14.02.39

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

AGENDA

Exxon Valdez Oil Spill Trustee Council
Public Advisory Group
Fourth floor conference room
645 G Street, Anchorage, Alaska

Friday, January 12, 2001 - 9:30 a.m.

DRAFT **DRAFT**

PURPOSE:

1. Briefing on Gulf Ecosystem Monitoring (GEM)
2. Briefing on small parcel habitat grant

Friday, January 12

9:30 AM	Welcome/roll call Approval of Meeting Summaries	Doug Mutter, Federal Designated Officer
9:45	Public Comment	
10:00	Gulf Ecosystem Monitoring (GEM)	Molly McCammon
11:00	Small parcel habitat grant	Molly McCammon
11:45	Election of Chair	Doug Mutter
Noon	Adjourn	

DISCUSSION DRAFT

Gulf Ecosystem Monitoring and Research Plan:

Framework for Development

The GEM Monitoring and Research Plan starts with the GEM mission and goals (April 2000), derives from our current understanding of the north Gulf of Alaska ecosystem, and is developed by identifying and filling gaps in relevant information. Limited funding requires setting priorities and explaining why activities have been selected. The draft framework identifies the seven steps to be taken, resulting in a final plan.

Step 1.
Describe current scientific information and understanding of how we think system works; e.g., scientific background and conceptual foundation (Figures 1-?).

Step 2.
Select the species that will provide the focus for GEM (Table 1). These "GEM reference species" are selected from prominent species and species groups in the Gulf of Alaska ecosystem based on criteria identified in the GEM program document (April 2000). They provide useful "windows" into the system.

Step 3.
Assess the significance of human and natural factors that may be limiting population abundance for these species in order to prioritize information needs (Table 2). These factors are evaluated on the basis of scientific evidence and/or the conceptual foundation for the northern Gulf of Alaska ecosystem.

Step 4.
Note ongoing monitoring and research efforts in terms of GEM reference species (Table 3).

Step 5.
Identify gaps in high priority information needs (Table 4). Steps 3 & 4 combined provide the "gap analysis" in order to ensure that GEM efforts will complement, but not duplicate, existing efforts.

Step 6.
Sum the contents of the first four steps into recommendations for GEM, in relation to other monitoring and research efforts (Tables 5a and 5b).

Step 7.
Present the proposed GEM Monitoring and Research Plan from a variety of other perspectives, such as geographic region (Prince William Sound, Cook Inlet, Kodiak, Gulf of Alaska), habitat type (e.g., pelagic, watershed, terrestrial), and trophic level (Tables 6-?).

GEM Monitoring and Research Plan
Discussion Draft Outline
January 8, 2001

Table of Contents
Acknowledgements
Foreword: Description of process of developing GEM monitoring & research plan

Executive Summary

Section A. Introduction to and Need for GEM Program

I. GEM Mission & Goals

II. Responding to regional needs in resource management
   a. Human uses (from I.C. – H April 2000; use Table 1, highlight Table 1 species)
   b. Resource management issues (from I.C. – H April 2000; use Table 1, highlight Table 1 species)

III. Building on the lessons of the past (re-written and focused IV.A.; use Table 1, highlight Table 1 species)

Section B. Our Scientific Understanding of the Northern Gulf of Alaska— "The State of the Gulf"

IV. Scientific Background

GOA Ecosystem – Section IV. C. in GEM Science Program document, updated and revised to incorporate evidence for GEM reference species (Table 2 "e")
   a. The Gulf of Alaska (IV. C. 1.)
   b. Determinants of climate (IV. C. 1. e. Climatic Oscillations)
   c. Terrestrial Boundaries IV. (C. 1. a.)
   d. Marine-Terrestrial Linkages (IV. C. 1. c.)
   e. Physical and Geological Oceanography: Coastal Boundaries & Coastal and Ocean Circulation (IV. C. 1. b + d.)
   f. Chemical Oceanography: Marine Nutrients and Fertility (IV. C. 1. f.)
   g. Biological Oceanography: Plankton (IV. C. 1. f. + IV. C. 1. g. Plankton and Productivity)

h. Nearshore communities: Intertidal and subtidal (IV. C. 1. h. Benthos)
i. Forage Species (IV. C. 2. a + IV. C. 1. f.)
j. Seabirds (IV. C. 2. b.)
k. Fish and Shellfish (IV. C. 2. a)
l. Marine Mammals (IV. C. 2. c.)

V. Conceptual Foundation plus alternate models, from Watersheds to the Alaska Gyre
(Section IV.D. in GEM Science Program document, updated and revised to include alternate models)

a) Overview
b) Terrestrial-marine linkages
c) Intertidal-subtidal (nearshore)
d) Alaska coastal current to the continental shelf break
e) Beyond the continental shelf break

Section C. Draft Monitoring and Research Plan

VI. GEM Reference Species (table 1) and
Natural and Human Factors Potentially Influencing Their Abundance (table 2)

VII. Summary of GAP analysis (tables 3 and 4)
a) Monitoring elements
b) Ecosystem process studies
c) Modeling
d) Retrospective analysis
e) Management tools & technology
f) Data management/information transfer

VIII. Draft Plan FY 2003 – FY 2007

a) Monitoring elements
b) Ecosystem process studies
c) Modeling
d) Retrospective analysis
f) Management tools & technology
g) Data management / Information transfer
h) Tables 6 & …: Other ways of presenting plan:
By geographic region
By habitat type (watershed, coastal, pelagic)
By trophic level
By abundance factors -- food, habitat, removals

IX. Literature Cited

X. Guide to Related Monitoring and Research Activities

a) Acronyms & links for related activities
b) Glossary of agencies and programs
c) Summary of related monitoring and research activities
    1. Monitoring elements
    2. Ecosystem process studies
    3. Modeling
    4. Retrospective analysis
    5. Management tools & technology
    6. Data management/information transfer

COMPARISON: Draft Grant for Habitat Protection Program vs. Current Process

(NOTE: underlines indicate major differences)

	CURRENT PROCESS	DRAFT GRANT
Parcel Identification	Agencies identify parcels; some public nominations still received though no formal solicitation since 1995	Recipients identify parcels
Parcel Evaluation	Multi-agency Habitat Working Group evaluates parcels using numeric formula outlined in *Comprehensive Habitat Protection Process: Small Parcel Evaluation & Ranking,* 1995	Recipients evaluate parcels based on general criteria outlined in draft grant (e.g., restoration value, threat of loss, management enhancement opportunity, etc.)
Agency Consultation		Recipients consult with entity that would own parcel prior to consulting with TC about which parcels to pursue
TC Authorization of Appraisal/Negotiations	TC authorizes appraisal/negotiations on parcel-by-parcel basis	Recipients consult with TC as to which parcels should be pursued for acquisition
Public Comment	Appraisals/negotiations are authorized at publicly noticed TC meetings that include a public comment period; purchase offers are authorized at publicly noticed TC meetings that include a public comment period	Consultation takes place at publicly noticed TC meeting that includes a public comment period; purchase offers are authorized at publicly noticed TC meetings that include a public comment period
Purchase Negotiations	Conducted by acquiring agency and attorneys; negotiate with willing sellers only	Conducted by Recipients; negotiate with willing sellers only
Purchase Agreement	Developed by acquiring agency and attorneys	Developed by Recipients
Appraisal	UASFLA-compliant appraisal conducted by acquiring agency; reviewed by both acquiring and non-acquiring governments	UASFLA-compliant appraisal conducted by Recipients; reviewed by acquiring government only
HazMat Inspections & NEPA	Conducted by acquiring agency	Conducted by acquiring agency
Agency Review	Non-acquiring government reviews title and other documents prepared by acquiring agency	Acquiring and non-acquiring governments review title and other documents prepared by Recipients
Purchase Offer	TC must authorize	TC must authorize
Conservation Easement	Reciprocal conservation easement, to be held by non-acquiring government, required on all parcels	Reciprocal conservation easement, to be held by non-acquiring government, required on all parcels
Budget	Agencies submit annual budget for TC approval--direct costs of ongoing/anticipated acquisitions and general staff support	Agencies submit annual budget for TC approval--direct costs of ongoing/anticipated acquisitions only; Recipients receive $25,000 each plus reimbursement for direct costs
Matching Funds	Not required	Matching funds from non-EVOS sources are to be sought
Annual Report	Not required	Required

DRAFT RESOLUTION
of the
Exxon Valdez Oil Spill Trustee Council
concerning a
Grant for Habitat Protection

WHEREAS in November 1994, following an extensive public process, the *Exxon Valdez* Oil Spill Trustee Council adopted the *Restoration Plan* to guide a comprehensive and balanced program to restore resources and services injured by the oil spill;

WHEREAS the Trustee Council has used the *Restoration Plan* to guide long-term protection of habitat considered important to the long-term recovery of injured resources and services;

WHEREAS the *Restoration Plan* recognized that complete recovery from the oil spill likely would not occur for decades and in fact full recovery of many injured resources and services is not yet complete;

WHEREAS, consistent with the *Restoration Plan*, on March 1, 1999 the Trustee Council determined there is a need for a continuing comprehensive and balanced restoration program that includes protection of additional key habitats;

WHEREAS private, non-profit organizations can bring certain efficiencies to a habitat protection program, such as responding more quickly than government to opportunities for acquisition of priority lands, leveraging resources by attracting matching funds, and in many cases further broadening the protection impact of dollars spent by achieving below-appraised-value purchases through use of tax incentives and estate planning strategies;

WHEREAS on March 16, 2000 the Trustee Council directed the Executive Director to develop a proposal to create a habitat protection program to be administered by a private, non-profit organization;

WHEREAS The Conservation Fund and The Nature Conservancy are private, non-profit organizations which have substantial experience in negotiating land acquisition packages in Alaska as well as elsewhere and which have expressed their interest in collaboratively implementing a habitat protection program on behalf of the Trustee Council;

THEREFORE BE IT RESOLVED that $1,000,000, less Trustee agency costs as described below, be awarded as a grant to The Conservation Fund and The Nature Conservancy, to be administered jointly by these two private, non-profit organizations

for a habitat protection effort in the *Exxon Valdez* oil spill-area ecosystem on behalf of the Trustee Council; the grant funds will reside in the Alaska Department of Revenue's *Exxon Valdez* Oil Spill Investment Fund and be disbursed per the terms of the Grant Agreement (draft, Attachment A);

BE IT FURTHER RESOLVED that the grant funds are to be used by The Conservation Fund and The Nature Conservancy for the acquisition of lands and interests in lands (e.g., fee title, conservation easements, mineral rights, timber rights) important to the conservation and protection of marine and coastal resources, ecosystems, and habitats in order to aid in the overall recovery of, and to enhance the long-term health and viability of, those resources injured by the *Exxon Valdez* oil spill and the spill-area ecosystem;

BE IT FURTHER RESOLVED that The Conservation Fund and The Nature Conservancy shall pursue protection of any specific parcel only after consultation with the entity that would own and manage the interests in the parcel and with the Trustee Council and, during the acquisition process, shall work closely with the entity that would own and manage the interests in the parcel;

BE IT FURTHER RESOLVED that The Conservation Fund and The Nature Conservancy shall acquire parcels only from willing sellers;

BE IT FURTHER RESOLVED that The Conservation Fund and The Nature Conservancy shall acquire parcels only after unanimous approval of the Trustee Council; Trustee Council approval or disapproval shall be given promptly and in no event more than 90 days after receipt of an acquisition package from The Conservation Fund and The Nature Conservancy; furthermore, the approval process shall include reasonable and adequate public notice about the proposed acquisition and an opportunity for public comment;

BE IT FURTHER RESOLVED that, following review of the land acquisitions expected to occur under the grant and in accordance with Attachment B, the Trustee Council may designate some portion of the $1 million to pay for Trustee agencies' direct costs of receiving title to land acquired under the grant;

BE IT FURTHER RESOLVED that the $1 million be further reduced by payment of $32,500 to the U.S. Department of Interior, in accordance with the *Exxon Valdez Oil Spill Trustee Council Procedures* (August 3, 2000), for their expenses in administering the grant;

BE IT FURTHER RESOLVED that this grant shall terminate September 30, 2002 unless the Trustee Council or The Conservation Fund and The Nature Conservancy, with proper notice, earlier terminates the grant or unless, by mutual consent, the Trustee Council and The Conservation Fund and The Nature Conservancy agree to extend the grant.

BE IT FURTHER RESOLVED that any substantive changes in the language contained in the Grant Agreement (draft, Attachment A) must be approved by the Trustee Council; non-substantive changes may be made by the U.S. Department of the Interior.

Adopted this ___ day of _____, 2001, in Anchorage, Alaska.

DAVE GIBBONS Date
Trustee Representative
Alaska Region
USDA Forest Service

CRAIG TILLERY Date
Assistant Attorney General
State of Alaska

MARILYN HEIMAN Date
Special Assistant to the Secretary
for Alaska
US Department of the Interior

JAMES W. BALSIGER Date
Director, Alaska Region
National Marine Fisheries Service

FRANK RUE Date
Commissioner
Alaska Department of
Fish and Game

MICHELE BROWN Date
Commissioner
Alaska Department of
Environmental Conservation

DRAFT RESOLUTION
of the
***Exxon Valdez* Oil Spill Trustee Council**
concerning a
Grant for Habitat Protection

ATTACHMENT A
DRAFT GRANT AGREEMENT

Grant Number:

Segment:

Title: *Exxon Valdez* Oil Spill Trustee Council: Funding Source for Habitat Protection

Beginning Date: **Ending Date:** September 30, 2002

State: Alaska

Parties: United States Department of the Interior (Interior)

The Nature Conservancy & The Conservation Fund (Recipients)

Other Interested Agencies: State of Alaska (State)

Exxon Valdez Oil Spill Trustee Council (Trustee Council)

Authorities: Pub. L. 106-113, Sec. 350, 113 Stat. 1501, An Act Making Appropriations for the District of Columbia and Other Activities for the Fiscal Year Ending September 30, 2000 and for Other Purposes, 1999

Pub. L. 102-229, Sec. 207, Dire Emergency Supplemental Appropriations Act, 1992

Documents attached and incorporated herein:
Resolution of the *Exxon Valdez* Oil Spill Trustee Council, January, 16, 2001, Concerning a Grant for Habitat Protection

Objective:
This Grant Agreement provides $1 million for habitat protection in the northern Gulf of Alaska. These funds will be used for the acquisition of lands or interests in lands (e.g., fee title, conservation easements, mineral rights, timber rights) important to the conservation and protection of marine and coastal resources, ecosystems, and habitats in order to aid in the overall recovery of, and to enhance the long-term health and viability of, those resources injured by the *Exxon Valdez* oil spill and the spill area ecosystem. No Grant Funds may be used for land management or stewardship fees.

Background:
The March 24, 1989 *Exxon Valdez* oil spill in Alaska's Prince William Sound was the largest oil spill in U.S. history, contaminating about 1,500 miles of Alaska's coastline. Under the consent decree approved by the U.S. District Court for the District of Alaska in October 1991, Exxon Corporation agreed to pay civil claims totaling $900 million to the federal government and the State of Alaska by September 1, 2001. Administration of the civil settlement is carried out under agreements between the federal government and the State of Alaska. These agreements establish a six-member federal/state trusteeship, whose duties are carried out by the *Exxon Valdez* Oil Spill Trustee Council or its successor in function (hereinafter the "Trustee Council"), including a representative of the Secretary of the Interior. Decisions about the types of activities to fund with civil payments are governed by the consent decree and a Restoration Plan approved by the Trustee Council. One of the major activities identified in the Restoration Plan is habitat acquisition, and to date interests in land totaling over 640,000 acres have been acquired.

The Nature Conservancy and The Conservation Fund (hereinafter the "Recipients") are private, non-profit organizations which have substantial experience in negotiating land acquisition packages in Alaska as well as nationwide. The Recipients have the ability to respond quickly to opportunities for acquisition of priority lands from willing sellers, leverage resources by attracting matching funds, and in many cases achieve below-appraised-value purchases through use of tax incentives and estate planning strategies.

Grant Funds:
Funds available for this Grant Agreement are funds set aside by the Trustee Council from the 1991 civil settlement between Exxon Corporation, the State of Alaska, and the United States of America for long-term habitat protection. The funds will reside in the Alaska Department of Revenue's *Exxon Valdez* Oil Spill Investment Fund and will be disbursed as follows:

a) $25,000 to each of the Recipients to cover costs related to acquisition other than those costs specified in section (b) below (the $25,000 shall cover such costs as personnel time and indirect expenses such as telephone, duplication, and postage); the $25,000 shall be disbursed in equal monthly installments over

the life of the Grant Agreement; no other charges for indirect costs, including application of the Recipients' indirect cost rates, are allowed under this Grant Agreement;

b) reimbursement to the Recipients of the following direct expenses incurred in pursuit of parcels agreed to by the Trustee Council (see Process section 1(c)); the expenses must be reasonable and those which the acquiring agency or government (i.e., state or federal) would have incurred itself in acquiring the concerned parcel; reimbursement is expected to occur monthly upon receipt of invoices;

i) appraisal
ii) title reports
iii) title insurance
iv) escrow and closing fees
v) real property taxes
vi) penalty costs for prepayment of pre-existing recorded mortgages
vii) travel related to project acquisition
vii) preliminary title commitment or title policy
ix) such other expenses as may be contained in a list approved by the Assistant Secretary, Policy, Management and Budget, Department of Interior and approved by the Trustee Council;

c) payment to the Recipients for the actual purchase price of each parcel, upon Trustee Council approval of the Acquisition Package described below (see Process section 4);

d) payment to Trustee agencies (Alaska Department of Fish and Game, Alaska Department of Natural Resources, U.S. Department of Interior, and U.S Forest Service) for direct costs of receiving title to land acquired under the Grant Agreement, in accordance with Attachment B; and

e) $32,500 to Interior for administration of the Grant Agreement, in accordance with the *Exxon Valdez Oil Spill Trustee Council Procedures*, August 3, 2000.

Term:

1. Duration. The Recipients may not obligate funds under this Grant Agreement after September 30, 2002, unless the parties to the Grant Agreement agree, by mutual consent, to extend the grant.

2. Termination.

a) This Grant Agreement may be terminated prior to September 30, 2002 by unanimous decision of the Trustee Council, with 30 days advance written notice to the Recipients.

b) This Grant Agreement may be terminated prior to September 30, 2002 by the Recipients, with 30 days advance written notice to the Trustee Council.

c) Should only one of the Recipients, either The Nature Conservancy or The Conservation Fund, desire to terminate the Grant Agreement, the other Recipient may implement the Grant Agreement as a sole Recipient.

d) In the event of termination of the Grant Agreement, the Recipients shall be entitled to receive or retain only a pro rata portion of the $25,000 payments identified above (see Grant Funds section (a)), based on the number of days remaining in the term of the grant. The Recipients shall refund to the Trustee Council no later than 30 days after the effective date of the termination any such portion of the $25,000 payments.

Lands to be Acquired:
This Grant Agreement provides funding for the acquisition of lands or interests in lands (e.g., fee title, conservation easements, mineral rights, timber rights) important to the conservation and protection of marine and coastal resources, ecosystems, and habitats in order to aid in the overall recovery of, and to enhance the long-term health and viability of, those resources injured by the *Exxon Valdez* oil spill and the spill area ecosystem.

The Recipients shall acquire parcels only from willing sellers. The Recipients shall specifically seek to acquire:

a) lands with concentrated biological values or high natural lands recreational values;

b) lands which provide access to areas of high biological significance or to areas with high natural lands recreational values;

c) isolated parcels within otherwise protected areas.

The Recipients shall evaluate properties using the following criteria:

a) habitat restoration value;

b) threat of development or loss;

c) opportunity to enhance management of protected areas;

d) willingness of the United States, State of Alaska, or other public agency or non-profit organization approved by the Trustee Council to manage the land or interests in the land;

e) feasibility of acquiring the property, including willing seller;

f) leverage, i.e., the amount of matching funds available;

g) partnership support, i.e., the number of funding partners and the amount of public support.

The purchase price shall not exceed the appraised value of the parcel.

Process:
1. Land Acquisition. The Recipients shall manage all aspects of the land acquisition process, including:

a) identify potential parcels;

b) evaluate parcels;

c) consult with the United States, State of Alaska, or other public agency or non-profit organization approved by the Trustee Council that would own and manage the interests in the parcels and coordinate with that entity throughout the acquisition process;

d) consult with the Trustee Council as to which parcels should be pursued for acquisition; this consultation shall include providing a summary of the expected costs of acquisition (both purchase price and process costs);

e) negotiate with willing sellers for the purchase of parcels;

f) develop purchase or option agreements;

g) complete, or ensure the completion of, due diligence on each parcel to be acquired, including appraisal (which shall comply with UASFLA (Uniform Appraisal Standards for Federal Land Acquisition) standards and which shall meet the approval of the government that will own and manage the interests in the parcel), title review, and Level I and any other hazardous materials inspection;

h) arrange for closing and acceptance of title by the United States, the State of Alaska, or other public agency or non-profit organization approved by the Trustee Council, including preparing documents and making payments to landowners as agreed to by the Recipients and the landowners; and

i) to the greatest degree practical, secure matching funds from private or public sources in order to minimize acquisition costs to the Trustee Council.

2. Chain of Title. In most cases, title will transfer from the seller directly to the United States, the State of Alaska, or other public agency or non-profit organization approved by the Trustee Council.

3. Support. The Trustee Council, through its member agencies, will provide the Recipients the following support:

a) technical and legal expertise in federal and state land acquisition procedures, including review or completion, as appropriate, by the governments (i.e., state and/or federal) of appraisals, title commitments and policies, hazardous materials reports, and legal documents;

b) technical information regarding existing land ownership, habitat and wildlife value, and agency priorities;

c) where appropriate, acceptance of title to parcels purchased by the Recipients after approval by the Trustee Council.

4. Acquisition Information Package. For each parcel for which the Recipients seek Trustee Council authorization to purchase with Grant Funds, Recipients shall submit to the Trustee Council an acquisition information package (hereinafter the "Acquisition Package"). The Acquisition Package shall include the following:

a) legal description of the parcel;

b) property owner;

c) acreage;

d) map showing location;

e) description of property and restoration value;

f) identification of entity (United States, State of Alaska, or other public agency or non-profit organization approved by the Trustee Council) that will own and manage the parcel;

g) statement of appraised value and statement of government review of appraisal;

h) purchase or option agreement and conveyance documents;

i) Level I and any other required hazardous materials inspections, to be performed by a government;

j) statement of NEPA compliance, to be prepared by a government;

k) summary of costs incurred, including purchase price and the direct expenses outlined under Grant Funds section (b) above; and

l) amount of matching funds, if any.

5. Approval of Acquisition Package. Following the Trustee Council's approval or disapproval of the Acquisition Package, Interior shall promptly notify the Recipients of the Trustee Council's decision.

6. Fund Transfer. Interior shall disburse grant funds to the Recipients via the SMARTLINK Payment System, as follows:

a) regarding the $25,000 for indirect expenses, as well as the direct expenses incurred in the acquisition of a parcel (see Grant Funds above), disbursements shall occur monthly;

b) regarding the purchase price itself, disbursement shall occur upon Trustee Council approval of the Acquisition Package; the Recipients shall draw down funds from SMARTLINK no more than 3 days prior to the Recipients closing, or, when applicable, closing into escrow, on the approved acquisition.

7. Reporting. Recipients shall submit a report to the Trustee Council by December 31, 2002 describing activities and accomplishments under this Grant Agreement. The report shall include an accounting of all funds spent.

Ultimate Use and Management of Lands Acquired:
Lands acquired with funding provided hereunder shall be managed in perpetuity for the conservation and protection of marine and coastal resources, ecosystems, and habitats in order to aid in the overall recovery of, and to enhance the long-term health and viability of, those resources injured by the *Exxon Valdez* oil spill and the spill area ecosystem.

1. Conservation Easement. Each parcel acquired with Grant Funds shall be subject to a conservation easement. If a parcel is acquired by the United States or the State of Alaska, the conservation easement shall be held by the non-acquiring government. If a parcel is acquired by another public agency or non-profit organization approved by the Trustee Council, the conservation easement shall be held by both the state and federal governments.

2. Recorded Deed. The recorded deed for each parcel acquired with grant funds shall

be subject to the conservation easement described above.

Standard Provisions: TO BE ADDED BY INTERIOR

1. Notices

2. Entirety of the Agreement

3. Term of the Agreement

DRAFT RESOLUTION
of the *Exxon Valdez* Oil Spill Trustee Council
concerning a Grant for Habitat Protection

ATTACHMENT B
DRAFT TRUSTEE AGENCY COSTS

In addition to the costs incurred by the Recipients and paid under the grant, Trustee agencies (Alaska Department of Fish and Game, Alaska Department of Natural Resources, U.S. Department of Interior, U.S. Forest Service) may incur expenses in receiving title to acquired parcels. The following list specifies those agency expenses that may be appropriate for Trustee Council funding. In order to ensure cost efficiencies and to avoid duplication of effort and expenses, the list includes only those activities that agencies are required to perform in order to receive title. In some instances, costs will be paid for the government that acquires fee title to land or an interest in land or which has primary management authority for a conservation easement (the acquiring government) which will not be paid for the government which receives a conservation easement but without primary management authority (the non-acquiring government). Agencies are expected to absorb some of the costs related to provision of technical information and document and other legal review.

Activities Eligible for Trustee Council Funding, as Appropriate
- Appraisal review by the acquiring government
- Title review by the acquiring government and the non-acquiring government
- Hazardous material inspection by the acquiring government and the non-acquiring government, if required in order to receive title or conservation easement
- Site inspection by the acquiring government and the non-acquiring government, if required in order to receive title or conservation easement
- NEPA compliance

Activities Not Eligible for Trustee Council Funding
- Negotiators' time and travel
- Legal review
- Appraisals in addition to those conducted by the Recipients
- Appraisal review by the non-acquiring government
- Surveys
- Other items listed in the Grant Agreement as responsibilities of the Recipients
- Activities that serve agency management purposes but are not required to receive title
- Indirect expenses (phone, office supplies, duplication, etc.)

Following Recipients' consultation with the Trustee Council as to which parcels should be pursued for acquisition under the Grant Agreement, the Council will be asked to give general approval to agency budget requests. All funds requested must be associated with acquisition activities for the specific parcels being pursued. Actual expenditure of the funds will be authorized by the Executive Director on a quarterly basis. All funds authorized must be associated with acquisition activities expected to occur in the upcoming quarter. Any authorized funds not spent by the end of the Grant Agreement will lapse back to the long-term habitat fund. Funds expended for agency activities will reduce the amount available for expenditure by the Recipients under this grant.

STEPS: Draft Grant for Habitat Protection

STEP	
1	Recipients identify and evaluate parcels
2	Recipients consult with entities (US, State, other) that would own parcels
3	Recipients **consult with TC** as to which parcels should be pursued for acquisition; consultation takes place at publicly noticed meeting
4	**TC approve** agency budget requests for expenses related to parcel acquisition
5	**TC inform** Recipients of amount of funds available for expenditure under the grant ($1 million less agency costs)
6	Recipients negotiate with willing seller
7	Recipients enter into acquisition or option agreement; agreements will be contingent on TC approval
8	Recipients complete appraisal and title work
9	Acquiring entity (US, State, other approved by TC) review appraisal, title, and other documents prepared by Recipients and conduct NEPA compliance; non-acquiring government review title and other documents but not appraisal; both acquiring and non-acquiring governments conduct site inspections and hazardous materials inspections
10	Recipients submit acquisition package to TC, seeking authorization to acquire parcel with grant funds
11	Within 90 days of Step 10, **TC approve or disapprove** proposed acquisition; approval takes place at publicly noticed meeting
12	Recipients arrange for closing and acceptance of title by US, State, other, including making payments to landowners (in most cases, title will transfer from seller directly to US, state, etc.)
13	By December 31, 2002, Recipients submit report of activities and expenditures under the grant

Grant may be terminated at any time by TC or Recipients with 30-day advance written notice

REFERENCE SPECIES FOR GEM

Reference species for GEM (in bold) were selected from prominent species and species groups in the Gulf of Alaska ecosystem based on the criteria identified in the GEM program document (April 2000):

- Human relevance (socioeconomic and cultural importance)
- Ecological importance
- Ability to indicate ecosystem disturbance (population sensitive to human- or natural-caused change)
- Importance for understanding physical and biological bases for production
- Existing data sets or well understood
- Ease of study (not necessarily all life cycle stages)

Selection of these species is not intended to indicate that GEM will be the primary funding source for studying their basic biology and enumeration, or that work on other species will necessarily be precluded. Rather, these species will be used to help gauge the overall health of the Gulf of Alaska ecosystem. They represent the range of food webs, ecological processes, and geography of the gulf ecosystem, as well as all trophic levels, from the economically and culturally important large vertebrate species to the small plants and animals through which the sun's energy reaches the large animals. Their importance to achieving the GEM mission and goals lies with how they increase our understanding of relations among species across trophic levels and the effects of human and natural factors, both top down and bottom up, on the productivity of the ecosystem.

Those species marked with an asterisk (*) are species that are on the Trustee Council's list of injured resources and that have not yet recovered from the effects of the oil spill. GEM will continue to track and report on the recovery of these species, whether or not they are shown in bold on this table.

Marine Mammals	Seabirds & Seaducks	Fish & Shellfish
Harbor seal *	**Black-legged kittiwake**	**Salmon (pinks & sockeye) ***
Sea otter *	**Murres** (common murre *)	**Herring ***
Killer whale *	**Seaducks** (harlequin duck *)	**Pollock**
Sea lion	Black oystercatcher *	**Halibut**
Beluga whale	Pigeon guillemot *	**Cod**
	Kittlitz's murrelet *	**Shrimp**
	Common loon *	**Crabs**
	Cormorants (3 species)*	Rockfish *
	Marbled murrelet *	Cutthroat trout *
		Dolly Varden *

Forage Species	**Intertidal Communities * &**	Plankton
Juvenile herring	**Subtidal Benthic Communities** *	**Phytoplankton**
Capelin	Clams *	**Zooplankton**
Sand lance	Mussels*	
Euphasiids		

ASSESSMENT OF SIGNIFICANCE OF FACTORS THAT MAY LIMIT POPULATION ABUNDANCE

The presently understood significance of alternative factors that may be limiting population abundance (columns) for each of the GEM reference species (rows) is based on a consideration of the published scientific evidence for the species and factor, and/or a concept of how abundance of the species could be limited by the factor. The origin of the rank (L=Low, M=Medium, H=High) in each cell, for either a limiting influence or lack of a limiting influence, is identified as published evidence (e) or conceptual foundation (c). Published evidence includes findings from the *Exxon Valdez* Oil Spill Restoration Program and the published scientific literature; conceptual foundations are those existing or proposed in GEM. If there is substantial uncertainty about the rank, then a (U) for unknown is used. The ranks are based on the best current understandings of conditions in the GOA, which are expected to change over time according to new evidence and better models of how factors limit abundance.

FACTORS POTENTIALLY INFLUENCING POPULATION ABUNDANCE

	Food					Habitat		Removals					
	Prey Availability	Food Production			Food Quality	Habitat Availability	Habitat Degradation	Predation	Oil Spill Impacts	Contaminants/ Pollution	Competition	Disease	Resource Exploitation
		Physical Oceanography	Biological Oceanography	Chemical Oceanography									
Marine Mammals													
Harbor Seals	H (c)	H (c)	H (c)	H (c)	H (e,c)	L (e)	L (e,c)	H (e,c)	L (e)	M (c)	M (c)	L (e)	H (e)
Sea Otter	L (c)	L (c)	L (c)	L (c)	H (e,c)	L (c)	M (c)	H (e,c)	M (c)	M (e)	L (e)	L (e)	M (e)
Killer Whale	L (c)	L (c)	L (c)	L (c)	L (c)	L (c)	M (c)	L (e,c)	L	M (e,c)	L (c)	L (c)	L (c)
Sea Lion	H (c)	H (c)	H (c)	H (c)	H (c)	L (c)	M (c)	H (c)	L (e)	M (e,c)	L (c)	H (e)	L (c)
Beluga Whale	L (c)	L (c)	L (c)	L (c)	L (c)	L (c)	M (c)	L (e,c)	L	M (e,c)	L (c)	L (c)	M (e,c)
Seabirds & Seaducks													
Kittiwake	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	M (e,c)	L (e,c)	L (e,c)	L (e)	U	L (e)	L (e)	L (e)
Murre	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	M (e,c)	L (e,c)	M (e,c)	M (e,c)	L (c)	L (c)	L (c)	L (c)
Seaducks	U	U	U	U	U	L (c)	H (e,c)	L (c)	M (e)	L (c)	L (c)	L (c)	M (c)
Fish & Shellfish													
Salmon	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (e,c)	H (e,c)	H (e,c)	L (e,c)	M (e,c)	H (c)	L (e)	H (e,c)
Herring	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (e,c)	M (e,c)	L (e,c)	M (e,c)	H (e,c)	H (e,c)
Pollock	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (c)	H (c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	M (e,c)
Cod	M (c)	H (e,c)	M (c)	M (c)	M (c)	H (e,c)	H (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	M (e,c)
Halibut	M (e,c)	M (e,c)	M (e,c)	M (e,c)	H (c)	H (c)	H (c)	H (e,c)	L (e,c)	L (e,c)	M (e,c)	L (e,c)	H (e,c)
Shrimp	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (c)	H (c)	M (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	M (e,c)
Crabs	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (c)	H (c)	M (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)
Forage Species													
Juvenile Herring	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (c)	H (c)	L (e,c)	M (e,c)	M (c)	L (c)	H (c)	L (c)
Capelin	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (c)	H (c)	U	L (e,c)	U	U	H (c)	L (c)
Sand Lance	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (c)	H (c)	H (c)	L (e,c)	L (e,c)	L (c)	L (c)	H (c)	L(c)
Euphausiids	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)	L (e,c)
Communities													
Intertidal	M (e,c)	M (e)	M (e,c)	H (e)	L (c)	H (c)	H (c)	M (e)	H (e)	L (c)	L (c)	L (c)	M (c)
Subtidal	M (c)	M (c)	M (e)	M (c)	L (c)	H (e)	M (e)	M (e)	M (e)	L (c)	L (c)	L (c)	L (c)
Plankton													
Phytoplankton	H (e,c)	H (e,c)	H (e,c)	H (e,c)	L (c)	H (e,c)	L (e)	L (e)	L (e)	L (e,c)	M (e)	L (c)	L (c)
Zooplankton	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	H (e,c)	L (e)	M (e)	M (e)	L (c)	M (e)	L (c)	L (c)

Draft Definitions (Table 2):

FOOD

Food Production is the amount of biomass that could be used as food. Primary and secondary production are influenced by physical, biological, and chemical factors.

Food Availability is the accessibility of food to the species. Availability depends on distribution and abundance of prey, and species that support prey. It includes all trophic levels, from primary producers (plants) to prey.

Food Quality is species composition in the diet and their nutritional value.

Food Removals is included under competition (see below).

HABITAT

Habitat Availability is the availability of the proper habitat for all phases of the life history of a species.

Habitat Degradation includes human activities that degrade or destroy habitat, such as logging, road building, noise pollution, and other aspects of urbanization, as well as some fishing methods.

REMOVALS

Predation is loss of individuals through foraging by other species.

Oil Spill Impacts are impacts of the 1989 *Exxon Valdez* oil spill.

Contaminants/Pollution is the reduction of a population by contamination effects.

Competition is loss of forage or habitat due to use by other species. It includes man competing with apex predators (for example, fishing).

Disease is pathology leading to population decline.

Resource Exploitation is direct mortality from harvesting or as bycatch (unintentional taking) in fisheries.

DISCUSSION DRAFT (1/10/01) **Table 3** *DISCUSSION DRAFT (1/10/01)*

ONGOING MONITORING OF FACTORS POTENTIALLY LIMITING POPULATION ABUNDANCE: WHO'S DOING WHAT IN THE GOA?

This table briefly summarizes current information in the Trustee Council's GEM database of historical and ongoing projects in the Gulf of Alaska. The reference number (#) refers to the i.d. number in the database. The table is very preliminary. Making sure the table is complete, at least at a broad level, is an essential step in identifying gaps and avoiding duplication of effort. This table does not reflect all monitoring and research efforts ever undertaken for these species in the northern gulf. Our attempt in this table is to highlight the most significant and relevant efforts that are currently ongoing.

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Harbor Seal	NMFS #060 (abundance & related information) NMFS #072 (MMPA & ESA compliance - incidental sightings and takes) NMFS #077 (stock assessments) USFWS #135 (wintering marine bird & mammals; Kodiak) ADF&G #157 (ground counts, survival, & reproduction at Tagidak I.)	MMS #118 (forage fish abundance, composition, biomass; inventory of capelin, eulachon, herring; Cook Inlet) UAF #206 (stable isotope analysis RE nutrient transfer; FY 99-01) NPMR #262 (diet of Steller sea lions & harbor seals in Kodiak area)	BRD #147 (pelagic seabird atlas)	NMFS #072 (MMPA & ESA compliance - incidental sightings and takes) NMFS #077 (annual mortalities of marine mammals in Alaska) NPMR #267 (ANHSC biological sampling) **FOR ALL SPECIES:** MMS #123 (pollutant levels down-current of Cook Inlet oil & other development) USGS #152 (monitor fresh waters of Cook Inlet Basin; through 9/01) ADFG #194 (subsistence harvest information; all species) CIKeeper #238 (citizen water quality monitoring; Kenai, Homer, Anchor Point) PWSRCAC #241 (hydrocarbon concentrations & sources; PWS)	**FOR ALL SPECIES:** NWS #004 (buoys in GOA collect temperature, pressure, wind, & wave data; 1979 on) NESDIS #007 (satellite data on sea temperature for all coastal US waters) GLOBEC #028 (satellite data on transport & circulation in NE Pacific; 1985 on) GLOBEC #029 (zooplankton, CTD, fluorescence, nutrients, chlorophyll, planktivorous fish; N. Central GOA shelf including Seward & Cape Fairfield lines & PWS Knight I. passage, Montague transect) NASA #031 (SeaWIFS satellite data on chlorophyll & phytoplankton; 1997-02) NASA #032 (MODIS satellite data on phytoplankton) NASA #036 (satellite data on sea surface temperature) NASA #037&040 (satellite data on global weather; 1996 on) NESDIS #044 (sea surface temperatures, 1986 on) NMFS #086 (upwelling indices, including GOA; 1946 on)

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Sea Otter	NMFS #72 (MMPA & ESA compliance - incidental sightings and takes) USFWS #131 (marine mammal tagging program RE Alaska Native hunt) USFWS #132 (coastal areas) USFWS #135 (wintering marine bird & mammals; Kodiak) BRD #143 (methods for population assessment) BRD #146 (genetics studies RE population status & management strategies) NPMR #266 (sitings & biological samples; GOA)	USFWS/ASOC #013 (diet)	BRD #147 (pelagic seabird atlas)	USFWS/ASOC #013 (archived samples available for contaminants, disease analysis) NMFS #072 (MMPA & ESA compliance - incidental sightings and takes) NMFS #077 (annual mortalities of marine mammals in Alaska) USFWS #131 (monitor subsistence harvest) NPMR #266 (sitings & biological samples; GOA)	**FOR ALL SPECIES, CONT:** NWS #095 (meteorological observations at 4 GOA stations; 1980 on) NWS #096 (buoys at 3 GOA sites measure waves, temperature, pressure, and some wind) OAR #100 (GOA shelf data on current & bottom pressure) NSF #117 (surveys of upper 1,500 meters of N. Pacific) ADFG #177 (water temp. near Near I., Kodiak; 1971 on) UAF #204 (GOA coastal flow & sediment data; every other year) UAF #207 (GAK 1 temperature/salinity/depth; Resurrection Bay; 1970 on) UNESCO #211 (subsurface temperature data using ships of opportunity; locations? 1970 on) UNESCO #212 (floating temperature, salinity, velocity profilers; location? should begin 2000) UNWMO #213 (oceanic variability) WOCE #216 (subsurface floats; measurements? locations? years?) WOCE #217 (surface buoys measure surface velocity & some atmospheric pressure) WOCE #219 (upper ocean thermal measurements by commercial ships; global)
Killer Whale	NMFS #72 (MMPA & ESA compliance - incidental sightings and takes) NMFS #078 (Pacific Marine Mammal Stock Assessments, not in Alaska waters but of whales that range into Alaska waters)		BRD #147 (pelagic seabird atlas)	NMFS #072 (MMPA & ESA compliance - incidental sightings and takes) NMFS #077 (annual mortalities of marine mammals in Alaska)	
Sea Lion	NMFS #011 (land counts at 151 locations in Aleutians & GOA, 1958 on) NMFS #72 (MMPA & ESA compliance - incidental sightings and takes) NMFS #077 (AK marine mammal stock assessments) USFWS #135 (wintering marine bird & mammal studies; Kodiak) NPMR #261 (survival & foraging of juveniles; GOA) NPMR #262 (abundance & distribution; Kodiak) NPMR #266 (sitings & biological samples; GOA)	NMFS #056 (analyzed 1976-91 data RE sea lion abundance/ pollock fishing) MMS #118 (forage fish abundance, composition, biomass; inventory of capelin, eulachon, herring; Cook Inlet) NPMR #260 (stress hormones in feces; Kodiak, PWS, BS) NPMR #262 (use of prey compared to prey availability)	BRD #147 (pelagic seabird atlas)	NMFS #072 (MMPA & ESA compliance - incidental sightings and takes) NMFS #077 (annual mortalities of marine mammals in Alaska) ADFG #195 (contaminant levels using fecal samples; SE AK & western AK) NPMR #266 (sitings & biological samples; GOA)	

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Beluga Whale	NMFS #57 (annual survey of Cook Inlet belugas) NMFS #072 (MMS & ESA compliance; incidental sightings & take) NMFS #077 (GOA stock assessments) USGS #243 (distribution of seabirds & mammals; GOA)		BRD #147 (pelagic seabird atlas)	NMFS #072 (MMPA & ESA compliance - incidental sightings and takes) NMFS #077 (annual mortalities of marine mammals in Alaska)	**ALL SPECIES, CONT:** WOCE #220 (sea surface salinity on WHP cruises and voluntary ships) WOCE #222 (tide gauges) FOC #225 (interannual variability of NE Pacific Ocean at Station P & along line P; at least once a year survey is extended north to Alaska coast or south to OR/WA coast) NESDIS #231 (radar altimeters measure sea level; 1991 on) ADFG #245 (plankton, temperature, salinity; Kitoi Bay) NMFS #245 (stationary mooring--currents, temperature salinity; Chiniak Bay, Kodiak) NMFS #247 (temperature & Secchi disk; Kodiak, Trident Basin) NMFS #248 (temperature; Woman's Bay, Kodiak)
Black-Legged Kittiwake	USFWS #003 (statewide plan for monitoring at breeding colonies & on the water) NMFS #072 (MMS & ESA compliance; incidental sightings & take) USFWS #136 (non-game migratory bird surveys) USGS #227 (census, population dynamics & feeding ecology at Middleton Island; kittiwakes, murres, cormorants; 1974 on) **MULTIPLE SPECIES OR SPECIES NOT NAMED:** MMS #122 (species, locations, and years not specified) USFWS #133 (10 AMNWR sites; species?; 1970 on) USFWS #135 (Kodiak archipelago 1979 on; species? "seaducks, seabirds, marine mammals") USGS #145 (arctic breeding shorebirds; CI Inlet, Alaska Peninsula) USFWS #223 (multiple species at periodic sites in GOA, some with EVOS $) USGS #243 (distribution of seabirds & mammals; GOA)	MMS #118 (forage fish abundance, composition, diet, nutrient quality; Cook Inlet) USGS #127 (relationships between biology, behavior & food availability in light of changes in prey population & marine climate) USGS #227 (census, population dynamics & feeding ecology at Middleton Island; kittiwakes, murres, cormorants; 1974 on)	USGS #127 (relationships between biology, behavior & food availability in light of changes in prey population & marine climate) BRD #142 (seabird database - trend data) BRD #147 (pelagic seabird atlas) USFWS #223 (detect conditions that are expected to result in population trends; GOA) USGS #227 (Middleton I.) USFWS #271 (database of size & location of all seabird colonies in AK)	MMS #120 (Alaskan Frozen Tissue Collection) NMFS #076/BRD #148 (Marine Mammal Tissue Archive) ADFG #194 (subsistence harvest database) USFWS #223 (detect conditions that are expected to result in population trends; GOA) USFWS #272 (subsistence harvest records; GOA)	

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Murre	NMFS #072 (MMS & ESA compliance; incidental sightings & take) USGS #227 (census, population dynamics & feeding ecology at Middleton Island; kittiwakes, murres, cormorants; 1974 on)	MMS #118 (forage fish abundance, composition, diet, nutrient quality; Cook Inlet) USFWS #123 (food supply in Cook Inlet & GOA) USGS #227 (census, population dynamics & feeding ecology at Middleton Island; kittiwakes, murres, cormorants; 1974 on)	BRD #140 (seasonal movements & pelagic habitat use) BRD #142 (seabird database) BRD #147 (pelagic seabird atlas)	USFWS #014&138 (collect eggs at AMNWR to test for POPs; 1998 on)	**FOR ALL SPECIES, CONT.** NPMR #263 (dynamics of AK Coastal Current) NPMR #264 (temperature, salinity, velocity, nutrients, chlorophyll at 2 moorings on continental shelf S. Seward; see also GLOBEC) NPMR #267 (ANHSC biological sampling)
Seaducks	USFWS #135 (Kodiak archipelago 1979 on; "seaducks, seabirds, marine mammals")	MMS #118 (forage fish abundance, composition, biomass; inventory of capelin, eulachon, herring; Cook Inlet)	BRD #140 (seasonal movements & pelagic habitat use) BRD #142 (seabird database) BRD #147 (pelagic seabird atlas) USFWS #242 (characteristics, extent, status of wetlands)		

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Salmon	NMFS #020 (Ocean Carrying Capacity Program, N. Pacific coast of Alaska, 1995 on) NMFS #022 (various locations in Alaska) GLOBEC #029 (zooplankton, CTD, fluorescence, nutrients, chlorophyll, planktivorous fish; N. Central GOA shelf including Seward & Cape Fairfield lines & PWS Knight I. passage, Montague transect) NMFS #064 (GOA biennial survey; includes subadults) USFWS #130 (stream counts APNWR; 1994 on) ADFG #153 (sonar counting of returns to Kenai, Kasilof, Susitna, Crescent rivers in CI and Copper River in PWS) ADFG #158&190 (weir & tower counts of returning adults; CI, Kodiak, PWS) ADFG #159 (aerial counts of returning adults & stream walks; PWS, CI) ADFG #160 (weir counts of outmigrating smolt & fry; Kodiak, NGOA) ADFG #161 (AWL of returning adults; PWS, CI, Kodiak, NGOA) ADFG #191 (coded wire tagging; PWS, CI, Kodiak)	NMFS #020 (Ocean Carrying Capacity Program, N. Pacific coast of Alaska; 1995 on)	NMFS #020 (Ocean Carrying Capacity Program, N. Pacific coast of Alaska; 1995 on) CI Keeper #237 (water quality of Anchor R., Stariski Cr., Ninilchik R., Deep Creek) CIKeeper #238 (supplemental freshwater quality monitoring) USFWS #242 (characteristics, extent, status of wetlands)	USGS #152 (presence of contaminants in fish tissues; fresh waters of Cook Inlet basin; through 9/01) ADFG #183 (Commercial Fish Division, subsistence fish & shellfish harvest; PWS, CI, Kodiak, NGOA) ADFG #194 (subsistence division harvest database) CI Keeper #237 (water quality of Anchor R., Stariski Cr., Ninilchik R., Deep Creek) ADFG #254/255 (commercial & sports fish catch data; PWS, CI, Kodiak, NGOA)	CI Keeper #237 (water quality of Anchor R., Stariski Cr., Ninilchik R., Deep Creek)
Herring	ADFG #169 (dive surveys) ADFG #170 (aerial surveys) ADFG #171 (catch sampling; 1980 on)				

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Pollock	NMFS #009 (winter acoustic & trawl surveys, Shelikof Strait 1981 on) NMFS #064 (GOA biennial survey; includes subadults) ADF&G #166 (catch sampling of AWL for pollock and cod in PWS & lower Cook Inlet; 1980s on)	NMFS #068 (census eggs, oceanographic variables, & predator/prey densities in GOA)		NOS#001&091 (Mussel Watch--chemical concentrations in mollusks, fish & sediments;1986 on) NMFS #067 (identify & track parasitism in juvenile walleye pollock in N. Pacific)	
Cod	NMFS #064 (GOA biennial survey; includes subadults) ADF&G #166 (catch sampling of AWL for pollock and cod in PWS & lower Cook Inlet; 1980s on)			NOS#001&091 (Mussel Watch--chemical concentrations in mollusks, fish & sediments;1986 on)	
Halibut	NMFS #010&071 (biomass of groundfish species, by on-board observers) IPHC #030 (statewide, using data from the commercial fishery & scientific surveys); 1974 on) NMFS #064 (biomass of groundfish species using bottom trawls; 1984 on)			NOS#001&091 (Mussel Watch--chemical concentrations in mollusks, fish & sediments;1986 on)	
Shrimp	NMFS #064 (biomass of commercially important invertebrates using bottom trawls; 1984 on) ADFG #178 (onboard observers collect data) ADFG #181 (trawl surveys)				

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Crab	NMFS #064 (biomass of commercially important invertebrates using bottom trawls; 1984 on) ADFG #173 (trawl surveys of king & tanner; PWS, lower Cook Inlet, Alaska Peninsula) ADFG #175 (dockside sampling for crabs & scallops; statewide) ADFG #178 (onboard observers collect data; years?) NMFS #248 (Women's Bay)		NMFS #246 (hatch timing of Tanner crabs in relation to environmental variables) NMFS #248 (dive surveys; Women's Bay)	ADFG #183 (subsistence fish & shellfish harvest) ADEC #184 (monitor PSP in king, tanner, & dungeness being harvested; PWS, CI, Kodiak)	
Juvenile herring	MMS #118 (forage fish abundance, composition, diet, biomass, nutrient quality; Cook Inlet)				
Capelin	NMFS #64 (biennial bottom trawl survey) MMS #118 (forage fish abundance, composition, diet, biomass, nutrient quality; Cook Inlet) ADFG #181 (shrimp trawl surveys; Kodiak, lower CI) BRD #244 (abundance at seabird monitoring sites) NPMR #259 (remote sensing abundance; CI)	MMS #118 (forage fish abundance, composition, diet, biomass, nutrient quality; Cook Inlet)	NOS #029 (GLOBEC transects of physical & chemical measures; GAK1 location, continental shelf northern GOA) NMFS #268 (Pavlof Bay temperature mooring)	NOS#001&091 (Mussel Watch--chemical concentrations in mollusks, fish & sediments;1986 on)	
Sand lance	MMS #118 (forage fish abundance, composition, diet, biomass, nutrient quality; Cook Inlet) NPMR #259 (remote sensing abundance; CI)	MMS #118 (forage fish abundance, composition, diet, biomass, nutrient quality; Cook Inlet)			

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Euphausiids	GLOBEC #029 (zooplankton, CTD, fluorescence, nutrients, chlorophyll, planktivorous fish; N. Central GOA shelf including Seward & Cape Fairfield lines & PWS Knight I. passage, Montague transect)				
Intertidal	MMS #119 (community structure) NOS #251 (Kachemak Bay NERR)			NOS#001&091 (Mussel Watch--chemical concentrations in mollusks & sediments;1986 on) ADEC #236 (water quality & marine toxin sampling at several listed beaches) PWSRCAC #241 (hydrocarbons in mussels & sediments at 9 sites)	
Subtidal	USGS #152 (fish, benthic invertebrates, & algae in streams of Cook Inlet basin; from through 9/01) Alyeska #253 (benthic invertebrates & sediments; PWS, Valdez Arm)			PWSRCAC #241 (hydrocarbons in mussels & sediments at 9 sites) Alyeska #253 (benthic invertebrates & sediments; PWS, Valdez Arm)	

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Phytoplankton	GLOBEC #029 (zooplankton, CTD, fluorescence, nutrients, chlorophyll, planktivorous fish; N. Central GOA shelf including Seward & Cape Fairfield lines & PWS Knight I. passage, Montague transect) NASA #031 (SeaWIFS satellite data; 1997-02) NASA #032 (MODIS satellite data) DFO #228 (relative abundance of phytoplankton & zooplankton & habitat parameters; GOA) ADFG #235 (plankton, salinity, temperature at Kitoi Bay, Kodiak; 1990 on) NPMR #257/DFO #229 (qualitative data on phytoplankton species composition; GOA, PWS)				
Zooplankton	GLOBEC #029 (zooplankton, CTD, fluorescence, nutrients, chlorophyll, planktivorous fish; N. Central GOA shelf including Seward & Cape Fairfield lines & PWS Knight I. passage, Montague transect) DFO #228 (relative abundance of phytoplankton & zooplankton & habitat parameters; GOA) ADFG #235 (plankton, salinity, temperature at Kitoi Bay, Kodiak; 1990 on) NPMR #257 (relative abundance of zooplankton; PWS, GOA)		GLOBEC #029 (habitat characteristics of zooplankton; PWS, GOA)		

DISCUSSION DRAFT ONLY (1/10/01) **Table 4** *DISCUSSION DRAFT ONLY (1/10/01)*

GAPS: FACTORS IN TABLE 2 THAT CURRENTLY ARE NOT BEING SUFFICIENTLY ADDRESSED IN GOA

NOTE: THESE ARE EXAMPLES ONLY

This table completes the gap analysis process begun in Table 3 by identifying those areas of monitoring and research that are important and are not currently being addressed.

Species	Population Abundance	Food Quality	Habitat	Removals	Food Production
Harbor Seal			Coastal oceanography measurements for understanding sea lion & harbor seal feeding areas adjacent to haulouts	Tissue archival network for contaminants analysis	
Kittiwake & Murre				Tissue archival network for contaminants analysis	Real-time coastal oceanography measurements for understanding prey distribution & availability
Capelin			Real-time coastal oceanography measurements for understanding capelin distribution & availability to predators	Tissue archival network for contaminants analysis	
Salmon			Add marine nitrogen measurements to existing water quality surveys	Tissue archival network for contaminants analysis	Develop methods for measuring early marine survival in nearshore environments
and so on for all GEM reference species...					

PROPOSED GOA MONITORING STRATEGIES, FIRST 3-5 YEARS

NOTE: THESE ARE EXAMPLES ONLY

Items in **bold** would be funded by GEM. "L-M-H" refers to Table 2, which identifies factors that may limit population abundance. Note that, in most instances, a strategy proposed to fill a major gap for one factor also provides information related to other factors.

SPECIES	MONITORING AREAS			
	Prince William Sound	Cook Inlet	Kodiak Archipelago	Gulf of Alaska
Harbor Seal - Pop. abundance	ADFG/NMFS surveys	NMFS MMPA & ESA compliance	ADFG/NMFS/NPMR surveys	NMFS MMPA & ESA compliance
- Food production (H)	ADFG/NMFS/USFWS compliance monitoring (ESA, MMPA); **coastal observation network, including trawl surveys, community monitoring sites, & moorings**	ADFG/NMFS/USFWS compliance monitoring (ESA, MMPA); **coastal observation network, including trawl surveys, community monitoring sites, & moorings**	ADFG/NMFS/USFWS compliance monitoring (ESA/MMPA); **coastal observation network, including trawl surveys, community monitoring sites, & moorings**	ADFG/NMFS/USFWS compliance monitoring (ESA, MMPA); **coastal observation network, including trawl surveys, community monitoring sites, & moorings**
- Food quality (H)	**Coastal observation network, including trawl surveys, community monitoring sites, & moorings**	**Coastal observation network, including trawl surveys, community monitoring sites, & moorings**	**Coastal observation network, including trawl surveys, community monitoring sites, & moorings**	**Coastal observation network, including trawl surveys, community monitoring sites, & moorings**
- Removals (LMH)	ADFG/ANHSC/NMFS subsistence harvest and predation; **tissue archival network for contaminants analysis**	ADFG/ANHSC/NMFS subsistence harvest and predation; **tissue archival network for contaminants analysis**	ADFG/ANHSC/NMFS subsistence harvest and predation; **tissue archival network for contaminants analysis**	ADFG/ANHSC/NMFS subsistence harvest and predation; **tissue archival network for contaminants analysis**
- Habitat (L)	NMFS MMPA & ESA compliance;**coastal observation network, including trawl surveys, community monitoring sites, & moorings**	NMFS MMPA & ESA compliance;**coastal observation network, including trawl surveys, community monitoring sites, & moorings**	NMFS MMPA & ESA compliance; **coastal observation network, including trawl surveys, community monitoring sites, & moorings**	NMFS MMPA & ESA compliance; **coastal observation network, including trawl surveys, community monitoring sites, & moorings**

SPECIES	MONITORING AREAS			
	Prince William Sound	Cook Inlet	Kodiak Archipelago	Gulf of Alaska
Kittiwake-Murre - Pop. abundance	USFWS/USGS surveys	USFWS/USGS surveys	USFWS/USGS surveys	USFWS/USGS surveys
- Food production (H)	NOAA/NASA/NSF; **coastal observation network measures food production**	NOAA/NASA/NSF; **coastal observation network measures food production**	NOAA/NASA/NSF; **coastal observation network measures food production**	NOAA/NASA/NSF; **coastal observation network measures food production**
- Food quality (H)	**Coastal observation network measures forage species distribution in relation to seabirds**	**Coastal observation network measures forage species distribution in relation to seabirds**	**Coastal observation network measures forage species distribution in relation to seabirds**	**Coastal observation network measures forage species distribution in relation to seabirds**
- Habitat (LM)	USFWS/USGS surveys	USFWS/USGS surveys	USFWS/USGS surveys	USFWS/USGS surveys
- Removals (LM)	**Tissue archival network for contaminants analysis**	**Tissue archival network for contaminants analysis**	**Tissue archival network for contaminants analysis**	**Tissue archival network for contaminants analysis**
Capelin - Pop. abundance	ADFG/MMS/NPMR/BRD/NMFS surveys; **coastal observation network measures forage species**	ADFG/MMS/NPMR/BRD/NMFS surveys; **coastal observation network measures forage species**	ADFG/MMS/NPMR/BRD/NMFS surveys; **coastal observation network measures forage species**	ADFG/MMS/NPMR/BRD/NMFS surveys; **coastal observation network measures forage species**
- Food production (H)	NOAA/NASA/NSF	NOAA/NASA/NSF	NOAA/NASA/NSF	NOAA/NASA/NSF
- Food quality (H)	**Coastal observation network measures plankton**	**Coastal observation network measures plankton**	**Coastal observation network measures plankton**	**Coastal observation network measures plankton**
- Habitat (H)	**Coastal observation network measures habitat parameters**	**Coastal observation network measures habitat parameters**	**Coastal observation network measures habitat parameters**	**Coastal observation network measures habitat parameters**
- Removals (LHU)	**Tissue archival network for contaminants analysis**	**Tissue archival network for contaminants analysis**	**Tissue archival network for contaminants analysis**	ADFG/NMFS incidental harvest, no directed harvest; **tissue archival network for contaminants analysis**

SPECIES	MONITORING AREAS			
	Prince William Sound	Cook Inlet	Kodiak Archipelago	Gulf of Alaska
Salmon - Pop. abundance	ADFG/NMFS/GLOBEC/USFWS	ADFG/NMFS/GLOBEC/USFWS	ADFG/NMFS/GLOBEC/USFWS	ADFG/NMFS/GLOBEC/USFWS
- Food production (H)	**Coastal observation network measures food; use of biomarkers and develop models of early marine survival in PWS only; extend to other areas later**	**Coastal observation network measures food**	**Coastal observation network measures food**	**Coastal observation network measures food**
- Food quality (H)	OSRI	NOS	MMS	NMFS OCC
- Habitat (H)	ADFG/ADEC/USGS/EPA; **coastal observation network measures habitat; add marine nitrogen to existing water quality surveys in watersheds**	ADFG/ADEC/USGS/EPA; **coastal observation network measures habitat; add marine nitrogen to existing water quality surveys in watersheds**	ADFG/ADEC/USGS/EPA; **coastal observation network measures habitat; add marine nitrogen to existing water quality surveys in watersheds**	ADFG/ADEC/USGS/EPA; **coastal observation network measures habitat**
- Removals (LMH)	ADFG/NMFS/USFWS; **tissue archival network for contaminants analysis**	ADFG/NMFS/USFWS; **tissue archival network for contaminants analysis**	ADFG/NMFS/USFWS; **tissue archival network for contaminants analysis**	ADFG/NMFS/USFWS; **tissue archival network for contaminants analysis**
and so on for all GEM reference species...				

DISCUSSION DRAFT ONLY (1/10/01) **Table 5b** *DISCUSSION DRAFT ONLY (1/10/01)*

PROPOSED GEM RESEARCH/SYNTHESIS STRATEGIES, FIRST 3-5 YEARS

NOTE: THESE ARE EXAMPLES ONLY

SPECIES	RESEARCH				DATA MANAGEMENT	SYNTHESIS & COMMUNICATION
	Ecosystem Process Studies	Retrospective Analysis	Modeling	Management, Tools & Technology		
Harbor Seal	Origin of food		Support development of models to help organize and understand information collected by GEM & related programs, such as herring overwinter bioenergetics survival, juvenile salmon survival in relation to food & predators, hydrology & circulation in NGOA.	Help extend PWS methods to NGOA	Deliver information suitable to user-defined needs, provide links to existing databases	Solicit synthesis based on user-defined needs, track for use in State of Gulf Index
Kittiwake & Murre	Links between birds & prey & common controlling factors				Deliver information suitable to user-defined needs, provide links to existing databases	Solicit synthesis based on user-defined needs, track for use in State of Gulf Index
Capelin	Origin of food				Deliver information suitable to user-defined needs, provide links to existing databases	Solicit synthesis based on user-defined needs, track for use in State of Gulf Index
Salmon	Early marine survival, fate of marine nitrogen in freshwater			Methods for measuring early marine survival in nearshore environments	Deliver information suitable to user-defined needs, provide links to existing databases	Solicit synthesis based on user-defined needs, track for use in State of Gulf Index
and so on for all GEM reference species...						

Public Advisory Group

teleconference
January 12, 2001
9:30 a.m. - noon

Name	Address/phone	Public Comment?
Martha Vlasoff	3700 Sharon Gagnon Lane Anch AK 99508 751-7350	
~~BARRY LAPORTE~~	~~1031 W. 4th Ave~~	NO
Ed Quinn	Cordova	No
Chris Beckett	1786 FOREST PARK	I
Dave Hull	Anchorage	no