund
Hoover-Miller-FY05-Harbor Seal Monitoring-050749	$92,700	$130,300	$82,300	Fund	Fund
Konar-FY05-SOP for Long-term Monitoring-050761	$136,100	$106,600	$120,800	Fund	Do Not Fund
Lees-FY05-Climate Change and Human Activities-050754	$197,800	$230,000	$0	Do Not Fund	Do Not Fund
Saupe-FY05-ShoreZone Mapping - Kodiak-050764	$201,300	$201,900	$0	Fund	Fund
Schoch-FY05-ShoreZone Mapping for PWS-050768	$312,300	$291,400	$0	Fund	Do Not Fund
Vick-FY05-ACCOS-050767	$223,300	$0	$0	Do Not Fund	Do Not Fund

Bodkin-FY05-GEM Nearshore Monitoring Plan-050750

Project Title: Implementation of the GEM Nearshore Monitoring Plan: Site selection, standard operating procedures, and data management

Location: PWS, Kenai Penninsula, Cook Inlet, Kodiak

Proposer: James Bodkin **Proposer Affiliation:** NGO

Disbursing Agency: DOI

Funding Requested:

FY05: $227,300 **FY06:** $104,400 **FY07:** $0

Abstract:

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, play 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. We are proposing to build upon the monitoring designs offered by Bodkin and Dean (2003) by selecting specific sites, developing and testing sampling protocols, and developing and testing a data management plan specific for long term sampling within the framework of existing monitoring designs. Upon completion of these tasks the Nearshore GEM monitoring plan should be well prepared for implementation.

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

This proposal is recommended for funding This proposal builds on the Bodkin and Dean project "Alternative sampling designs for nearshore monitoring" (G-030687), the results of which were presented to the STAC in January 2004 The conclusions of that study were that three time and space scales exist on which nearshore monitoring could be conducted (1) synoptic – few variables everywhere, i e , remotely and quickly sample large areas, most balanced sampling, (2) extensive – many variables few places, i e , broad range of measurements at few sites across large area, detects large scale changes, and (3) intensive – mid range of variables over moderate range of sites, i e , fewer measurement, more areas, smaller spatial coverage, detect small scales changes The objectives of this proposal will produce the following essential products (1) process for selecting monitoring sites, (2) standard operating procedures (SOP) for nearshore monitoring, (3) database management system In addition the project will test SOP and the database management system, and involve a wide range of community members in the process This proposal is extremely well written and is in direct response for the Nearshore Invitation to select monitoring sites and develop SOPs Furthermore, the incorporation of lingering oil sites is included

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with STAC and note that it is expected that this project will provide an inventory of all who are working on projects in a given area

Executive Director

Concur with the STAC recommendation

Hoover-Miller-FY05-Harbor Seal Monitoring-050749

Project Title Harbor Seal Monitoring in Southern Kenai Peninsula Fjords

Location Kenai Peninsula

Proposer Anne Hoover-Miller **Proposer Affiliation** Private

Disbursing Agency ADFG

Funding Requested

FY05 $92,700 **FY06** $130,300 **FY07** $82,300

Abstract

This proposal supports an existing remote video monitoring system in Aialik Bay, a tidewater glacial fjord This system is used to observe harbor seals in glacial ice habitats and the impacts of vessels on seals Haulout activity, numbers of seals, vessel impacts on seals, ambient behaviors of undisturbed seals, glacial activity, ice conditions, weather, and other events affecting seals are recorded daily Seed funding is requested to test prototype digital still cameras at land-based haulouts in Day harbor for documenting seals

in a fjord lacking tidewater glaciers Integrations of the remote monitoring into GEM, provides ecological measures of conditions at the heads of fjords that will complement long-term oceanographic monitoring in adjacent waters This study is augmented by ancillary studies and support from the ASLC and National Park Service through a partnership in the Oceans Alaska Science and Learning Center, the University of Alaska, Fairbanks, Alaska National Maritime Wildlife Refuge System, and Port Graham Corporation

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

The proposal is recommended for funding The proposal is a good fit with two areas of the Invitation in that it is 1) responsive to Nearshore in developing techniques and SOP for nearshore monitoring in the area of human effects, and 2) it responds directly to needs in Lingering Oil by linking an injured species to development of the nearshore monitoring program The proposal also is a good match to the Science Plan, because it addresses an identified gap, measuring the effect of human activities on the nearshore environment It also proposes to add an important set of physical habitats as yet unaddressed within the Nearshore program, fjords with and without tidewater glaciers Arguments for the possibility of low cost long-term nearshore monitoring of harbor seal haul out sites and human activities into the GEM program are compelling, however only testing and experience will provide proof of concept Technical methods and statistical approaches are straight forward, although the proposed remote still cameras are admittedly experimental There is very good potential for management application through identifying steps that can be taken to further reduce the impact of vessels on wildlife in the fjords That the proposal addresses management concerns of the National Park Service and the Port Graham Corporation is evidenced by their collaboration in this work Community involvement is strong The proposal speaks to the first two of GEM's five major goals (detect and understand) in that it offers to identify the degree and longevity of perturbations caused by humans on harbor seals within the context of natural variation It proposes to do so by taking observations on harbor seals and human activities that can be combined with long-standing (i e GAK1) and newly developing (i e Chiswell mooring, GLOBEC LTOP, NSF (mesoscale) studies and Tustumena ferry box) physical time series in the region The proposal is strong in that it leverages funds for ongoing monitoring work and personnel and it involves a substantial number of other entities The personnel are highly qualified local scientists The STAC expects the data management plan for this project to address digitization of the data, reduction of the data and long-term archiving of the data

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Konar-FY05-SOP for Long-term Monitoring-050761

Project Title Implementation of a Standard Operating Procedure for Long-term Nearshore Monitoring in the Gulf of Alaska

Location Kodiak Island, PWS, Kachemak Bay

Proposer Brenda Konar **Proposer Affiliation** Alaskan

Disbursing Agency ADFG

Funding Requested

FY05 $136,100 **FY06** $106,600 **FY07** $120,800

Abstract

Over the last two years, GEM funded an intense biodiversity study (NaGISA) within the Gulf of Alaska (GOA) to obtain baseline data for the implementation of a monitoring standard operating procedure (SOP) Here we seek funding to complete the sorting, analysis and manuscript preparation of this NaGISA biodiversity work (field season ending summer 2004), so that the information can be disseminated We are also proposing to test an SOP for long-term monitoring of nearshore rocky and seagrass sites This SOP is based on the extensive, observational portion of our previous sampling In accordance with recommendations by Bodkin and Dean (2003), we suggest extensive monitoring of abundance of well-defined key organisms in various intertidal and subtidal strata at seven sites per geographical section Sites will include our previously established sites and several new sites based on mapping information (i e ShoreZone) for better geographical coverage of the GOA

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is recommended for funding The project will support the implementation process for nearshore monitoring now being developed The proposal is consistent with the Nearshore planning process and the model of Bodkin and Dean (2003) New information will be gained from areas that are presently poorly known

Science Director

Concur with the STAC recommendation This project has developed a data set that is expected to be very useful to understanding long-term change during the two previous years of work, and that experience will be highly valuable to the planning process for implementing the Nearshore program

Public Advisory Committee

Concur with the STAC and Science Director recommendations

Executive Director

Concur with the STAC and Science Director recommendations

Lees-FY05-Climate Change and Human Activities-050754

Project Title Monitoring Effects of Climate Change and Human Activities in West Cook Inlet - Phases I & II

Location Western Lower Cook Inlet

Proposer Dennis Lees **Proposer Affiliation** Private

Disbursing Agency NOAA

Funding Requested

FY05 $197,800 **FY06** $230,000 **FY07** $0

Abstract

A major objective for GEM is to monitor changes resulting from natural and human causes Earlier studies provide a strong record that the benthic biota on the west side of Cook Inlet includes a significant, geographically isolated relict Arctic fauna Because of their Arctic affinities, many of these species may be sensitive to a variety of human activities or temperature increases associated with climate change This provides a unique opportunity for GEM to evaluate effects of global warming and construction of a major port in northern Kamishak Bay supporting development and operation of the Pebble gold/copper mine Records from the 1970s provide a basis for extending the time series for long-term comparisons The proposed study will expand our knowledge of species composition and distribution of relict Arctic biota This information, critical for selecting monitoring stations, will be used to plan and implement a long-term monitoring program designed to meet GEM's goals

Funding Recommendations

STAC Do Not Fund

Science Director Do Not Fund

Public Advisory Committee Do Not Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

The proposal is not recommended for funding The subject matter of the proposal is premature with respect to the planning process for the GEM nearshore program The Invitation requested a process for selecting monitoring sites in concert with past information developed by prior GEM work Such a proposal might be appropriate at the conclusion to the GEM nearshore planning process However, the results of the planning process will be necessary for the STAC to evaluate nearshore monitoring proposals of this type

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Saupe-FY05-ShoreZone Mapping - Kodiak-050764

Project Title ShoreZone Mapping for Kodiak Island

Location Kodiak Island archipelago

Proposer Susan Saupe **Proposer Affiliation** Private

Disbursing Agency NOAA

Funding Requested

FY05 $201,300 **FY06** $201,900 **FY07** $0

Abstract

This project will complete a Kodiak ShoreZone mapping program initiated in 2002 by the EVOSTC and the Cook Inlet RCAC by mapping the rest of the Kodiak Island archipelago following the existing Alaska ShoreZone Mapping Protocols (Harper and Morris 2003) Aerial Video Imagery (AVI) will be collected in two 6-day surveys and will be the primary source for completing the subsequent biophysical mapping database of intertidal and shallow subtidal areas These data will complement the 1600 km of existing mapping on Kodiak and the 7000 km so far within the GEM area In addition to the agency and researcher support that ShoreZone has gained in Alaska--- most specifically to provide needed GEM-area habitat data---there was significant community support for completing the coastal mapping shown during a recent workshop (15 March 2004) in Kodiak when the ShoreZone mapping data and products completed to date were described and demonstrated

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Fund

Rationales for Funding

STAC

The proposal is recommended for funding This proposal is well written, stating clear objectives, methods and expected accomplishments The principle investigators are the best qualified to undertake this, as they have been involved in all aspects of the shore-zone mapping projects that have been finished to date Saupe has secured considerable amounts of funds from sources outside EVOSTC to make this broad-scale mapping one the heaviest leveraged to date This proposal comprehensively addresses the need for an accessible database, and presents the format of it Furthermore, the Pis have presented extremely successful workshops over the past year that were attended by resource agency personnel, local citizens and other user groups such as the US Coast Guard The data are on a user-friendly website that can be accessed readily In short, there is no doubt that these PI's can produce what they promise, and on time, as evidenced by their strong track record of doing so This is a one-time project that will not have to be repeated for another 10-25 years and is an excellent investment as it will serve as a basis for all future nearshore and watershed projects Outside reviews were overwhelmingly positive

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Schoch-FY05-ShoreZone Mapping for PWS-050768

Project Title ShoreZone Mapping for Prince William Sound
Location Prince William Sound
Proposer Carl Schoch **Proposer Affiliation** Private
Disbursing Agency NOAA
Funding Requested
FY05 $312,300 **FY06** $291,400 **FY07** $0

Abstract A two-year program of coastal mapping in Prince William Sound (PWS) is proposed Nearshore scientists have recognized Shore-Zone maps as the highest priority product for the GEM nearshore program following a series of community workshops, stakeholder meetings, and report recommendations The products generated by Shore-Zone provide a spatially comprehensive reference for intertidal and subtidal habitats Aerial Video Imagery (AVI) will be collected during the lowest tides of the year and then be used as the primary data source for intertidal and shallow subtidal mapping Video data and in situ observations will be used to generate GIS coverages of physical and biological shoreline attributes These attributes will be validated by a rigorous field survey in the second year of the project Shore-Zone maps in other areas are widely used by state and federal agencies for regional planning (e g , GRS planning, eelgrass distribution maps), and development of derivative models (e g , potential oil residence, sandlance spawning capability)

Funding Recommendations

STAC Fund
Science Director Fund
Public Advisory Committee Fund
Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

The proposal is recommended for funding This is a parallel proposal to that submitted by Saupe and Harper (Kodiak Island) It is also expected to serve as one reference for other nearshore and watershed projects Peer reviewers rated the technical competency of the proposal highly

Science Director

Concur with the STAC recommendation

Public Advisory Committee

The PAC recommends to fund this project, with the direction that they cooperate with Alyeska on data

Executive Director

The changes made in the re-written proposal and the advice of the PAC have caused me to recommend finding for this project

Vick-FY05-ACCOS-050767

Project Title Alaska Coastal Communities Observer System (ACCOS)
Location Prince William Sound
Proposer Gale Vick **Proposer Affiliation** Private
Disbursing Agency NOAA
Funding Requested
FY05 $223,300 **FY06** $0 **FY07** $0

Abstract

ACCOS – Alaska Coastal Community Observer system - is proposed to be a lay program designed to work with state and federal agencies and non-governmental groups in the pursuit of a stream-lined community-interactive exchange of local and traditional knowledge (LTK) applicable to the adjacent marine environment for the expressed purpose of having the scientific and non-scientific communities be aware of and work toward solutions to common interests, such as Essential Fish Habitat, invasive species, marine mammal protections, etc The emphasis will be on current marine observations reporting by coastal community residents, fisherman, students, teachers, tourists, and others ACCOS will also be designed to help scientific and government organizations post their own particular special needs and surveys to communities ACCOS will have its own web-site with links It could be a comprehensive, one-stop posting system for any scientific endeavor that will require community awareness or participation as well as being a way to report marine and coastal activity on an on-going basis The initial pilot program is located in Prince William Sound

Funding Recommendations

STAC Do Not Fund
Science Director Do Not Fund
Public Advisory Committee Do Not Fund
Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is not recommended for funding Even though the strength of the proposal is that it will get the communities involved in the observations, without a framework for these observations they might not prove useful To be of value, the observations must be accurate, frequent enough, and long enough to resolve the variability in the ecosystem The observing network will have to be carefully designed and implemented This will require a melding of the community observers and the scientists and this does not appear anywhere in the proposal Simply placing information on a web site will not be useful to many However, systematic observations on the AOOS web site could and will be used by many With a purpose of GOAC3 to keep the maximum fisheries effort within a sustainable environment it is questionable how objective the observations will be There is no one in the proposal with the background and ability to design and implement a long term observing program The proposal does not address the problem and is not well developed The usefulness of placing information on a database is questionable and the proposal may be seen as a planning exercise in the creation of a website

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with STAC recommendation, however the PI is encouraged to work with the

McNutt project during FY 2005 and to submit a revised proposal for FY 06—the Trustee Council should strive to keep the Coastal Communities group as active participants in EVOS work in FY 2005

Executive Director

Concur with STAC recommendation

SYNTHESIS

Listing	FY05	FY06	FY07	ED Rec	TC Action
Edmundson-FY05-Synthesis of Watershed Linkages-050748	$84,000	$85,800	$67,200	Fund	Do Not Fund
Merritt-FY05-Synthesis of Watershed-marine Linkage-050760	$82,300	$71,900	$67,500	Do Not Fund	Do Not Fund
Weingartner-FY05-EVOS Synthesis Offshore-050762	$95,300	$99,700	$98,900	Fund	Do Not Fund
Weingartner-FY05-GEM Synthesis: ACC Habitat-050770	$105,900	$111,700	$105,000	Fund	Do Not Fund

Edmundson-FY05-Synthesis of Watershed Linkages-050748

Project Title: A Synthesis of Watersheds Linkages to Gulf of Alaska Ecosystems; State of knowledge and future directions

Location: Synthesis: Waterseds of the GOA Ecosystem

Proposer: Jim Edmundson **Proposer Affiliation:** ADFG

Disbursing Agency: ADFG

Funding Requested:

FY05: $84,000 **FY06:** $85,800 **FY07:** $67,200

Abstract:

Watershed science has always required the synthesis of complex spatial and temporal information in order to examine the relationships among physical, geomorphical, biological and geochemical processes. Across an integrated perspective, it is fundamental to understand that hydrologic responses and biological productivity are the cumulative product of both natural ecosystem effects and anthropogenic disturbances. This project is intended to synthesize results from state, federal, EVOS, Gulf Ecosystem Monitoring (GEM), native associations and non-government organizations (NGO) funded projects and the scientific literature in order to develop a state of knowledge and gap analysis on important linkages between coastal watersheds, watershed management, anthropogenic and biological and physical factors leading to potential change in habitat types within the Gulf of Alaska (GOA) ecosystem. The synthesis will: (a) provide a detailed document on watersheds and the link to GOA habitats, (b) identify options for future GEM watershed science and monitoring project priorities based on existing science, limits in our knowledge and the range of ongoing projects, and (c) provide specific communication products (GIS, literature database, web based information, publications, contributions to other reporting – PICES, GEM) to detail existing literature, recent projects, data and sources, gaps in knowledge and linkages between watershed and habitat types for use by GEM and researchers active in this field. The project team has an established record in this area of work and has produced important synthesis products and databases on watersheds and links to communities and ocean ecosystems. One of the

pressing issues facing GEM is obtaining better assessments of watershed-ocean connections and watershed-scale influences to the socio-economic links and management of resources for coastal communities Our watershed synthesis can serve as an umbrella for many disciplines to identify priority issues, integrate support and participation of multiple agencies, and promote long-term monitoring As a final component of this synthesis, we will participate in networking and communication among various research groups looking at watersheds, nearshore and resource productivity in association with the Gulf of Alaska and the Gulf Ecosystem Monitoring

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is recommended for funding The proposal is in response to the Invitation for Watershed Synthesis This proposal starts with a statement that indicates the PI's understand the problem The survey of stakeholder, manager and scientific needs is an important component providing information that cannot be gleaned from refereed or gray literature These PIs recognize the importance of conducting an accurate survey, as evidenced by prior contact with a survey researcher who will help with design and implementation Overall, the proposal looks like it will produce a useful relevant synthesis

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Merritt-FY05-Synthesis of Watershed-Marine Linkage-050760

Project Title Synthesis of Watershed-marine Linkages for Analysis and Planning

Location Watersheds of the GEM area

Proposer Margaret Merritt **Proposer Affiliation** Alaskan University

Disbursing Agency ADFG

Funding Requested

FY05 $82,300 **FY06** $71,900 **FY07** $67,500

Abstract

A synthesis of scientific literature and expert judgment relating to how biogeochemical processes link coastal watersheds to marine environments will be conducted to facilitate development of the GEM Science Plan Facilitated workshops and roundtable discussions with members of the scientific community and other knowledgeable persons will provide information to develop a gap analysis and prioritization of information needs, to focus the invitation of proposals A systems approach will be used to assist in structuring the information, identifying data gaps, and prioritizing information needs

Funding Recommendations

STAC Do Not Fund

Science Director Do Not Fund

Public Advisory Committee Do Not Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is not recommended for funding The proposal is procedural, with limited technical content The experience of the proposer in watershed-marine linkages is not well established While the proposal details the mechanics of gathering information, assembling a database, sorting out needed information, presenting results, and other functions, it does not specifically establish how these generic activities will be applied to the watershed synthesis

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Weingartner-FY05-EVOS Synthesis Offshore-050762

Project Title EVOS Synthesis Offshore

Location Gulf of Alaska shelf

Proposer Thomas Weingartner **Proposer Affiliation** Alaskan University

Disbursing Agency ADFG

Funding Requested

FY05 $95,300 **FY06** $99,700 **FY07** $98,900

Abstract

This proposal will provide a synthesis of the Offshore biological habitat for the GEM Program This habitat is an important component of the Gulf of Alaska ecosystem and intimately linked to the Nearshore, Watershed, and Alaska Coastal Current (ACC) habitats We will assist in developing and refining the hypotheses that form the Foundation of the GEM Science Plan and identify opportunities to solve resource management problems We will review the scientific literature, agency reports and consult with scientists working in the Gulf of Alaska, state and federal resource managers, and GEM staff in this process The PI's include a physical oceanographer, zooplankton biologist, and marine fisheries ecologist All have expertise in the ACC habitat and are also submitting a separate proposal to conduct the GEM ACC synthesis

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is recommended for funding Weingartner, Coyle and Kruse have submitted two closely coupled proposals to synthesize information on the Alaska Coastal Current and the offshore region Their similarity reflects the interdependency of the GEM habitat types and the similar interests and backgrounds of the Pis The proposal is responsive to the Invitation The background discussion of the Gulf of Alaska ecosystem is good and they will tie together much of the ongoing work that they and others have been doing and are continuing to do in the Gulf of Alaska All of the PIs are well versed in the current state of knowledge and research in the region They are well equipped to address the status and trends in the GOA ecosystem They are also working with many of the other entities in the region

Science Director

Concur with the STAC recommendation This proposal is a strong response to the Synthesis section of the Invitation

Public Advisory Committee

Concur with the STAC and Science Director recommendations

Executive Director

Concur with the STAC and Science Director recommendations

Weingartner-FY05-GEM Synthesis ACC Habitat-050770

Project Title GEM Synthesis Alaska Coastal Current Habitat

Location Gulf of Alaska shelf

Proposer Thomas Weingartner **Proposer Affiliation** Alaskan

Disbursing Agency ADFG

Funding Requested

FY05 $105,900 **FY06** $111,700 **FY07** $105,000

Abstract

This proposal will provide a synthesis of the Alaska Coastal Current (ACC) biological habitat for the GEM Program This habitat is an important component of the Gulf of Alaska ecosystem and is intimately linked to the Nearshore, Watershed, and Offshore habitats We will assist in the developing and refining the hypotheses that form the foundation of the GEM Science Plan and identify opportunities to solve resource management problems We will review the scientific Literature, agency reports and consult the scientists working in the Gulf of Alaska, state and federal resource managers, and GEM staff in the process The PI's include a physical oceanographer, zooplankton biologist, and marine fisheries ecologist All have expertise in the Offshore habitat and are submitting a separate proposal to conduct the GEM Offshore synthesis

Funding Recommendations

STAC Fund

Science Director Fund

Public Advisory Committee Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is recommended for funding Weingartner, Coyle and Kruse have submitted two closely coupled proposals to synthesize information on the Alaska Coastal Current and the offshore region Their similarity reflects the interdependency of the GEM habitat types and the similar interests and backgrounds of the Pis The proposal is responsive to the Invitation The background discussion of the Gulf of Alaska ecosystem is good and they will tie together much of the ongoing work that they and others have been doing and are continuing to do in the Gulf of Alaska All of the PIs are well versed in the current state of knowledge and research in the region They are well equipped to address the status and trends in the GOA ecosystem They are also working with many of the other entities in the region

Science Director

Concur with the STAC recommendation This proposal is a strong response to the Synthesis section of the Invitation

Public Advisory Committee

Concur with the STAC and Science Director recommendations

Executive Director

Concur with the STAC and Science Director recommendations

WATERSHEDS

Listing	FY05	FY06	FY07	ED Rec	TC Action
Cooper-FY05-Community-based Sampling-050746	$102,500	$86,000	$96,900	Fund	Do Not Fund
Mazumder-FY05-Marine-derived Nutrients-050756	$179,500	$168,200	$165,700	Do Not Fund	Do Not Fund

Cooper-FY05-Community-based Sampling-050746

Project Title: Community-based Sampling of Watershed-based and Marine-derived Nutrients

Location: Kachemak Bay and Anchor, Kasilof and Kenai River waterhseds

Proposer: Joel Cooper **Proposer Affiliation:** Private

Disbursing Agency: NOAA

Funding Requested:

FY05: $102,500 **FY06:** $86,000 **FY07:** $96,900

Abstract:

In Southcentral Alaska, healthy watersheds support the region's economic, social and cultural well-being. Cook Inlet Keeper's community-based water quality monitoring program has proved to be an efficient and cost-effective way to collect important baseline data and increase public involvement in natural resource management. Keeper will coordinate with other groups conducting nutrient sampling throughout Southcentral Alaska and expand its community-based monitoring program to include watershed-based and marine-derived nutrient sampling to test the following hypotheses: 1) Certain nutrients, like ammonium, are useful proxies for determining levels of marine-derived nutrients in coastal watersheds; 2) Marine-derived nutrient levels in aquatic and riparian food webs vary seasonally related to salmon influx; 3) Community-based sampling of watershed-based and marine-derived nutrients is an efficient and cost-effective way to meet GEM research goals, increase public understanding of public resources, and promote sound resource management.

Funding Recommendations:

STAC: Fund

Science Director: Fund

Public Advisory Committee: Fund

Trustee Council Decision: Do Not Fund

Rationales for Funding

STAC:

The proposal is recommended for funding. The proposal is an important element of last year's (FY 04) Invitation and it was recommended for funding by the STAC, SD and Ed last year, but not funded. It is consistent with GEM strategies (incorporate community involvement) and Science Plan (begin to learn how to measure marine effects in watersheds, provide information to facilitate understanding of causes of change). The project's funding is highly leveraged, with nearly 50% of project costs provided from other sources. The program incorporates an ongoing community-based monitoring

program that presumably reduces costs and strives to collect data toward GEM program hypotheses and questions

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation and recommend that the Trustee Council consider similar ones in the future for Kodiak and PWS areas

Executive Director

Concur with the STAC recommendation

Mazumder-FY05-Marine-derived Nutrients-050756

Project Title Marine-derived Nutrients in the Kenai River Watershed Methods for Detecting Change

Location Kenai River Watershed

Proposer Asit Mazumder **Proposer Affiliation** Non AK

Disbursing Agency ADFG

Funding Requested

FY05 $179,500 **FY06** $168,200 **FY07** $165,700

Abstract

Kenai River Watershed (Kenai RW) is recognized as a national treasure for its abundant fish, wildlife and diversity of habitats Extensive consultation among stakeholders, communities, agencies and other researchers has led to this proposal on the role of marine-derived nutrients (MDN) in sustaining the productivity of Kenai RW In the first two years, we propose to develop, compare and contrast robust methods and monitoring protocols to detect, understand and predict changes in MDN and its linkage to productivity and biological (salmon) resources We will test the robustness and validity of several distinct indicators or proxies (nutrients, stable isotopes, fatty acids, contaminants, foodwebs) of MDN across different ecosystem components of Kenai RW In the 2nd and 3rd year, we will synthesize and publish data, compare results with other complementary watershed projects and produce a final GEM report, and complete the validation of these indicators to quantify the fate/transport of MDN linking various components of the watershed and their implications for the productivity of Kenai RW and its salmon and trout populations We will actively participate in networking and communication among various research groups looking at watershed level changes in MDN and resource productivity in association with the Gulf of Alaska

Funding Recommendations

STAC Do Not Fund

Science Director Do Not Fund

Public Advisory Committee Do Not Fund

Trustee Council Decision Do Not Fund

Rationales for Funding

STAC

This proposal is not recommended for funding There is concern regarding the ability to determine the critical MDN or substances in the KR watershed and how they influence changes the ecosystem How can the proposers be assured that they have identified the

critical components of this ecosystem? The proposal relies on regression analyses to test the relationships between MDN, biological and physical parameters This does not establish cause and effect For example, changes in salmon abundance might be affected by open ocean conditions rather than local watershed conditions The hope is stated here that multiple regression analyses, including non-linear and non-parametric versions will help to find a relationship between MDN supply rates (anadromous fish inputs) and some of the many variables to be extracted from the watershed This will fulfill what they state is their principal goal, to find one or more proxy variables for rates of MDN supply Nothing is said, however, about how the fish inputs will be quantified There is no statement of who will carry out the analyses or where they will be done The inability to measure the sensitivity of the ecosystem to MDN is also worrisome It is curious that the works of other researchers addressing the MDN distributions in the region such as Finney et al are not referenced in this proposal Are there possibly already accepted protocols for this type of sampling? If not, can they really be established and tested in two years? Decades of sampling will be required to determine the interannual signal of MDN and its strength will be a function of biological and physical factors It is unclear as to how they will separate these influences The specific testable hypotheses (p 4) are not connected with the proposed data set Statistical testing of these is not possible They need a model that can be tested with the data sets to be gathered

Science Director

Concur with the STAC recommendation

Public Advisory Committee

Concur with the STAC recommendation

Executive Director

Concur with the STAC recommendation

Master Table Appendix A. An outline of the record of decision on each proposal received consists of author and title, the amounts requested by fiscal year, the amounts authorized by the Trustee Council on August 23, 2004, for each project, the recommendations on each project of the Scientific Technical Advisory Committee, Science Director, Public Advisory Committee, Executive Director and the Trustee Council.

	FUNDING AMOUNTS				FUNDING RECOMMENDATIONS				
Listing	FY05	FY06	FY07		STAC	SD	PAC	ED	TC Action
Adams-FY05-Pink Salmon Survival Models - 050757 -	$93,700	$0	$0		Fund	Fund	Fund	Fund	Fund
Baird-FY05-Connecting with Coastwalk - 050743	$28,900	$20,300	$11,900		Fund	Fund	Fund	Fund	Fund
Bodkin-FY05-GEM Nearshore Monitoring Plan - 050750	$227,300	$104,400	$0		Fund	Fund	Fund	Fund	Fund
Brodie-FY05-Mineral Creek Trail - 050752	$79,600	$108,800	$1,255,700		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Cooper-FY05-Community-based Sampling - 050746	$102,500	$86,000	$96,900		Fund	Fund	Fund	Fund	Do Not Fund
Edmundson-FY05-Synthesis of Watershed Linkages - 050748	$84,000	$85,800	$67,200		Fund	Fund	Fund	Fund	Do Not Fund
Etnier-FY05-Holocene Biotic Baselines - 050753	$72,500	$90,400	$69,800		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Hoover-Miller-FY05-Harbor Seal Monitoring - 050749	$92,700	$130,300	$82,300		Fund	Fund	Fund	Fund	Fund
Irons-FY05-Marine Bird Abundance - 050751	$163,600	$32,700	$0		Fund	Fund	Fund	Fund	Fund
Kline-FY05-Exchange between Gulf of Alaska and PWS - 050744	$139,800	$193,900	$206,200		Do Not Fund	Do Not Fund	No Consensus	Do Not Fund	Do Not Fund

	FUNDING AMOUNTS				FUNDING RECOMMENDATIONS				
Listing	**FY05**	**FY06**	**FY07**		**STAC**	**SD**	**PAC**	**ED**	**TC Action**
Konar-FY05-SOP for Long-term Monitoring - 050761	$136,100	$106,600	$120,800		Fund	Fund	Fund	Fund	Do Not Fund
Lees-FY05-Climate Change and Human Activities - 050754	$197,800	$230,000	$0		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Logerwell-FY05-Productivity of capelin and Pollock - 050755	$32,700	$112,800	$66,900		Fund	Fund	Do Not Fund	Fund	Fund
Matkin-FY05-Monitoring Killer Whales 2005-2007 - 050742	$20,500	$22,300	$23,800		Do Not Fund	Do Not Fund	No Consensus	Fund	Fund
Mazumder-FY05-Marine-derived Nutrients - 050756	$179,500	$168,200	$165,700		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
McNutt-FY05-Infrastructure for GEM - 050766	$92,700	$95,300	$99,000		Fund	Fund	Fund	Fund	Do Not Fund
Merritt-FY05-Synthesis of Watershed-marine Linkage - 050760	$82,300	$71,900	$67,500		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Moffitt-FY05-SEA Pink Salmon Survival Model - 050758	$18,900	$0	$0		Fund	Fund	Fund	Fund	Fund
Otis-FY05-Temporal Stability of Fatty Acids - 050769	$67,700	$89,400	$25,100		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Fund
Rosenberg-FY05-Harlequin Duck Populations Dynamics - 050759	$39,900	$0	$0		Fund	Fund	Fund	Fund	Fund

	FUNDING AMOUNTS				FUNDING RECOMMENDATIONS				
Listing	**FY05**	**FY06**	**FY07**		**STAC**	**SD**	**PAC**	**ED**	**TC Action**
Saupe-FY05-ShoreZone Mapping – Kodiak - 050764	$201,300	$201,900	$0		Fund	Fund	Fund	Fund	Fund
Schoch-FY05-ShoreZone Mapping for PWS - 050768	$312,300	$291,400	$0		Fund	Fund	Fund	Fund	Do Not Fund
Schumacher-FY05-Infrastructure for GEM - 050745	$22,600	$24,700	$22,600		Fund	Fund	Fund	Fund	Do Not Fund
Short-FY05-Monitoring of Anthropogenic Hydrocarbons - 050763	$58,900	$58,900	$58,900		Fund	Fund	Fund	Fund	Fund
Szarzi-FY05-Salmon Smolt Abundance - 050747	$62,800	$59,200	$59,200		Fund	Fund	Fund	Fund	Do Not Fund
Vick-FY05-ACCOS - 050767	$223,300	$0	$0		Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
Weingartner-FY05-EVOS Synthesis Offshore - 050762	$95,300	$99,700	$98,900		Fund	Fund	Fund	Fund	Do Not Fund
Weingartner-FY05-GEM Synthesis: ACC Habitat - 050770	$105,900	$111,700	$105,000		Fund	Fund	Fund	Fund	Do Not Fund
Willette-FY05-Salmon Smolt Monitoring - 050765	$68,800	$65,900	$67,000		Fund	Fund	Fund	Fund	Fund
Weingartner-FY04-Alaska Coastal Current* - 040340	$6,200	-$10,500	$0			Fund		Fund	Fund

* Amendment to Weingartner-FY04-Alaska Coastal Current (040340) funding request.