Exxon Valdez Oil Spill Trustee Council

September 15, 2011

12:30 to 4:30 p.m.

800.315.6338 – code 8205

Elton's delegation to Mutter for 1st part of Sept 15, 2011 TC Mtg.

Womac, Cherri G (EVOSTC)

From: Hsieh, Elise M (EVOSTC)
Sent: Thursday, September 22, 2011 2:50 PM
To: Womac, Cherri G (EVOSTC)
Subject: FW: First 30 minutes: Trustee Council Meeting

From: Elton, Kim [mailto:Kim_Elton@ios.doi.gov]
Sent: Tuesday, September 13, 2011 1:46 PM
To: Hsieh, Elise M (EVOSTC)
Cc: douglas_mutter@ios.doi.gov
Subject: RE: First 30 minutes: Trustee Council Meeting

Thanks, Elise. I am comfortable with the first six agenda items and I've spoken with Doug and he's agreed to be the alternate for me. I'm copying this to him so that this decision on the alternate is part of the record.

Kim

From: Hsieh, Elise M (EVOSTC) [mailto:elise.hsieh@alaska.gov]
Sent: Tuesday, September 13, 2011 1:32 PM
To: Elton, Kim
Subject: First 30 minutes: Trustee Council Meeting

Hello Kim,

According to our Operating Procedures, a quorum can approve the agenda and take public testimony.

Would you consider sending me an email designating one of the other Trustees, or perhaps Doug Mutter, to be your alternate for any action items for agenda items 2 - 5 or 6, if you are comfortable with those items?

Elise

See agenda excerpt, below:

2. Consent Agenda
   - Approval of Agenda*
   - Approval of Meeting Notes*
     April 19, 2011

3. Public comment – 12:45 p.m. (3 minutes per person)

4. PAC Chairperson Report *(10 min.)* Kurt Eilo
   PAC Chairperson

5. Executive Director's Report *(25 min.)* Elise Hsieh,
   Executive Director
   -Investment Working Group Update
   -Asset Allocation for FFY 2012* Bob Mitchell, ADOR
   -Correction of erroneous date on Resolution 11-01*

6. Amendment to Gail Irvine Project 11100112-A* (*10 min.*) Dede Bohn, USGS
-Lingering oil sampling delayed due to weather field delay

Transmittal Emails

Womac, Cherri G (EVOSTC)

From: Hartig, Lawrence L (DEC)
Sent: Thursday, September 15, 2011 1:46 PM
To: Womac, Cherri G (EVOSTC)
Subject: Fwd: Harbors and Marinas
Attachments: Sector Q.PDF; ATT1937637.htm; sector_q_watertransportation.pdf; ATT1937638.htm

Sent from my iPhone

Begin forwarded message:

> **From:** "Kent, Lynn J T (DEC)" <lynn.kent@alaska.gov>
> **To:** "Hartig, Lawrence L (DEC)" <larry.hartig@alaska.gov>
> **Subject: Harbors and Marinas**
>
> Larry - attached is the section of the MSGP stormwater permit applicable to harbors and marinas. The permit is BMP oriented. If the Trustee Council funds the NOAA harbors project, it would be good to do it in phases where once NOAA has done an assessment, the Council can evaluate whether or not to fund specific projects at specific harbors. That would give DEC a chance to let the Council know if any of the propose projects are a legal requirement that should not be funded by the Council.
>
> Council members may want copies of the attachments (Kim Elton requested the info).
>
> Lynn

Part 8 – Sector-Specific Requirements for Industrial Activity

Subpart Q – Sector Q – Water Transportation.

You must comply with Part 8 sector-specific requirements associated with your primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of your facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

8.Q.1 Covered Stormwater Discharges.

The requirements in Subpart Q apply to stormwater discharges associated with industrial activity from Water Transportation facilities as identified by the SIC Codes specified under Sector Q in Table D-1 of Appendix D of the permit.

8.Q.2 Limitations on Coverage.

8.Q.2.1 *Prohibition of Non-Stormwater Discharges.* (See also Part 1.1.4) Not covered by this permit: bilge and ballast water, sanitary wastes, pressure wash water, and cooling water originating from vessels.

8.Q.3 Additional Technology-Based Effluent Limits.

8.Q.3.1 *Good Housekeeping Measures.* You must implement the following good housekeeping measures in addition to the requirements of part 2.1.2.2:

8.Q.3.1.1 *Pressure Washing Area.* If pressure washing is used to remove marine growth from vessels, the discharge water must be permitted by a separate NPDES permit. Collect or contain the discharges from the pressures washing area so that they are not co-mingled with stormwater discharges authorized by this permit.

8.Q.3.1.2 *Blasting and Painting Area.* Minimize the potential for spent abrasives, paint chips, and overspray to discharge into receiving waters or the storm sewer systems. Consider containing all blasting and painting activities or use other measures to minimize the discharge of contaminants (e.g., hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris). When necessary, regularly clean stormwater conveyances of deposits of abrasive blasting debris and paint chips.

8.Q.3.1.3 *Material Storage Areas.* Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains. Minimize the contamination of precipitation or surface runoff from the storage areas. Specify which materials are stored indoors, and consider containment or enclosure for those stored outdoors. If abrasive blasting is performed, discuss the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials onsite.

8.Q.3.1.4 *Engine Maintenance and Repair Areas.* Minimize the contamination of precipitation or surface runoff from all areas used for engine maintenance and repair. Consider the following (or their equivalents): performing all maintenance activities indoors, maintaining an organized inventory of materials used in the shop, draining all parts of fluid prior to disposal, prohibiting the practice of hosing down the shop floor, using dry cleanup methods, and treating and/or recycling stormwater runoff collected from the maintenance area.

8.Q.3.1.5 *Material Handling Area.* Minimize the contamination of precipitation or surface runoff from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels). Consider the following (or their equivalents): covering fueling areas, using spill and overflow protection, mixing paints and solvents in a designated area (preferably indoors or under a shed), and minimizing runoff of stormwater to material handling areas.

8.Q.3.1.6 *Drydock Activities.* Routinely maintain and clean the drydock to minimize pollutants in stormwater runoff. Address the cleaning of accessible areas of the drydock prior to flooding, and final cleanup following removal of the vessel and raising the dock. Include procedures for cleaning up oil, grease, and fuel spills occurring on the drydock. Consider the following (or their equivalents): sweeping rather than hosing off debris and spent blasting material from accessible areas of the drydock prior to flooding and making absorbent materials and oil containment booms readily available to clean up or contain any spills.

8.Q.3.2 *Employee Training.* (See also Part 2.1.2.9) As part of your employee training program, address, at a minimum, the following activities (as applicable): used oil management, spent solvent management, disposal of spent abrasives, disposal of vessel wastewaters, spill prevention and control, fueling procedures, general good housekeeping practices, painting and blasting procedures, and used battery management.

8.Q.3.3 *Preventive Maintenance.* (See also Part 2.1.2.3) As part of your preventive maintenance program, perform timely inspection and maintenance of stormwater management devices (e.g., cleaning oil and water separators and sediment traps to ensure that spent abrasives, paint chips, and solids will be intercepted and retained prior to entering the storm drainage system), as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters.

8.Q.4 Additional SWPPP Requirements.

8.Q.4.1 *Drainage Area Site Map.* (See also Part 5.1.2) Document in your SWPPP where any of the following may be exposed to precipitation or surface runoff: fueling; engine maintenance and repair; vessel maintenance and repair; pressure washing; painting; sanding; blasting; welding; metal fabrication; loading and unloading areas; locations used for the treatment, storage, or disposal of wastes; liquid storage tanks; liquid

storage areas (e.g., paint, solvents, resins); and material storage areas (e.g., blasting media, aluminum, steel, scrap iron).

8.Q.4.2 *Summary of Potential Pollutant Sources.* (See also Part 5.1.3) Document in the SWPPP the following additional sources and activities that have potential pollutants associated with them: outdoor manufacturing or processing activities (e.g., welding, metal fabricating) and significant dust or particulate generating processes (e.g., abrasive blasting, sanding, and painting.)

8.Q.5 Additional Inspection Requirements.

(See also Part 4.1) Include the following in all quarterly routine facility inspections: pressure washing area; blasting, sanding, and painting areas; material storage areas; engine maintenance and repair areas; material handling areas; drydock area; and general yard area.

8.Q.6 Sector-Specific Benchmarks. (See also Part 6 of the permit.)

Table 8.Q-1.

Subsector (You may be subject to requirements for more than one sector/subsector)	Parameter	Benchmark Monitoring Concentration
Subsector Q1. Water Transportation Facilities (SIC 4412-4499)	Total Aluminum	0.75 mg/L
	Total Iron	1.0 mg/L
	Total Lead[1]	Hardness Dependent
	Total Zinc[1]	Hardness Dependent

[1] The benchmark values of some metals are dependent on water hardness. For these parameters, permittees must determine the hardness of the receiving water (see Appendix J, "Calculating Hardness in Receiving Waters for Hardness Dependent Metals," for methodology), in accordance with Part 6.2.1.1, to identify the applicable 'hardness range' for determining their benchmark value applicable to their facility. The ranges occur in 25 mg/L increments. Hardness Dependent Benchmarks follow in the table below:

Water Hardness Range	Lead (mg/L)	Zinc (mg/L)
0-25 mg/L	0.014	0.04
25-50 mg/L	0.023	0.05
50-75 mg/L	0.045	0.08
75-100 mg/L	0.069	0.11
100-125 mg/L	0.095	0.13
125-150 mg/L	0.122	0.16
150-175 mg/L	0.151	0.18
175-200 mg/L	0.182	0.20
200-225 mg/L	0.213	0.23
225-250 mg/L	0.246	0.25
250+ mg/L	0.262	0.26

Part 8 – Sector-Specific Requirements for Industrial Activity

Subpart R – Sector R – Ship and Boat Building and Repair Yards.

You must comply with Part 8 sector-specific requirements associated with your primary industrial activity and any co-located industrial activities, as defined in Appendix A. The sector-specific requirements apply to those areas of your facility where those sector-specific activities occur. These sector-specific requirements are in addition to any requirements specified elsewhere in this permit.

8.R.1 Covered Stormwater Discharges.

The requirements in Subpart R apply to stormwater discharges associated with industrial activity from Ship and Boat Building and Repair Yards as identified by the SIC Codes specified under Sector R in Table D-1 of Appendix D of the permit.

8.R.2 Limitations on Coverage.

8.R.2.1 *Prohibition of Non-Stormwater Discharges.* (See also Part 1.1.4) Discharges containing bilge and ballast water, sanitary wastes, pressure wash water, and cooling water originating from vessels are not covered by this permit.

8.R.3 Additional Technology-Based Effluent Limits.

8.R.3.1 *Good Housekeeping Measures.* (See also Part 2.1.2.2)

8.R.3.1.1 *Pressure Washing Area.* If pressure washing is used to remove marine growth from vessels, the discharged water must be permitted as a process wastewater by a separate NPDES permit.

8.R.3.1.2 *Blasting and Painting Area.* Minimize the potential for spent abrasives, paint chips, and overspray to discharging into the receiving water or the storm sewer systems. Consider containing all blasting and painting activities, or use other measures to prevent the discharge of the contaminants (e.g., hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris). When necessary, regularly clean stormwater conveyances of deposits of abrasive blasting debris and paint chips.

8.R.3.1.3 *Material Storage Areas.* Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains. Minimize the contamination of precipitation or surface runoff from the storage areas. If abrasive blasting is performed, discuss the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials onsite.

8.R.3.1.4 *Engine Maintenance and Repair Areas.* Minimize the contamination of precipitation or surface runoff from all areas used for engine maintenance and repair. Consider the following (or their equivalents): performing all maintenance activities indoors, maintaining an organized inventory of

INDUSTRIAL STORMWATER

FACT SHEET SERIES

Sector Q: Water Transportation Facilities with Vehicle Maintenance Shops and/or Equipment Cleaning Operations

U.S. EPA Office of Water
EPA-833-F-06-032
December 2006

What is the NPDES stormwater permitting program for industrial activity?

Activities, such as material handling and storage, equipment maintenance and cleaning, industrial processing or other operations that occur at industrial facilities are often exposed to stormwater. The runoff from these areas may discharge pollutants directly into nearby waterbodies or indirectly via storm sewer systems, thereby degrading water quality.

In 1990, the U.S. Environmental Protection Agency (EPA) developed permitting regulations under the National Pollutant Discharge Elimination System (NPDES) to control stormwater discharges associated with eleven categories of industrial activity. As a result, NPDES permitting authorities, which may be either EPA or a state environmental agency, issue stormwater permits to control runoff from these industrial facilities.

What types of industrial facilities are required to obtain permit coverage?

This fact sheet specifically discusses stormwater discharges from water transportation facilities with vehicle maintenance shops and/or equipment cleaning operations as defined by Standard Industrial Classification (SIC) Major Group 44. This includes water transportation facilities that perform vessel and equipment fluid changes, mechanical repairs, parts cleaning, sanding, blasting, welding, refinishing, painting, fueling, vessel and vehicle exterior washdown. Facilities and products in this group fall under the following categories, all of which require coverage under an industrial stormwater permit:

- Deep Sea Foreign Transportation of Freight (SIC 4412)
- Deep Sea Domestic Transportation of Freight (SIC 4424)
- Freight Transportation on the Great Lakes—St. Lawrence Seaway (SIC 4432)
- Water Transportation of Freight, Not Elsewhere Classified (SIC 4449)
- Deep Sea Transportation of Passengers, Except by Ferries(SIC 4492)
- Ferries (SIC 4482)
- Water Transportation of Passengers, Not Elsewhere Classified (SIC 4489)
- Marine Cargo Handling (SIC 4491)
- Towing and Tugboat Services (SIC 4492)
- Marinas (SIC 4493)
- Water Transportation Services, Not Elsewhere Classified (SIC 4499)

Bilge and ballast water, sanitary wastes, pressure wash water, and cooling water originating from vessels are not covered under the industrial stormwater program. These discharges must be covered by a separate NPDES permit if discharging to receiving waters or to a municipal separate storm sewer system.

What does an industrial stormwater permit require?

Common requirements for coverage under an industrial stormwater permit include development of a written stormwater pollution prevention plan (SWPPP), implementation of control measures, and submittal of a request for permit coverage, usually referred to as the Notice of Intent or NOI. The SWPPP is a written assessment of potential sources of pollutants in stormwater runoff and control measures that will be implemented at your facility to minimize the discharge of these pollutants in runoff from the site. These control measures include site-specific best management practices (BMPs), maintenance plans, inspections, employee training, and reporting. The procedures detailed in the SWPPP must be implemented by the facility and updated as necessary, with a copy of the SWPPP kept on-site. The industrial stormwater permit also requires collection of visual, analytical, and/or compliance monitoring data to determine the effectiveness of implemented BMPs. For more information on EPA's industrial stormwater permit and links to State stormwater permits, go to **www.epa.gov/npdes/stormwater** and click on "Industrial Activity."

What pollutants are associated with activities at my facility?

Pollutants conveyed in stormwater discharges from water transportation facilities with vehicle maintenance shops and/or equipment cleaning operations will vary. There are a number of factors that influence to what extent industrial activities and significant materials can affect water quality.

- Geographic location
- Topography
- Hydrogeology
- Extent of impervious surfaces (e.g.,, concrete or asphalt)
- Type of ground cover (e.g., vegetation, crushed stone, or dirt)
- Outdoor activities (e.g., material storage, loading/unloading, vehicle maintenance)
- Size of the operation
- Type, duration, and intensity of precipitation events

The activities, pollutant sources, and pollutants detailed in Table 1 are commonly found at water transportation facilities with vehicle maintenance shops and/or equipment cleaning operations.

Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Water Transportation Facilities with Vehicle Maintenance Shops and/or Equipment Cleaning Operations

Activity	Pollutant Source	Pollutant
Pressure washing	Wash water	Paint solids, heavy metals, suspended solids, debris
Surface preparation, paint removal, sanding	Sanding, mechanical grinding, abrasive blasting, paint stripping	Spent abrasives, paint solids, heavy metals, solvents, dust, debris
Painting	Paint and paint thinner spills, overspray, paint stripping, sanding, and paint cleanup	Paint solids, spent solvents, heavy metals, dust, debris
Drydock operation and maintenance	Sanding, mechanical grinding, abrasive blasting, paint stripping, building materials	Spent abrasives, paint solids, heavy metals, solvents, dust, low density waste (floatables)
Engine maintenance and repairs	Parts cleaning; waste disposal of greasy rags, used lubricants, coolants, and batteries; fluid spills; fluid replacement	Spent solvents, oil, heavy metals, ethylene glycol, acid/alkaline wastes, detergents, rags, batteries, loose parts
Material handling: Transfer Storage Disposal	Fueling: spills, leaks, and hosing area	Fuel, oil, heavy metals
	Liquid storage in above ground storage: spills and overfills, external corrosion, failure of piping systems	Fuel, oil, heavy metals, material being stored
	Waste material storage and disposal: paint solids, solvents, trash, and spent abrasives and petroleum products	Paint solids, heavy metals, spent solvents, oil, trash
Shipboard processes improperly discharged to storm sewer or into receiving water	Process and cooling water, sanitary waste, bilge and ballast water	Biochemical oxygen demand (BOD), bacteria, suspended solids, oil, fuel, trash

What BMPs can be used to minimize contact between stormwater and potential pollutants at my facility?

A variety of BMP options may be applicable to eliminate or minimize the presence of pollutants in stormwater discharges from water transportation facilities with vehicle maintenance shops and/or equipment cleaning operations. You will likely need to implement a combination or suite of BMPs to address stormwater runoff at your facility. Your first consideration should be for pollution prevention BMPs, which are designed to prevent or minimize pollutants from entering stormwater runoff and/or reduce the volume of stormwater requiring management. Prevention BMPs can include regular clean-up, collection and containment of debris in storage areas, and other housekeeping practices, spill control, and employee training. It may also be necessary to implement treatment BMPs, which are engineered structures intended to treat stormwater runoff and/or mitigate the effects of increased stormwater runoff peak rate, volume, and velocity. Treatment BMPs are generally more expensive to install and maintain and include oil-water separators, wet ponds, and proprietary filter devices.

The measures commonly implemented to reduce pollutants in stormwater associated with water transportation facilities with vehicle maintenance and/or equipment cleaning operations are generally not complicated and simple to implement. The implementation of BMPs should be used in the following areas of the site:

- Pressure washing areas
- Blasting and painting areas
- Material handling areas
- Engine and maintenance and repair areas
- Drydock activity areas
- General yard areas

BMPs must be selected and implemented to address the following:

Good Housekeeping Practices

Good housekeeping is a practical, cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources, including debris, from coming into contact with stormwater and degrading water quality. It includes establishing protocols to reduce the possibility of mishandling materials or equipment and training employees in good housekeeping techniques. Common areas where good housekeeping practices should be followed include trash containers and adjacent areas, material storage areas, vehicle and equipment maintenance areas, and loading docks. Good housekeeping practices must include a schedule for regular pickup and disposal of garbage and waste materials and routine inspections of drums, tanks, and containers for leaks and structural conditions. Practices also include containing and covering garbage, waste materials, and debris. Involving employees in routine monitoring of housekeeping practices has proven to be an effective means of ensuring the continued implementation of these measures.

Specific good housekeeping practices that should be implemented by marine transportation facilities include routine removal from the general yard area of scrap, metal, wood, plastic, miscellaneous trash, paper, glass, industrial scrap, insulation, welding rods, and packaging. Additional practices include securing and covering any containers, supplies, or equipment that could become sources of pollution.

Minimizing Exposure

Where feasible, minimizing exposure of potential pollutant sources to precipitation is an important control option. Minimizing exposure prevents pollutants, including debris, from coming into contact with precipitation and can reduce the need for BMPs to treat contaminated stormwater runoff. It can also prevent debris from being picked up by stormwater and carried into drains and surface waters. Examples of BMPs for exposure minimization include covering materials or activities with temporary

structures (e.g., tarps) when wet weather is expected or moving materials or activities to existing or new permanent structures (e.g., buildings, silos, sheds). Even the simple practice of keeping a dumpster lid closed and covering trash and recycling receptacles can be a very effective pollution prevention measure to prevent solid materials from entering receiving waters.

Specific exposure minimization practices that should be implemented by marine transportation facilities include:

- Storing all stored and containerized materials (fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains and plainly labeled.
- Containing all blasting and painting activities to prevent abrasives, paint chips, and overspray from reaching the receiving water or the storm sewer system.
- Securing any equipment or supplies so that they are not transported during storm events into receiving waters or storm sewer systems.

Erosion and Sediment Control

BMPs must be selected and implemented to limit erosion on areas of your site that, due to topography, activities, soils, cover, materials, or other factors are likely to experience erosion. Erosion control BMPs such as seeding, mulching, and sodding prevent soil from becoming dislodged and should be considered first. Sediment control BMPs such as silt fences, sediment ponds, and stabilized entrances trap sediment after it has eroded. Sediment control BMPs should be used to back-up erosion control BMPs.

Management of Runoff

Your SWPPP must contain a narrative evaluation of the appropriateness of stormwater management practices that divert, infiltrate, reuse, or otherwise manage stormwater runoff so as to reduce the discharge of pollutants. Appropriate measures are highly site-specific, but may include, among others, vegetative swales, collection and reuse of stormwater, inlet controls, snow management, infiltration devices, and wet retention measures.

Specifically, these techniques can be applied at water transportation facilities with vehicle maintenance shops and/or equipment cleaning operations. Several examples include:

- Planting vegetation as a buffer along the water's edge to filter stormwater runoff and remove contaminants and soil particles before they reach surface waters
- Building infiltration trenches and (vegetated) swales to create an underground reservoir to hold runoff, allowing it to slowly percolate through the bottom into the surrounding soil
- Building dry wells to collect and store stormwater runoff from rooftops and other relatively "clean" runoff
- Utilizing deep sump catch basins and water quality inlets with or without a retention/ infiltration chamber

A combination of preventive and treatment BMPs will yield the most effective stormwater management for minimizing the offsite discharge of pollutants via stormwater runoff. Though not specifically outlined in this fact sheet, BMPs must also address preventive maintenance records or logbooks, regular facility inspections, spill prevention and response, and employee training.

All BMPs require regular maintenance to function as intended. Some management measures have simple maintenance requirements, others are quite involved. You must regularly inspect all BMPs to ensure they are operating properly, including during runoff events. As soon as a problem is found, action to resolve it should be initiated immediately.

Implement BMPs, such as those listed below in Table 2 for the control of pollutants at water transportation facilities with vehicle maintenance shops and/or equipment cleaning operations,

to minimize and prevent the discharge of pollutants in stormwater. Identifying weaknesses in current facility practices will aid the permittee in determining appropriate BMPs that will achieve a reduction in pollutant loadings. BMPs listed in Table 2 are broadly applicable to water transportation facilities with vehicle maintenance shops and/or equipment cleaning operations; however, this is not a complete list and you are recommended to consult with regulatory agencies or a stormwater engineer/consultant to identify appropriate BMPs for your facility.

Table 2. BMPs for Potential Pollutant Sources Water Transportation Facilities with Vehicle Maintenance shops and/or Equipment Cleaning Operations

Pollutant Source	BMPs
Vessel cleaning (in the water)	❑ When possible, remove boat from water and perform cleaning where debris can be captured and properly disposed. ❑ Avoid in-the-water hull scraping and any abrasive process that occurs underwater that may remove anti-fouling paint from the boat hull. ❑ When washing above the waterline: detergents and cleaning compounds used should be phosphate-free and biodegradable and amounts should be kept to a minimum. ❑ Prohibit the use of traditional sudsing cleaners that must be rinsed off and the use of detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye. ❑ Educate employees on negative impacts of traditional cleaners and supply biodegradable spray type cleaners that do not require rinsing. ❑ Control all equipment, supplies, and trash.
Engine parts washing	❑ Parts washing should be done in a container or parts washer with a lid to prevent evaporation. The parts should be rinsed or air dried over the parts cleaning container. ❑ Prevent and contain spills and drips. Water soluble engine washing fluid should be treated in the same manner as other industrial wastewaters and either recycled or disposed of by a licensed waste hauler.
Surface preparation, sanding, and paint removal	❑ Confine activities to designated areas outside drainage pathways and away from surface waters. ❑ Enclose, cover, or contain blasting and sanding activities to the extent practical to prevent abrasives, dust, and paint chips, and equipment from reaching storm sewers or receiving water. ❑ Hang plastic barriers or tarpaulins to contain debris. ❑ Where feasible, cover drains, trenches, and drainage channels to prevent entry of blasting debris to the system. ❑ Prohibit un-contained blasting or sanding activities performed over open water. ❑ Where sanding is conducted in the water, cover the water near the vessel with floating traps or surround the immediate area with floating booms and remove debris with a skimmer. ❑ Prohibit blasting or sanding activities performed during windy conditions which render containment ineffective. ❑ Bottom paint removal should be conducted over an impermeable surface such as sealed asphalt or cement (not over open ground) with a retaining berm so that the wastewater can be contained. ❑ Collect bottom paint residues for disposal by a licensed waste hauler. ❑ Inspect and clean sediment traps to ensure the interception and retention of solids prior to entering the drainage system. ❑ Use vacuum sanding systems to collect sanding dust as it is created. ❑ Sweep accessible areas of the drydock to remove and properly dispose of debris and spent sandblasting material prior to flooding.

Table 2. BMPs for Potential Pollutant Sources Water Transportation Facilities with Vehicle Maintenance shops and/or Equipment Cleaning Operations (continued)

Pollutant Source	BMPs
Surface preparation, sanding, and paint removal (continued)	❑ Collect spent abrasives routinely and store under a cover to await proper disposal. ❑ Store and re-use/recycle used strippers. Solvent strippers, particularly stripping baths, can generally be reused several times before their effectiveness is diminished. ❑ Use environmentally-sensitive chemical paint strippers. ❑ Inspect the area regularly to ensure BMPs are implemented. ❑ Train employees on waste control and disposal procedures.
Painting	❑ Confine activities to designated areas outside drainage pathways and away from surface waters. ❑ Enclose, cover, or contain painting activities to the maximum extent practical to prevent overspray and related debris/equipment from reaching surface waters. ❑ Hang plastic barriers or tarpaulins during blasting or painting operations to contain debris ❑ Prohibit uncontained spray painting activities over open water. ❑ Prohibit spray painting activities during windy conditions which render containment ineffective. ❑ Use spray equipment that delivers more paint to the target and less overspray. ❑ Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters, preferably indoors or under cover. ❑ Have absorbent and other cleanup items readily available for immediate cleanup of spills. ❑ Allow empty paint cans to dry before disposal. ❑ Store paint and paint thinner away from traffic areas to avoid spills. ❑ Recycle paint, paint thinner, and solvents. ❑ Establish and implement effective inventory control to reduce paint waste, including tracking date received and expiration dates. ❑ Store waste paint, solvents, and rags in covered containers to prevent evaporation to the atmosphere. ❑ Use solvents with low volatility and coatings with low VOC content; use high transfer efficiency coating techniques such as brushing and rolling to reduce overspray and solvent emissions. ❑ Train employees on proper painting and spraying techniques.
Drydock maintenance	❑ Clean and maintain drydock on a regular basis to minimize the potential for pollutants in the stormwater runoff. ❑ Sweep accessible areas of the drydock to remove and properly dispose of debris and spent sandblasting material prior to flooding. ❑ Collect wash water to remove solids and metals for disposal by a licensed waste disposal company. Clean the remaining areas of the dock after a vessel has been removed and the dock raised. ❑ Remove waste, including floatable and other low-density waste (wood, plastic, insulations, etc), and place in closed containers for disposal. ❑ Have absorbent materials and oil containment booms readily available to contain/clean up any spills.

Table 2. BMPs for Potential Pollutant Sources Water Transportation Facilities with Vehicle Maintenance shops and/or Equipment Cleaning Operations (continued)

Pollutant Source	BMPs
Drydock operations	❑ Control all equipment, supplies, and waste. ❑ Use plastic barriers beneath the hull, between the hull and drydock walls for containment. ❑ Use plastic barriers hung from the flying bridge of the drydock, from the bow or stern of the vessel, or from temporary structures for containment. ❑ Weight the bottom edge of the containment tarpaulins or plastic sheeting during a light breeze. ❑ When sandblasting (scuppers, railings, freeing ports, ladders, and doorways), use plywood and/or plastic sheeting to cover open areas between decks. ❑ Install tie rings or cleats, cable suspension systems, or scaffolding to make implementation containment easier. ❑ Inspect the maintenance area regularly to ensure BMPs are implemented. ❑ Train employees on waste control and disposal procedures.
Vehicle and equipment fueling	Stationary fueling areas ❑ Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad and under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. ❑ When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). ❑ Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. ❑ Use fueling hoses with check valves to prevent hose drainage after filling. ❑ Keep spill cleanup materials readily available. ❑ Clean up spills and leaks immediately. ❑ Use dry cleanup methods for fuel area rather than hosing down the fuel area. Sweep up absorbents as soon as spilled substances have been absorbed. ❑ Do not "top-off" fuel tanks. ❑ Minimize/eliminate run-on into fueling areas with diversion dikes, berms, curbing, surface grading or other equivalent measures. ❑ Collect stormwater runoff and provide treatment or recycling. ❑ Provide curbing or posts around fuel pumps to prevent collisions from vehicles. ❑ Regularly inspect and perform preventive maintenance on fuel storage tanks to detect potential leaks before they occur. ❑ Inspect the fueling area for leaks and spills. ❑ Train personnel on vehicle fueling BMPs. Mobile fueling areas ❑ Use drip pan under the transfer hose. ❑ Use fueling hoses with check valves to prevent hose drainage after filling. ❑ Ensure the fueling vehicle is equipped with a manual shutoff valve. ❑ Do not allow topping off of the fuel in the receiving equipment. ❑ Train personnel on vehicle fueling BMPs.

Table 2. BMPs for Potential Pollutant Sources Water Transportation Facilities with Vehicle Maintenance shops and/or Equipment Cleaning Operations (continued)

Pollutant Source	BMPs
Engine maintenance and repairs	Minimizing Exposure ❑ Conduct maintenance and repair operations over land, avoid repairs conducted over water whenever possible. ❑ Move work indoors, if possible, or create temporary work enclosures using heavy-gauge polypropylene plastic stretched over a tubular metal frame (or comparable materials).Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. ❑ If operations are uncovered, perform them on concrete pad that is impervious and contained. ❑ Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. ❑ Check vehicles closely for leaks and use pans to collect fluid when leaks occur. Management of Runoff ❑ Use berms, curbs, or similar means to ensure that stormwater runoff from other parts of the facility does not flow over the maintenance area. ❑ Collect the stormwater runoff from the cleaning area and providing treatment or recycling. ❑ Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycled on-site. DO NOT discharge washwater to a storm drain or to surface water. Good Housekeeping ❑ Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste disposal company. ❑ If parts are dipped in liquid, remove them slowly to avoid spills. ❑ Use drip plans, drain boards, and drying racks to direct drips back into a sink or fluid holding tank for reuse. ❑ Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. ❑ Promptly transfer used fluids to the proper container; ❑ Empty drip pans once they become full and dispose of the contents properly. ❑ Cover and contain waste until it can be disposed, recycled, or reused. ❑ Use suction-style oil pumps to drain crankcase oil, and use absorbent pads to remove oil from bilges. ❑ Engine test tanks should never be drained to surface waters or septic systems. ❑ Maintain an organized inventory of materials. ❑ Eliminate or reduce the number and amount of hazardous materials and waste by substituting nonhazardous or less hazardous materials. ❑ Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). ❑ Store batteries and other significant materials inside. ❑ Dispose of greasy rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. Inspections and Training ❑ Inspect the maintenance area regularly to ensure BMPs are implemented. ❑ Train employees on waste control and disposal procedures.

Table 2. BMPs for Potential Pollutant Sources Water Transportation Facilities with Vehicle Maintenance shops and/or Equipment Cleaning Operations (continued)

Pollutant Source	BMPs
Engine and parts storage	❑ Store on an impervious surface such as sealed asphalt or cement, and cover to avoid contact with stormwater. ❑ Use drip pans to prevent oil and grease from leaking onto the open ground. ❑ Secure engines and parts.
Storing liquid fuels	❑ If area is uncovered, connect sump outlet to sanitary sewer (if possible) or an oil/water separator, catch basin filter, etc. If connecting to a sanitary sewer check with the system operator to ensure that the discharge is acceptable. If implementing separator or filter technologies ensure that regular inspections and maintenance procedures are in place. ❑ Develop and implement spill plans. ❑ Train employees in spill prevention and control. Above ground tank ❑ Provide secondary containment, such as dikes, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). ❑ If containment structures have drains, ensure that the drains have valves, and that valves are maintained in the closed position. Institute protocols for checking/testing stormwater in containment areas prior to discharge. ❑ Use double-walled tanks with overflow protection. ❑ Keep liquid transfer nozzles/hoses in secondary containment area. Portable containers/drums ❑ Store drums indoors when possible. ❑ Store drums, including empty or used drums, in secondary containment with a roof or cover (including temporary cover such as a tarp that prevents contact with precipitation). ❑ Provide secondary containment, such as dikes or portable containers, with a height sufficient to contain a spill (the greater of 10 percent of the total enclosed tank volume or 110 percent of the volume contained in the largest tank). ❑ Clearly label containers with its contents.
Material handling: Storing chemicals	❑ Store containerized materials (fuels, paints, solvents, etc.) in a protected, secure location and away from drains. ❑ Clearly label all containers. ❑ Specify which materials are stored indoors and use containment/enclosure for those stored outdoors. ❑ Store reactive, ignitable, or flammable liquids in compliance with the local fire code. ❑ Identify potentially hazardous materials, their characteristics, and use. ❑ Implement an inventory control plan to control excessive purchasing, storage, and handling of potentially hazardous materials. ❑ Keep records to identify quantity, receipt date, service life, users, and disposal routes. ❑ Secure and carefully monitor hazardous materials to prevent theft, vandalism, and misuse of materials. ❑ Use temporary containment where required by portable drip pans. ❑ Use spill troughs for drums with taps. ❑ Store used lead-acid batteries on an impervious surface, under cover, protected from weather and freezing. If a battery is dropped treat it as if it is cracked. Neutralize acid spills, such as with baking soda, and dispose of the resulting waste as hazardous.

Table 2. BMPs for Potential Pollutant Sources Water Transportation Facilities with Vehicle Maintenance shops and/or Equipment Cleaning Operations (continued)

Pollutant Source	BMPs
Material handling: Storing chemicals (continued)	❑ Develop and implement spill plans or spill prevention, containment, and countermeasure (SPCC) plans, if required for your facility. ❑ Train employees in spill prevention and control and proper materials management.
Designated material mixing areas	❑ Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters. Locate designated areas preferably indoors or under a shed. ❑ If spills occur: - Stop the source of the spill immediately. - Contain the liquid until cleanup is complete. - Deploy oil containment booms if the spill may reach surface water. - Cover the spill with absorbent material. - Keep the area well ventilated. - Dispose of cleanup materials in the same manner as the spilled material. - Do not use emulsifier or dispersant.
Shipboard process water handling	❑ Keep process and cooling water used aboard ships separate from sanitary wastes to minimize disposal costs for the sanitary wastes. ❑ Keep process and cooling water from contact with spent abrasives and paint to avoid discharging these pollutants. ❑ Inspect connecting hoses for leaks.
Shipboard sanitary waste disposal	❑ Discharge sanitary wastes from the ship being repaired to the yard's sanitary system or dispose of by a commercial waste disposal company. ❑ Develop and implement spill plans. ❑ Train employees in appropriate material transfer procedures, including spill prevention and containment activities.
Material	❑ Anti-freeze: Re-use or dispose to a sanitary sewer (if permitted) or by a waste transporter permitted to handle this waste. ❑ Used lead-acid batteries: Disposal by an approved recycler. ❑ Waste oil: Removed by a permitted waste oil transporter or used in a waste oil heater on-site. ❑ Oil filters: Crush or puncture and hot-drain by placing the filter in a funnel over an appropriate waste collection container to allow the excess petroleum product to drain into the container. Drained filters should be collected and recycled when possible. Only filters that have been crushed or hot-drained to remove all excess oil may be disposed of as solid waste. ❑ Mercury lamps and switches: Spent fluorescent bulbs, other mercury lamps, and mercury switches are hazardous waste. They should be stored safe from breakage and recycled or disposed as hazardous waste. ❑ Fiber reinforced plastic (epoxy and polyester resins) Small amounts of unused resins may be catalyzed prior to disposal as solid waste. However, catalyzation is not an acceptable method of disposing of outdated or unneeded resin stores. These materials must be treated as hazardous waste and disposed of by a licensed waste disposal company. ❑ Common solvents such as acetone or methylene chloride evaporate easily and should be kept in covered containers. ❑ Glue and adhesives: Residual amounts of glues and adhesives remaining in empty caulking tubes may be disposed of as solid waste. All other glue and adhesive related wastes must undergo a determination for hazardous waste characteristics. Non-hazardous glues and adhesives in liquid form cannot be disposed of as solid waste and should be used for their originally intended purpose.

Table 2. BMPs for Potential Pollutant Sources Water Transportation Facilities with Vehicle Maintenance shops and/or Equipment Cleaning Operations (continued)

Pollutant Source	BMPs
Material (continued)	❑ Paints, waste diesel, kerosene, and mineral spirits: Disposal should be performed by a licensed waste transporter. These waste products should not be allowed to evaporate; poured on the ground; disposed of in storm sewers, septic systems, or POTWs; or discharged to surface waters. ❑ Waste gasoline: When possible, filter and use as fuel. It should not be allowed to evaporate; poured on the ground; disposed of in storm sewers, septic systems, or sanitary sewers; or discharged to surface waters. It should be removed from site by a licensed waste transporter. ❑ Trash and other solid waste: All trash and solids should be contained and disposed of appropriately in covered trash cans or recycling receptacles. ❑ Plastic barriers and tarpaulins: Properly store plastic barriers and tarpaulins for reuse or disposal.
Bilge and ballast water	❑ Collect and dispose of bilge and ballast waters which contain oils, solvents, detergents, or other additives to a licensed waste disposal company.

What if activities and materials at my facility are not exposed to precipitation?

The industrial stormwater program requires permit coverage for a number of specified types of industrial activities. However, when a facility is able to prevent the exposure of ALL relevant activities and materials to precipitation, it may be eligible to claim no exposure and qualify for a waiver from permit coverage.

If you are regulated under the industrial permitting program, you must either obtain permit coverage or submit a no exposure certification form, if available. Check with your permitting authority for additional information as not every permitting authority program provides no exposure exemptions.

Where do I get more information?

For additional information on the industrial stormwater program see **www.epa.gov/npdes/stormwater/msgp**.

A list of names and telephone numbers for each EPA Region or state NPDES permitting authority can be found at **www.epa.gov/npdes/stormwatercontacts**.

References

Information contained in this Fact Sheet was compiled from EPA's past and current Multi-Sector General Permits and from the following sources:

- Florida Department of Environmental Protection. 2003. Florida's Clean Marina Program. **www.dep.state.fl.us/cleanmarina/about.htm**
- Liebl, David S. 2002. Environmental Best Management Practices for Marinas and Boat Yards. Prepared for Solid and Hazardous Waste Education Center, University of Wisconsin. **www3.uwm.edu/Dept/shwec/publications/cabinet/LIEBL/MarinasandBoatyards.pdf**
- Minnesota Pollution Control Agency. 1997. Managing Marina Waste. Hazardous Waste Division Fact Sheet #4.24. **www.pca.state.mn.us/waste/pubs/4_24.pdf**

- Tanski, Jay. "Stormwater Runoff Best Management Practices for Marinas: A Guide for Operators."
  www.ncseagrant.org/files/PracticesforMarinas.pdf
- U.S. EPA, Office of Compliance. September 1997. Sector Notebook Project: Profile of the Water Transportation Industry. EPA/310-R-97-003
  www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/water.html
- U.S. EPA, Office of Science and Technology. 1999. Preliminary Data Summary of Urban Stormwater Best Management Practices. EPA-821-R-99-012
  www.epa.gov/OST/stormwater/
- U.S. EPA, Office of Wastewater Management. *NPDES Stormwater Multi-Sector General Permit for Industrial Activities (MSGP).*
  www.epa.gov/npdes/stormwater/msgp
- Virginia Institute of Marine Science, College of William and Mary. February 2001. "Marina Management" in Virginia Clean Marina Guidebook. VIMS Educational Series No. 49. VSG-01-03.
  www.vims.edu/adv/cleanmarina/guidebook.htm

From: Womac, Cherri G (EVOSTC)

To: "Craig O"Connor (Craig.R.O"Connor@noaa.gov)"; "Jim Balsiger (jim.balsiger@noaa.gov)"; "Kim Elton (kim_elton@ios.doi.gov)"; "Larry Hartig (larry.hartig@alaska.gov)"; Schorr, Jennifer L (LAW); "Steve Zemke (szemke@fs.fed.us)"; Terri Marceron (chugach_supervisor@fs.fed.us); Terri Marceron (tmarceron@fs.fed.us); Tom Brookover (tom.brookover@alaska.gov); "Pat Pourchot (Pat_Pourchot@ios.doi.gov)"; "Tom Brookover (tom.brookover@alaska.gov)"; Carroll, Samantha J (DNR); Catherine Boerner (catherine.boerner@alaska.gov); "Dede Bohn (Dede_Bohn@usgs.gov)"; Elise M. Hsieh (elise.hsieh@alaska.gov); "Jenifer Kohout (Jenifer_Kohout@fws.gov)"; "Marit Carlson-VanDort (Marit.Carlson-Van.Dort@alaska.gov)"; "Peter Hagen (Peter.Hagen@Noaa.gov)"; "Veronica Varela (Veronica_Varela@fws.gov)"; "Dawn Collinsworth (Dawn.Collinsworth@ogc.usda.gov.)"; "Elise M. Hsieh (elise.hsieh@alaska.gov)"; "Erika Zimmerman"; "Gina Belt (regina.belt@usdoj.gov)"; "Jennifer Schorr (DOL)"; "Joe Darnell"; "Ronald McClain (Ronald.McClain@usda.gov)"

Cc: "Claire Fishwick-Leonard (claire.fishwick@alaska.gov)"; Latarsha McQueen (Latarsha.mcqueen@noaa.gov); "Lesia Monson (Lesia_Monson@ios.doi.gov)"; "Mary Goode"; "Pat Kennedy "; "Rachael Lesslie"; "Tauline_Davis@ios.doi.gov"; Carrie Holba (carrie@arlis.org); Cherri Womac (cherri.womac@alaska.gov); Holba, Carrie A (EVOSTC); Hsieh, Elise (EVOSTC); "John Wojtacha - Superior Computer Solutions"; John Wojtacha (john.wojtacha@alaska.gov); Linda Kilbourne (linda.kilbourne@alaska.gov)

Subject: Updates for Sept. 15 Council meeting

Date: Tuesday, September 13, 2011 2:05:00 PM

Attachments: FY12 DraftWorkPlan 9-13-11.pdf
Estimated APDI Budget with Agency Allocations 09-13-11 Draft.docx
Poore Parcel evaluation 9 11 11.docx
draft motion sheet 091311.doc
Draft TC Agenda Sept 15 2011.doc
edited resolution 11-01 w initial block.pdf
DRAFT Resolution 11- Reaffirm Asset Allocation.pdf
Draft Resolution 11- 11100112A Irvine.pdf
Poore resolution - EVOSTC DRAFT 9 12 11.pdf
draft Resolution FFY 2012 Work Plan - APDI draft emh.pdf

Hello All,

Attached please find updated versions of:

1. Updated APDI:
   -
   a. ADF&G has removed it's $1100 for travel funds, as Tom Brookover will be sitting as trustee and he is in Anchorage.
   b. DOI-FWS has requested $9400 for its staff time.

2. Updated Workplan: Reflects the updated APDI and GA calculations for Jones, Collaborative Data Management project.

3. Draft Motion Sheet: we continue to refine the language in motions to reflect the complexities of funding the various projects and programs.

4. Draft Resolutions: for the following items:
   -
   a. Asset Allocation for FFY'12
   b. Correction of erroneous date on Resolution 11-01
   c. Amendment to Gail Irvine project
   d. Poore parcel
   e. Workplan, which includes all projects, programs, APDI, project amendments and the APDI. It will be accompanied by an Attachment B, which details the funding by agency of any projects funded by the Council.

5. Poore Parcel Evaluation: The attached document provides a helpful summary of the parcel's evaluation of restoration benefits.

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The academic citations for the *Project 12120117: Spatial Synthesis of lingering oil distribution* have been revised. The budget amount and work remain the same as the original proposal, which was circulated before the spring Council meeting. If you would like a copy of the new proposal with the revised citations, please contact Cherri Womac. Please keep in mind that all proposals are confidential unless funded; at which time the funded version is public. Prior versions would remain confidential.

We will have copies of these updated documents available for Trustees at the retreat.

Thank you,

Elise

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From: Womac, Cherri G (EVOSTC)

To: Craig O"Connor (Craig.R.O"Connor@noaa.gov); Jim Balsiger (jim.balsiger@noaa.gov); Kim Elton (kim_elton@ios.doi.gov); Hartig, Lawrence L (DEC); Schorr, Jennifer L (LAW); Steve Zemke (szemke@fs.fed.us); Terri Marceron (chugach_supervisor@fs.fed.us); Terri Marceron (tmarceron@fs.fed.us); Brookover, Thomas E (DFG); Pat Pourchot (Pat_Pourchot@ios.doi.gov); Brookover, Thomas E (DFG); Dawn Collinsworth (Dawn.Collinsworth@ogc.usda.gov.); Hsieh, Elise M (EVOSTC); Erika Zimmerman; Gina Belt (regina.belt@usdoi.gov); Schorr, Jennifer L (LAW); Joe Darnell; Ronald McClain (Ronald.McClain@usda.gov); Carroll, Samantha J (DNR); Boerner, Catherine (EVOSTC sponsored); Dede Bohn (Dede_Bohn@usgs.gov); Hsieh, Elise M (EVOSTC); Jenifer Kohout (Jenifer_Kohout@fws.gov); Carlson-Van Dort, Marit K (DEC); Peter Hagen (Peter.Hagen@Noaa.gov); Veronica Varela (Veronica_Varela@fws.gov)

Cc: Carrie Holba (carrie@arlis.org); Womac, Cherri G (EVOSTC); Holba, Carrie A (EVOSTC); Hsieh, Elise (EVOSTC); John Wojtacha - Superior Computer Solutions; Wojtacha, John (EVOSTC sponsored); Kilbourne, Linda L (EVOSTC); Fishwick, Claire (DEC); Latarsha McQueen (Latarsha.mcqueen@noaa.gov); Lesia Monson (Lesia_Monson@ios.doi.gov); Mary Goode; Pat Kennedy ; Rachael Lesslie; Tauline_Davis@ios.doi.gov

Subject: FW: Update on TC matters and meeting materials

Date: Thursday, September 08, 2011 1:30:22 PM

Attachments: ADF&G Project Review Comments - PJ12120120.pdf
Timeline submitted by WHOI.docx
GoAK MD Removal Proposal with Public Outreach Addendum.pdf
draft motion sheet 090711.doc
Draft TC Agenda Sept 15 2011.doc
Asset Allocation EVOSTC 2011 Sept.ppt
Long-Term Spending Scenario August 2011.doc
EVOS Table 08 24 2011.xlsx
Estimated APDI Budget with Agency Allocations 09-08-11 Draft.docx
FY12 DraftWorkPlan 9-8-11.pdf
2011 Peterson Science Panel Memo to EVOS Trustee Council on Data Issues.docx

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Hello All,

This is an update on Council matters and meeting materials:

1. Long-Term Monitoring and Herring Programs funding cycle start date:

   As you are aware, the Council has also been working toward launching two long-term research programs. If funded, we anticipate these programs may be run though a NOAA grant/cooperative agreement, which will accommodate tailored reporting requirements, ease of administration, and fiscal efficiency. Typically, the Council runs on a federal fiscal year which results in an annual 3-4 month gap in the fall for proposal funding through federal contracts, due to contracting officers' workloads at the beginning of the federal fiscal year. To make up for this, proposers and project managers have had to be "creative" with contracts and (re)assigning funding codes, or do without needed funding. State contracts are always "off-cycle" as the Council does not run on the state's July 1 fiscal cycle.

   To remedy these perennial federal contracting issues, we're looking into having the long-term programs' start date February 1. This would remove the programs' funding cycle from the heavy federal contractual workload period and allow for a scheduled, three-month period to get agreements in place. It also allows for federal fiscal year reporting totals to be somewhat more complete before the next funding authorization and allows ADOR advance notice to time their investment fund liquidations at a more advantageous interval. The programs would have funding year-round, and the lead time would allow Council, contractual and trust agency staff to get things in place for the next round of funding. The Program team leads have been supportive of this potential option.

   To facilitate this shift, the Council will review requests for 16 months of funding for the

long-term programs at the Sept. 15 meeting, for funding from October 2011 – Jan. 31, 2013. All other FFY'12 projects and any continuing projects, would proceed on the October 1 start date.

2. Updated draft annual budget: The APDI has been updated to include:
   - Under Administrative Management, $2500 for Jen Schorr travel related to habitat and other EVOSTC programmatic work
   - Under Science Program: $2500 for the Herring Small Group to work with the Herring Program, if the Program is funded, and to provide feedback to the Council
   - Under Science Program: $16,000 Funding for Long-Term Monitoring and Herring Programs' Fall 2011 PI meeting and $5000 for AMSS PI travel, if the Programs are funded. This is necessary for this year due to the funding gap, discussed above.
     Under Trust Agency Support: $9100 for USFS agency work to support the Council
   - Under Trust Agency Support: $4000 increase for USGS additional project management

3. The Gulf of Alaska Keeper (GoAK) has submitted a revised marine debris proposal, as requested, with a menu of public outreach options for the Council's review. These options are included in the updated Workplan and the GoAk Addendum, both attached. My preliminary recommendations are in favor of funding Proposal 1, Youth Action on Marine Debris, with the Center for Alaskan Coastal Studies, Chugach Forest Service and Alaska Geographic. The proposal is diversified, highly leveraged and well-designed.

4. ADF&G Comments on the Branch Modeling Proposal: As requested by the Council, we have continued to work with ADF&G to dovetail their management needs with the proposed Herring program. ADF&G recommends funding of the Branch modeling proposal, but has some suggestions, which are attached. ADF&G and I recommend the Council fund the Branch modeling proposals, conditional upon the proposal addressing ADF&G's suggested revisions.

5. The Workplan has been updated, revisions include:
   - the GoAK addendum, discussed above
   - ADF&G comments on the Branch modeling proposal, discussed above
   - Science Panel individual comments regarding expansion of long-term monitoring program to include collaborative data management, the original memo from Dr. Peterson is also attached
   - inclusion of the joint NCEAS/AOOS proposal which Trustees received earlier this week
   - multiple new "sub-project" numbers and inclusion of each individual project under the Long-Term monitoring and Herring programs, which were necessary for administrative funding stream tracking

6. WHOI Timeline: Attached is a timeline submitted by WHOI BCO-DMO regarding their concept paper.

7. Long-Term Spending Scenario and Memo:

For the last couple years, the Council has used projected long-term spending scenarios created by the Alaska Department of Revenue to help in planning long-term spending of the Research investment fund. The attached table and memo are updated from the last issued in January 2011. This update illustrates potential spending by the Council, based upon preferred proposals and potential data management expenditures. In January, the Council noted the Risk of Ruin was quite conservative and that the Council was not spending down the fund as they had envisioned. This recent iteration indicates that that issue has been addressed and includes an updated Risk of Ruin.

The Table is a helpful tool for discussion, though it must be remembered that is a rough exercise and some of these figures continue to change, for example with increases in both spending and savings. We recently received updated calculations from our state and federal accounts that we have approximately an additional $1.2 million in unencumbered funds ($1 million of which is from TC office administrative savings) that we can reallocate for use for Council expenditures authorized at the Sept. 15th meeting.

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Womac, Cherri G (EVOSTC)

From: Hsieh, Elise M (EVOSTC)
Sent: Wednesday, September 07, 2011 10:19 AM
To: Craig O'Connor (Craig.R.O'Connor@noaa.gov); Pat Pourchot (Pat_Pourchot@ios.doi.gov); Schorr, Jennifer L (LAW); Steve Zemke (szemke@fs.fed.us); Brookover, Thomas E (DFG); Jim Balsiger (jim.balsiger@noaa.gov); Kim Elton (kim_elton@ios.doi.gov); Hartig, Lawrence L (DEC); Terri Marceron (chugach_supervisor@fs.fed.us); Terri Marceron (tmarceron@fs.fed.us); Brookover, Thomas E (DFG)
Cc: peter.hagen@noaa.gov; Dede Bohn; Pete Peterson; Dawn Collinsworth (Dawn.Collinsworth@ogc.usda.gov.); Hsieh, Elise M (EVOSTC); Erika Zimmerman; Gina Belt (regina.belt@usdoj.gov); Schorr, Jennifer L (LAW); Joe Darnell; Ronald McClain (Ronald.McClain@usda.gov); Fishwick, Claire (DEC); Latarsha McQueen (Latarsha.mcqueen@noaa.gov); Lesia Monson (Lesia_Monson@ios.doi.gov); Mary Goode; Pat Kennedy ; Rachael Lesslie; Tauline_Davis@ios.doi.gov; Carrie Holba (carrie@arlis.org); Boerner, Catherine (EVOSTC sponsored); Womac, Cherri G (EVOSTC); Holba, Carrie A (EVOSTC); Hsieh, Elise (EVOSTC); John Wojtacha - Superior Computer Solutions; Wojtacha, John (EVOSTC sponsored); Kilbourne, Linda L (EVOSTC)
Subject: Data management and synthesis collaboration proposal
Attachments: Data-Management-and-Synthesis-EVOSTC-DPD-v06.pdf; 2011 Peterson Science Panel Memo to EVOS Trustee Council on Data Issues.docx

Hello All,

Attached please find the Collaborative Data Management Proposal submitted by AOOS and NCEAS. As with all proposals, it is confidential until funded.

I have communicated with Molly and we have not highlighted any sections of the proposal, as it has been shortened and simplified. I found it to be a fairly quick read and a good clarification of the roles and collaboration between AOOS and NCEAS. The estimated budget with general data management/synthesis breakdowns is on the cover page; the detailed budget is being reformatted to fit EVOSTC forms and will arrive under separate cover.

Also attached please find a very brief memo from Dr. Charles "Pete" Peterson reviewing the Science Panel's recommendations regarding data management. Pete has been involved with EVOS since the days after the spill and has been a valued member of our Science Panel for decades. He is now also involved in the Deepwater Horizon activities. The Panel charged Pete and Gary Cherr to draft their group comments and continue working with us on the data management issues since the Panel meeting this spring.

Molly McCammon, Pete Peterson and Matt Jones will be available telephonically for a period of time during the retreat to answer any other questions that the Council may have. Molly will also be in attendance at the meeting.

Thank you,
Elise

From: mbjones.89@gmail.com [mailto:mbjones.89@gmail.com] **On Behalf Of** Matt Jones
Sent: Tuesday, September 06, 2011 10:37 PM
To: Hsieh, Elise M (EVOSTC)
Cc: Mark Schildhauer; Bonnie Williamson; Molly McCammon; Bochenek, Rob (DFG sponsored); W. Scott Pegau
Subject: data management and synthesis collaboration proposal

Dear Elise,

It pleases me to submit the attached collaborative proposal ("Collaborative Data Management and Holistic Synthesis of Impacts and Recovery Status Associated with the Exxon Valdez Oil Spill") to you for consideration as a portion of the activities under the Long-term Monitoring and Herring Research and Monitoring projects that you are already evaluating. This current project describes a collaboration on data management, technology development, and synthesis aspects of those projects, specifically to introduce synergies from NCEAS in technologies and processes used to manage EVOSTC-related data in the service of cross cutting synthesis. The collaboration between the earlier LTM and HRM investigators and those of us at NCEAS is maturing nicely and we expect it to be a highly productive relationship. The current proposal is meant to highlight the additional value contributed by NCEAS within the context of the already substantive data management and synthesis activities proposed by the LTM and HRM teams, and so it reviews some of the activities previously proposed by those teams and uses them for context for NCEAS' contributions.

I have asked our UCSB financial staff to send you the completed budget forms as you requested, and so those will arrive under separate cover. If our proposal is awarded, Bonnie Williamson (cc'ed) can help to establish the means and arrangements for a subcontract.

Thank you for this opportunity to contribute to the success of the EVOSTC programs.

Sincerely,
Matt

--
Matthew B. Jones
Director of Informatics Research and Development
National Center for Ecological Analysis and Synthesis (NCEAS)
University of California, Santa Barbara

FY12 INVITATION
PROPOSAL SUMMARY PAGE

Project Title: Collaborative Data Management and Holistic Synthesis of Impacts and Recovery Status Associated with the Exxon Valdez Oil Spill

Project Period: FY12-FY16

Primary Investigator(s): Matthew B. Jones and Mark Schildhauer, National Center for Ecological Analysis and Synthesis (NCEAS), UC Santa Barbara, Molly McCammon and Rob Bochenek, Alaska Ocean Observing System (AOOS), and W. Scott Pegau (PWSSC).

Study Location: General Spill Affected Area

Abstract: The AOOS-led Long-Term Monitoring (LTM) and the PWSSC-led Herring Research and Monitoring (HRM) programs propose an ambitious monitoring and research agenda over the next five years. These efforts could facilitate a more thorough understanding of the effects of the oil spill if the new data and information on the spill-affected ecosystems are effectively managed and collated along with historical data on these systems, and then used in a comprehensive synthesis effort. We propose a collaboration among NCEAS and the AOOS LTM and HRM teams to help build an effective data management cyberinfrastructure for proposed monitoring efforts and organize these data with historical data, including previous EVOSTC-funded efforts, to prepare for synthesis and ensure all data are organized, documented and available to be used by a wide array of technical and non-technical users. Building on the LTM and HRM syntheses and modeling efforts and the 20-year historical data from EVOSTC projects and any available current data, NCEAS would convene two cross-cutting synthesis working groups to do a full-systems analysis of the effects of the 1989 oil spill on Prince William Sound and the state of recovery of the affected ecosystems.

Estimated Budget:

NCEAS budget described here of $1,590,748 total over 5 years

Approximate Subtotal for Data Management: $796.2K

Subtotal for Synthesis: $794.5K

NCEAS Funding Requested:
FY12: 409.7K, FY13: 432.4K, FY14: $335.1K, FY15: $346.6K, FY16: $66.8K

LTM/HRM Data Management, Synthesis, and Modeling (described and budgeted separately in prior proposals at $1,840K)

Date: 9-6-2011

PROJECT PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

In the two decades following the *Exxon Valdez* oil spill (EVOS), and after extensive restoration, research, and monitoring efforts, it has been recognized that full recovery from the spill will take decades and requires long-term monitoring of both the injured resources and factors other than residual oil that may continue to inhibit recovery or adversely impact resources that have recovered. Monitoring information is valuable for assessing recovery of injured species, managing those resources and the services they provide, and informing the communities who depend on the resources. In addition, long-term, consistent, scientific data is critical to allow us to detect and understand ecosystem changes and shifts that directly or indirectly (e.g. through food web relationships) influence the species and services injured by the spill.

An integrated monitoring program requires information on environmental drivers and pelagic and benthic components of the marine ecosystem. Additionally, while extensive monitoring data has been collected thus far through EVOS Trustee Council-funded projects as well as from other sources and made publicly available, much of that information needs to be collated and assessed holistically to understand factors affecting individual species and the ecosystem as a whole. Interdisciplinary syntheses of historical and ongoing monitoring data are needed to answer remaining questions about the recovery of injured resources and impacts of ecosystem change.

Data collected prior to and in response to the Exxon Valdez oil spill are profoundly heterogeneous. They range from long-term, automated sensing of oceanographic and atmospheric conditions, to short-term, experimental, monitoring, and behavioral studies of biological components of the system. The scientific data to be collected in these studies includes data on population trends, behavior, physiology, disease, and genetics of many species, as well as oceanographic and meteorological data at both regional and local scales. This diversity of data and data collection protocols substantially complicates data management by EVOSTC long-term monitoring projects. In addition, investigators on both the long-term monitoring and herring population studies are affiliated with many different institutions and agencies, each currently collecting data from many sites within the spill region and managing it within the frameworks dispersed among these agencies. Any data management system will necessarily need to accommodate this heterogeneity and dispersion by preserving the original data and providing mechanisms to access, integrate, and analyze the data for crosscutting synthesis. Data management activities for oceanographic information occur in isolated, physically distributed agencies, leading to low cross-agency utilization of data. Technical barriers, complex data formats, a lack of standardization and missing metadata have limited access to data and made the utilization of available scientific information cumbersome and daunting. As a consequence, existing data is underutilized and often has not undergone quality assurance.

In this proposal, we outline the collaboration between the National Center for Ecological Analysis and Synthesis (NCEAS), the Alaska Ocean Observing System (AOOS) and their partner Axiom Consulting, and the investigators of the pending Long Term Monitoring (LTM - proposal submitted by McCammon et al.) and Herring Research and Monitoring (HRM –

proposal submitted by Pegau et al.) programs (see Figure below). This project will augment the expertise in data management and synthesis of these groups to maximize the efficiency of data collection and management for the LTM and HRM programs and expand access to these data, collate additional historical data that are useful for synthesis from the EVOS affected area, and conduct a broad-ranging synthesis of twenty years of EVOSTC funded research data to generate a comprehensive assessment of ecosystem impacts and recovery status for the spill affected area.

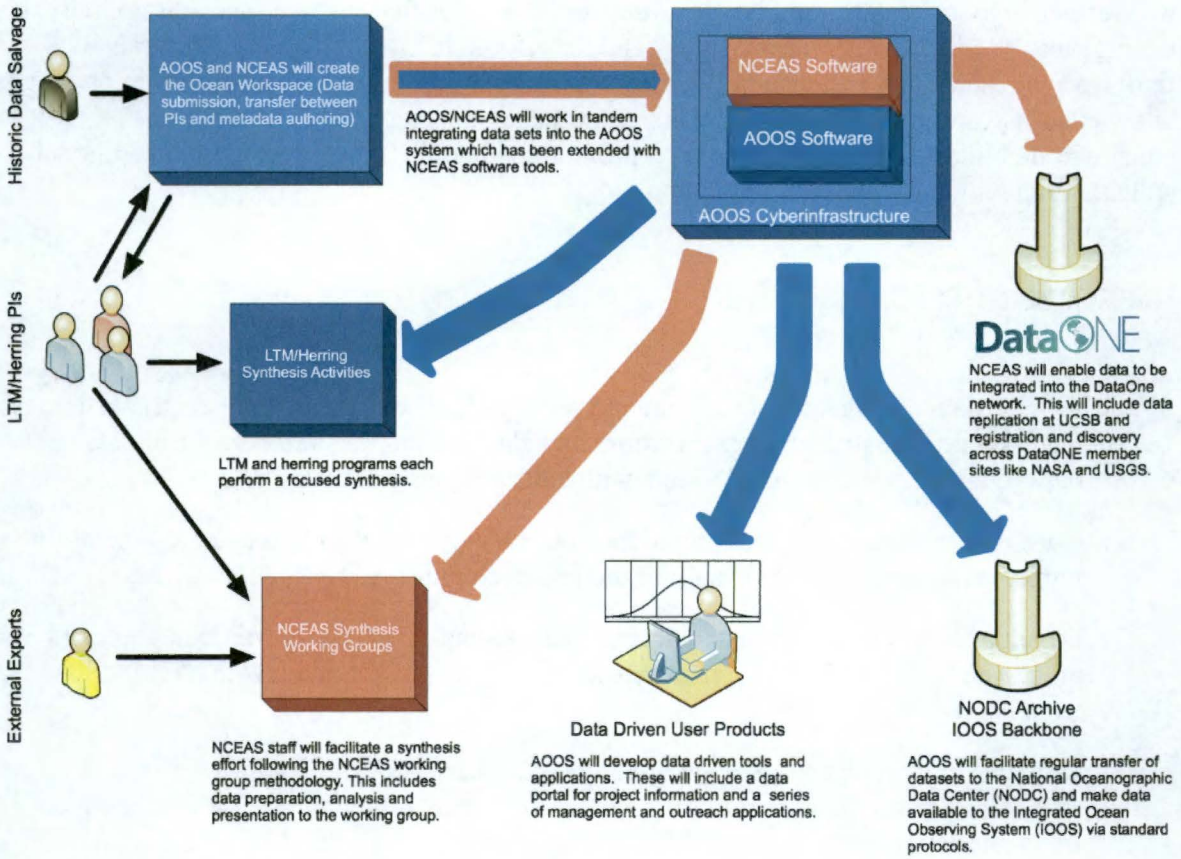

Figure 1. Conceptual description of AOOS/NCEAS/PWSSC collaboration on data management and synthesis activities.

This collaboration document augments the data management, infrastructure development, and synthesis activities previously proposed by the AOOS partners with additional objectives that introduce new technologies from NCEAS to jointly improve the data management infrastructure available to researchers, broaden the scope of data collation and integration, and embark on an ambitious synthesis plan (Figure 1). During the first two years, NCEAS will focus on mining historical data and contributing to development of both the AOOS cyberinfrastructure and the DataONE Federation infrastructure in order to create the necessary data resources for synthesis; during years 3-5, NCEAS will conduct a multi-year working group effort using LTM and HRM principal investigators (PIs) and other internationally renowned researchers to synthesize what is known about spill effects and recovery of ecosystems. These activities will be interwoven with the complementary but distinct data management, technology development, and analysis

activities previously proposed by Axiom and AOOS and which are referenced in the objectives below.

B. Relevance to 1994 Restoration Plan Goals and Scientific Priorities

The LTM and HRM program proposals outline the relevance of the proposed monitoring, data management and syntheses efforts to the EVOSTC 1994 Restoration Plan goals. This project will further support Restoration Plan priorities for "strategies that involve multi-disciplinary, interagency, or collaborative partnerships" and for efforts that will "include a synthesis of findings and results, and will also provide an indication of important remaining issues or gaps in knowledge" (Restoration Plan p. 16). This proposed data management and synthesis collaboration builds on the LTM and HRM programmatic efforts and leverages an additional collaboration with the DataONE federation.

II. PROJECT DESIGN

A. Objectives

1) Provide data management oversight and services for project team data centric activities that include data structure optimization, metadata generation, and transfer of data between project teams (AOOS lead, with contributions from NCEAS).

2) Consolidate, standardize and provide access to study area data sets that are critical for retrospective analysis, synthesis and model development (AOOS and NCEAS).

3) Develop tools for user groups to access, analyze and visualize information produced or processed by the LTM and Herring Research efforts (AOOS lead, with contributions from NCEAS).

4) Organize, integrate, analyze, and model the 20-year historical data from EVOSTC-funded projects and other monitoring in the spill area in preparation for synthesis (under LTM and HRM programs and in NCEAS working groups) (NCEAS lead with AOOS contributions).

5) Integrate all data, metadata and information products produced from this effort into the AOOS data management system for long-term storage and public use (AOOS lead).

6) Augment AOOS/IOOS preservation and interoperability system with other data systems through integration of DataONE services (NCEAS lead).

7) Conduct additional broad synthesis activities on spill impacts and recovery as part of whole-ecosystem analysis through NCEAS working groups (NCEAS lead with AOOS and PWSSC contributions).

B. Procedural and Scientific Methods

Objective 1. Provide data management oversight and services for EVOS LTM and HRM project team data centric activities that include data structure optimization, metadata generation, and transfer of data among project PIs and between project teams.

Details of these efforts are provided in the individual detailed project descriptions for the data management components included in both the LTM and HRM projects. Because project level data is so heterogeneous in nature and is composed of a wide variety of observational types (see Table 1 in LTM data management proposal, which details an initial effort by the AOOS data management team to assess the characteristics of individual LTM data collection activities), a broad range of data management approaches are needed to manage the data in an automated, standard fashion and to facilitate integration. In addition, the project Principal Investigators (PIs) need both flexible and powerful tools to assist them in sharing, archiving and documenting their research products. AOOS data management staff will provide the primary support for these efforts with the AOOS Ocean Workspace, a web-based platform for PIs to post and share data sets and rapidly author metadata. The system will be enabled with security authentication in order to temporarily limit access to LTM and HRM investigators, project managers and administrators before data are quality controlled; non-sensitive data will be publicly released after quality processing. The system will also provide PIs with tools to generate metadata profiles that comply with national standards. Initially, this system will focus on authoring FGDC metadata formats including tools for authoring the biological extension for taxonomic classifications and measurements.

NCEAS engineers will work with the AOOS data team to extend the AOOS data infrastructure to incorporate additional metadata tools and catalogs that are customized for project-based data management for biological data. The design will include both tools for data access and for data contribution and management by the participating scientific staff. The planned AOOS Ocean Workspace (based on non-proprietary open-source standards endorsed by the national Integrated Ocean Observing System) will be enhanced with more biologically-oriented data management tools in order to enable individuals to describe and deposit all of their heterogeneous data in a uniform data repository. Many tools for biological data management, such as metadata generation tools (e.g., Morpho), data analysis tools (e.g., R, Matlab), and synthesis tools (e.g., Kepler) have been developed in parallel to oceanographic tools in use by IOOS; NCEAS will incorporate these tools as appropriate into AOOS systems such as Ocean Workspace, and where that does not make sense, provide interoperability solutions that allow the appropriate tools to work with the AOOS infrastructure (see Objective 6 below). In addition, the heterogeneous data collected by the LTM and HRM projects necessitates a sophisticated data search and discovery system that is effective across data from historical and current LTM and HRM projects. NCEAS will build on their prior work in this area to create a Smart Semantic Search Service that will be deployed as part of the AOOS infrastructure.

This integration of tools from NCEAS contributors into the AOOS cyberinfrastructure will be conducted after a thorough design review and cyberinfrastructure development plan is jointly assembled by AOOS and NCEAS as part of the initial needs and solutions assessment.

Objective 2. Consolidate, standardize and provide access to related and historic data sets that are critical for retrospective analysis, synthesis and model development within the LTM and HRM programs.

This task will involve isolating and standardizing historic data sets deemed necessary for retrospective analysis by EVOSTC LTM and HRM program synthesis and modeling efforts. Early in the effort the EVOSTC LTM and HRM program researcher teams will be engaged to prioritize sources of relevant data deemed of high value for the synthesis effort. Data will be prioritized by several metrics including its utility to LTM and HRM program syntheses as well as system-wide synthesis efforts (Objective 7), accessibility of the data, length of time series, scientific importance, quality and precision of the data storage format, and the cost of obtaining the data (digitization can be expensive). All data acquired through efforts of this project will be merged into the AOOS data system for long term archival and access.

LTM PIs have already developed a preliminary list of historical data sources under their stewardship which could be of potential value to the LTM program and synthesis effort (see Table 2 in LTM data management proposal), as well as those data PIs would be interested in getting access to are currently unaware of sources (Table 3 in LTM proposal). AOOS funding leverages numerous data sets available through the AOOS website and data system, including the herring and PWS ecosystem data sets that were standardized and made available through the actions of the PWS Herring Portal Project (EVOS Project 070822, 080822 and 090822).

Although data capture will be a collaborative effort, we expect to roughly divide activities into three focal sets of data: 1) LTM and HRM data sets that are newly collected under these projects (AOOS focus); 2) Other EVOSTC project data sets, both current and historical, that lay outside of the LTM and HRM projects (NCEAS focus); and 3) external data sets from other funding groups (joint NCEAS and AOOS focus depending on source).

Objective 3. Develop tools for user groups to access, analyze and visualize information produced or processed by the LTM and HRM efforts.

AOOS will take the lead on these efforts, as described in the data management DPDs for the LTM and HRM programs. The AOOS data team will work with project investigators to develop web-based data driven tools based upon prioritization and direction from agency managers, outreach staff and user groups. Effective data summarization and visualization exposes problems, manifests trends, and allows for high-level comparisons with other sources of information. Data visualization products are also ideal tools to communicate information to audiences with varying degrees of familiarity in meaningful and easily understandable ways. NCEAS will provide input and expertise into development of these tools.

Objective 4. Organize, integrate, analyze, and model the 20-year historical data from EVOSTC-funded projects in the spill area in preparation for LTM and HRM program and NCEAS working group synthesis efforts.

The current AOOS plan is to emphasize the capture of historical data from previous studies related to the Exxon Valdez oil spill during the first two years of the project, as well as to prepare the system to receive the monitoring data generated during this project. NCEAS will collaborate with the AOOS team in order to collate, summarize, visualize, and integrate these historical data

in order to prepare them for synthesis and analysis. NCEAS has developed a group of scientific programmers who specialize in assisting in cross-cutting analysis and modeling, and we will employ one of these scientific programming specialists along with a graduate student assistant to collate, standardize, integrate, summarize, and visualize the data needed for synthesis activities. Digital, graphical and visualization products generated by NCEAS from the 20-year historical datasets will be used for the cross-cutting synthesis activities of the year three EVOSTC joint workshop between the LTM and HRM programs and for the broader EVOS impact syntheses described in Objective 7. Products from these activities will include: data summaries and visualizations from each of the prioritized EVOSTC data sets; quality assurance analyses on input data to resolve issues prior to analysis; integrated data products that resolve methodological differences to combine multiple related primary data sets into long-term, cross-scale derived data products; and analyses of these derived products that illustrate long-term, cross scale aspects of spill impacts and recovery. These activities will build upon the LTM and HRM program synthesis and conceptual ecological modeling efforts focused on the monitoring program data. Please see the detailed project descriptions on LTM synthesis (Holderied), LTM ecological modeling (Hollmen), HRM synthesis (Pegau), and HRM modeling for additional information, as well as the synthesis activities in Objective 7 regarding cross-cutting synthesis efforts.

Objective 5. Integrate all data, metadata and information products produced from this effort into the AOOS data management system for long-term storage and public use.

The ultimate goal of this project is to provide services to assist in the organization, documentation and structuring of data collected and made available via EVOS LTM and HRM project activities so that it can be transferred efficiently to long term data archive and storage centers and made available for future use by researchers and other user groups. This task will leverage the AOOS cyberinfrastructure, long-term funding and other active data management projects being undertaken by that organization. Data sets produced from the integrated research effort will be served to users by extending existing data access, analysis and visualization interfaces currently supported and under development by the AOOS data management team. AOOS systems have the capabilities to ingest, archive and serve model output, remote sensing and real time/archived sensor data streams, and, as of fall 2011, ingest and archive GIS and project level data. AOOS is currently developing a mirror site in Portland, OR to ensure long-term security of its data and software. In addition, AOOS has prioritized working with state and federal agencies to ensure long-term access and archiving of agency data and information products.

Objective 6. Augment AOOS preservation and interoperability system with other non-IOOS data systems through integration of DataONE services.

NCEAS will augment the capabilities of the AOOS data system by incorporating the services that are part of the DataONE data federation[1]. These include open services for writing data and metadata, controlling access to data products as they are populated in the system, and services for replication and preservation of data. By using the DataONE service framework, this will also link the AOOS and IOOS system to the DataONE federation, which includes partners such as the U.S. Geological Survey, Knowledge Network for Biocomplexity and NASA Distributed Active

[1] http://dataone.org

Archive Centers. This broader federation will be critical in other stages of the project, especially for access to satellite data during synthesis and analysis activities.

In addition, DataONE services include a comprehensive, cross-institutional data preservation model that involves mirroring of data at multiple DataONE participating institutions and continuous active monitoring to ensure data remain valid and that adequate replication is present even in the event of institutional failures. In this project, we will establish the AOOS Asset Catalog as a Member Node in the DataONE network, and thus be able to replicate all EVOS data to DataONE partner institutions to ensure longevity, accessibility, and validity of EVOS data. Funding for these replicas will largely be supported through storage already available on the DataONE network (approximately 1.2 petabytes available for replication), although exceedingly large data sets (above ten terabytes) will need to be discussed.

Objective 7. Conduct broad synthesis activities on EVOS impacts and recovery as part of whole-ecosystem analysis through NCEAS working groups.

Since 1995, the National Center for Ecological Analysis and Synthesis (NCEAS)[2] has been advancing the state of ecological and environmental knowledge through synthetic and collaborative research that aims to discover general patterns and principles based on existing data. The premise at NCEAS is that many decades of data have been collected that can be synthesized to produce novel insights into important scientific and societal issues, and that the expertise and information resources necessary to accomplish these syntheses are latent but distributed throughout the science community. To promote effective synthesis of environmental data, NCEAS has sponsored and executed more than 450 working groups over 15 years, many of which have had major scientific and policy impacts (e.g., changes in habitat conservation plans for endangered species, and creation of marine reserve initiatives based on scientific principles). Sociological studies of the working groups in action at NCEAS have demonstrated major shifts in the culture of synthesis in ecology and gains in collaborative productivity via the working group model at NCEAS (Hackett et al. 2008).

Despite decades of monitoring and analysis of EVOS-affected systems, there is still a major lack of understanding of oil spill impacts and recovery at a holistic level. Many of the studies to date have been at the single species level, and recovery status is tracked on a case-by-case basis. In addition, because all of the historical data have never been fully integrated, it has been impossible to conduct a holistic analysis of the effects of the oil spill and recovery of impacted regions. Such a holistic view is critical to guide future monitoring and recovery initiatives, which are expected to continue for decades. NCEAS and PIs from the LTM and HRM programs will conduct two holistic synthesis activities aimed at understanding the long-term, ecosystem-wide consequences of EVOS and the effectiveness of recovery initiatives:

- Synthesis Working Group: Assessing Ecosystem-wide, Long-Term Impacts from the Exxon Valdez Oil Spill
- Synthesis Working Group: Understanding Ecosystem Recovery following the Exxon Valdez Oil Spill

[2] http://www.nceas.ucsb.edu

The first will address system-wide impacts from EVOS, and the second will specifically focus on an assessment of recovery of affected systems and reasons for recovery successes and failures that will assist in future recovery initiatives. As detailed below in methods, the products from these syntheses will include a series of reports and academic papers supported by synthesized data, archived models and analyses, and archived model outputs.

These syntheses will build upon the more focused efforts to be conducted by the LTM and HRM programs. For example the working group on *Understanding Ecosystem Recovery* will benefit from the efforts to understand the recovery of an individual species (herring), but expand upon that to include other species including those in the LTM program. It will also provide an opportunity to further explore the connections between environmental variables to the recovery of herring and other species. Because the working group approach takes a more holistic approach than the individual species approach proposed by the HRM program we expect that in answering the question of *Understanding Ecosystem Recovery* we will provide new findings that will guide the LTM and HRM programs in the future.

C. Data Analysis and Statistical Methods

Data Management and Infrastructure Methods

The overarching strategic plan for the AOOS data system is described in detail in both the LTM and HRM data management detailed project descriptions. It involves implementing an end-to-end technological solution which allows data and information to be channeled and distilled into user-friendly products while simultaneously enabling the underlying data to be assimilated and used by the emerging external data assembly systems. AOOS will lead the development of this system, with NCEAS contributing to the design and implementation, particularly in areas where dealing with data heterogeneity is paramount, such as semantic search. The system has four tiers: 1) data, models and metadata; 2) interoperability systems which facilitate data search, query and delivery; 3) an asset catalogue and Smart Semantic Search Services; and 4) user applications that are web-based. The intended result is the facilitation of rapid data discovery, improved data access, understanding, and the development of knowledge about the physical and biological marine environment. This system meets all the standards of the national Integrated Ocean Observing System.

The asset catalog developed by AOOS will provide an index of all project data and provide direct connections to other Alaska data systems as well as those of the national Integrated Ocean Observing System and Global Ocean Observing Systems. The analysis and synthesis activities described in this proposal however, will also need access to a much broader set of data available not only from AOOS and IOOS, but also from other federated data systems such as NASA's Earth Science Data Information System (ESDIS) and the Earth Observing System Clearinghouse (ECHO). NCEAS engineers will work with the AOOS data team to enhance the AOOS asset catalog, in particular by linking it to the DataONE federated catalog, thereby providing access to non-IOOS data, such as MODIS and other satellite data managed by DataONE Member Nodes. This linkage will require NCEAS to extend AOOS data systems to be compatible with the interoperable web services framework used by DataONE. Current and emerging AOOS web services will be harmonized with DataONE services to allow applications to connect to the asset catalogue and get access to the underlying descriptions of all known data sources. Thus,

EVOSTC data will be directly incorporated at the national and global scales into both the IOOS oceanographic data network as well as other data federations via DataONE, thereby greatly expanding agency and public access. When complete, all data deposited in the AOOS system will also be replicated to participating DataONE member nodes, which are continuously monitored for availability and integrity to enable long-term data preservation.

Due to data heterogeneity, data discovery is difficult for complex, multidimensional and cross-disciplinary data that will be collected by the LTM and HRM program research teams. The AOOS system incorporates a metadata authoring tool that includes extensions for biological metadata. In this project, NCEAS and AOOS will expand on that system and build **Smart Semantic Search Services** that understand the scientific content of data to improve the effectiveness of data searches. The NCEAS team has pioneered a semantic scientific observations model that allows scientists to precisely discover measurements of interest and subset data to only include observations relevant to their studies. NCEAS developed the Extensible Observations Ontology (OBOE; Madin et al. 2008) to enable semantic search and access services that facilitate much higher precision and recall than have been possible with traditional metadata-driven systems. We will incorporate these semantic search services into the AOOS Tier 3 asset catalog, and help to develop the catalog so that semantic markup of data on ingest is easily accomplished. Thus, in addition to managing information about data availability and access methods, the asset catalogue will also contain ontologies that map source data descriptions and metadata to a common set of internally stored terms with strict definitions. This mapping will allow users to easily locate related sets of information without having explicit knowledge of the internal naming conventions of each data-providing agency. The development of an internal ontology will also enable future endeavors to connect the asset catalogue to global ontologies in the semantic web. Because the asset catalogue contains a semantic definition of data sources and maps all known data sources to a common definition, applications can be developed which connect users to vast arrays of data through simple but powerful interfaces.

Collaborative Synthesis and Analysis Methods

Two working groups consisting of LTM and HRM program PIs with additional nationally renowned scientists will undertake a broad synthesis of the 20-year data set from EVOSTC-funded projects and other spill area monitoring to improve our assessment of impacts and recovery associated with the EVOS:

- Synthesis Working Group: Assessing Ecosystem-wide, Long-Term Impacts from the Exxon Valdez Oil Spill
- Synthesis Working Group: Understanding Ecosystem Recovery following the Exxon Valdez Oil Spill

The working group syntheses will build on and expand programmatic syntheses conducted under the proposed LTM and HRM programs.

NCEAS has an extensive history of convening highly productive synthesis activities through its use of a working group model, involving face-to-face meetings and ongoing virtual collaboration supported by the Center (Hackett et al. 2008). Under this successful NCEAS model, committed working group participants conduct relevant analysis and modeling on a continuous basis for approximately two years, punctuated by periodic working meetings to come to consensus and drive further work by participants. The momentum of the group is maintained by postdoctoral

fellows, funded by this proposal, that reside at NCEAS, working on the group's analysis, modeling, and other synthesis tasks while being able to take advantage of the computational and analytical support services available at NCEAS. Working Groups are composed to represent a wide variety of scientific expertise, including both scientists that are closely involved in the problem at hand, as well as researchers from adjoining disciplines that help broaden the scientific perspective of the group. In addition, Working Groups typically include a mix of more senior scientists and younger scientists that are eager to dive into the required analysis and modeling activities. Although all travel expenses are paid for by the project, Working Group participants serve voluntarily on these working groups, making the activities especially cost effective.

To initiate these Working Group activities, NCEAS will organize and constitute the groups during year two, and working group activities will commence in year 3. Working Group leaders will be selected for their knowledge of the issues at hand as well as their ability to effectively motivate a group of up to 14 other working group participants. We would expect that many of the PIs from the LTM and HRM programs would be participants in the synthesis working groups along with nationally renowned experts in population and community modeling, ecosystem modeling, and coupled whole-system analysis. In addition, because NCEAS is already running a working group on ecotoxicology associated with the BP Deepwater Horizon spill[3], we would expect significant coordination and cross-pollination with these new EVOS synthesis groups.

Based on the preparatory data analysis and modeling conducted to assemble and integrate the 20-year historical data set with available current data from the LTM and HRM program syntheses (see Objective 4), NCEAS will work with the leaders of the "Assessing Impacts" and the "Understanding Recovery" working groups to outline an initial set of goals and deliverables for each of the two working groups. At a minimum, each group will produce a comprehensive synopsis report of results from analysis and modeling of the impacts and recovery in the historical and current data that will be written into a series of papers targeting both the science and management communities. The groups will also provide input to the LTM and HRM program teams on recommendations for evolution of the EVOSTC-funded monitoring efforts beyond the initial 5-year programs. All analyses, models, results, and data backing these conclusions will be published alongside these papers in the spirit of open science and to maximize reproducibility of the results (see the previous NCEAS Global Marine Impacts[4] synthesis for an example of this type of output). The actual synthesis activities and products will be selected by working group participants and driven by the data analysis and modeling to maximize working group effectiveness and the relevance of their products. However, example synthesis activities might include cross-scale analysis of the relationship between oceanographic processes and the recovery of forage fish; meta-analysis of the relationship between extent of injury and extent of recovery for organisms crossing taxonomic groups (e.g., mammals, birds, fish, plankton); and, performance of forecasting of cross-trophic recovery scenarios in light of observed population trends.

D. Description of Study Area

The study area for this project will include the entire EVOS spill affected area. The north, east, south, and west bounding coordinates of this area are 59.767, -145.837, 61.834, and -154.334

[3] Anderson, Cherr, and Peterson; Ecotoxicology of the Gulf Oil Spill: A holistic Framework for Assessing Impacts

[4] http://www.nceas.ucsb.edu/globalmarine

E. Coordination and Collaboration with Other Efforts

We propose to integrate the efforts in this project as an additional part of the multi-disciplinary "Long-Term Monitoring of Marine Conditions and Injured Resources and Services" program proposal submitted by McCammon et al. to the EVOSTC. The project represents a collaboration among AOOS, NCEAS, and the other LTM and HRM science project PIs both for individual program data management and in developing syntheses that connect individual project results.

Regarding the data management aspect, AOOS brings extensive experience with creation, collation, and access to extensive oceanographic (physical, chemical and biological) data throughout Alaska, as well as a variety of visualization tools and products for resource managers and marine stakeholders. Its initial focus has been on serving up real-time sensor and remote sensing data and forecast models. A new application in October 2011 will include the ability to query, discover and access project level and GIS data sets. In addition, AOOS brings a significant level of leveraged resources, regional data management projects and partnerships to this effort, which could not be accomplished for the budgeted amount without these leveraged resources. These include funded projects for the Alaska Ocean Observing System's Ocean Data Portal, the Prince William Sound Science Center, Northern Forum/USFWS Seabird Data System, the Alaska Department of Fish and Game, and the Cook Inlet Regional Citizens Advisory Council.

NCEAS brings complementary skills to the data management efforts. They have extensive expertise in cyberinfrastructure systems for synthetic environmental science (c.f., Reichman et al. 2011, Jones and Gries 2010, Jones et al. 2006). NCEAS has developed software systems supporting long-term data preservation and sharing, is a leader in metadata systems for science data, and is a progenitor of the DataONE[5] interoperability framework to create a global data federation for open access to scientific data. NCEAS' focus on project-level data management for highly heterogeneous data allow the management of current and legacy data that are critical to synthesis but that often are not captured by large-scale agency data systems, such as the EOSDIS program or the IOOS program. Thus, the initiatives at NCEAS for capturing complex but smaller-scale biological and physical data will be an effective complement to the ocean observatory data management systems that are provided by AOOS.

The syntheses efforts of the LTM, HRM, and NCEAS programs are to be synergistic. The syntheses of the LTM and HRM programs are expected to be program focused. The NCEAS working group syntheses efforts will build upon and augment the programmatic syntheses of the LTM and HRM programs by using a larger-scale synthesis of historical and current monitoring data to provide an assessment of the overall ecosystem impacts of and recovery from the EVOS. There is coupling between the LTM and HRM programs in that the environmental factors important to herring survival are primarily collected in the LTM program and herring represent an important factor in controlling the upper trophic level observations of the LTM. However, the collaboration with NCEAS will allow a more holistic view of how the findings of these programs are connected not only to each other, but with other types of research being conducted. The LTM and HRM program syntheses and personnel are expected to be an important resource for the NCEAS efforts to build upon. In turn the NCEAS led efforts will provide new perspectives

[5] http://dataone.org

to help guide future LTM and HRM efforts. It should be noted that the success of the NCEAS efforts depends on the participation of members of the LTM and HRM programs because of their intimate knowledge of the ecosystem within the EVOS affected region.

III. SCHEDULE

A. Project Milestones focused on NCEAS Activities

Objective 1. Provide data management oversight and services for EVOS LTM project team data centric activities that include data structure optimization, metadata generation, and transfer of data between project teams.

This objective will be addressed by AOOS and NCEAS throughout the entire span of the project and will follow the annual cycle of field data collection and analysis by principal investigators. NCEAS milestones will include incorporation of project-specific data management tools into the Ocean Workspace and development of Smart Semantic Search Services for data discovery.

Objective 2. Consolidate, standardize and provide access to study area data sets that are critical for retrospective analysis, synthesis and model development.

This objective will be primarily met by AOOS and NCEAS by the fourth quarter of year two of the effort (September 2013). However, AOOS will continue to add data to the system throughout the entire life of the project, and NCEAS will continue to add data as needed by synthesis efforts through year 4.

Objective 3. Develop tools for user groups to access, analyze and visualize information produced or processed by the LTM and HRM efforts.

For AOOS, see milestones in LTM and HRM detailed project descriptions. For NCEAS, analysis and visualization tools that are incorporated into the system will be available at the end of year 2 when other software deliverables are produced.

Objective 4. Integrate all data, metadata and information products produced from this effort into the AOOS data management system for long-term storage and public use.

This objective will be addressed throughout the entire span of the project. The AOOS data system is to serve as the vessel to capture all project level data produced through this effort in addition to those datasets salvaged to inform the historic synthesis effort. This task will be ongoing as long as the program is producing or acquiring additional data.

Objective 5. Provide preservation and interoperability with other non-IOOS data systems through integration of DataONE services.

Initial integration with DataONE will occur in year 1 with a prototype release in Quarter 4, and a final release of DataONE services in year 2 Quarter 4. Once operational, data will continue to be replicated to DataONE as they are produced throughout the span of the project.

Objective 6. Organize, integrate, analyze, and model the 20-year historical data from EVOSTC-funded projects and other monitoring in the spill area in preparation for LTM and HRM program and NCEAS working group synthesis efforts

Historical and newly generated data will be collated throughout years 1 and 2, with integration and modeling of these occurring as they are collated. Data and modeling summaries will be posted in Quarter 4 of year 1, and the complete historical data set will be available in Quarter 4 of year 2. NCEAS working groups will continue to integrate the data used in their synthesis activities with new data from LTM and HRM projects as it becomes available during years 3 and 4.

Objective 7. Conduct broad synthesis activities on spill impacts and recovery as part of whole-ecosystem analysis through NCEAS working groups.

Organization of synthesis activities will begin in year 2, with working group meetings and synthesis activities occurring throughout years 3 and 4. Publications and final analyses and conclusions of working groups will be produced in year 5, but we expect some of the publications in earlier years.

B. Measurable Project Tasks by NCEAS

FY12 1st Quarter (October 1, 11 to December 31, 11)

October	Project authorized by trustee council
October	NCEAS staff hiring and reallocation when funds become available
November	Collaborate with AOOS to initiate historic data aggregation effort
November	Attend LTM program PI meeting
December	Draft historic data set manifest
December	Design and begin implementation of DataONE integration

FY12 2nd Quarter

January	Prioritize historic datasets for inclusion into synthesis efforts
January	Design and begin implementation of data discovery and management tools
February	Begin historic data aggregation effort and integration into AOOS
March	Begin ongoing integration, analysis, and modeling (throughout year)

FY12 3rd Quarter

May	Attend HRM program PI meeting

FY12 4th Quarter

August	Submit input for LTM program annual report
September	Initial analysis results drive FY13 data salvage and integration
September	DataONE integration prototype demonstration

FY13 1st Quarter (October 1, 12 to December 31, 12)

October	Assess/Validate year 1 datasets and metadata submitted through AOOS and NCEAS

November	Participate in LTM program PI meeting and support first LTM conceptual modeling workshop
December	Prototype data discovery and management tools demonstration

FY13 2nd Quarter

FY13 3rd Quarter

May	Participate annual HRM program PI meeting
June	Complete integration of data salvaged into AOOS DM System
July	Full release of data discovery and management tools

FY13 4th Quarter

September	Select synthesis working group leaders, organize WG activities
September	DataONE Integration services released

FY14 1st Quarter (October 1, 13 to December 31, 13)

October	Assess year 2 datasets and metadata submitted to AOOS
October	Finalize user access tool work plan version 1 and initiate development
November	Participate in LTM program PI meeting

FY14 2nd Quarter

Winter	EVOSTC workshop with LTM and HRM programs supported by LTM and HRM synthesis reports and NCEAS historical data synthesis

FY14 3rd Quarter

May	Participate in annual HRM program PI meeting

FY14 4th Quarter

September	Create synopsis of FY14 synthesis WG meetings, draft publications

FY15 1st Quarter (October 1, 14 to December 31, 14)

October	Assess year 3 datasets and metadata submitted through AOOS
November	Participate in LTM program PI meeting

FY15 3rd Quarter

May	Participate in annual HRM program PI meeting
May	Submit input for five-year plan for FY17-22

FY15 4th Quarter

September	Create synopsis of FY15 synthesis WG meetings, draft and submit publications

FY16 1st Quarter (October 1, 15 to December 31, 15)

October	Assess year 4 datasets and metadata submitted through AOOS
November	Continue working on acceptance of synthesis group publications
November	Participate in LTM program PI meeting

FY16 4th Quarter

September Finalize all synthesis group papers and products

References

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Womac, Cherri G (EVOSTC)

From: Womac, Cherri G (EVOSTC)
Sent: Wednesday, August 17, 2011 2:39 PM
To: Campbell, Cora J (DFG); Craig O'Connor (Craig.R.O'Connor@noaa.gov); Jim Balsiger (jim.balsiger@noaa.gov); Kim Elton (kim_elton@ios.doi.gov); Larry Hartig (larry.hartig@alaska.gov); Schorr, Jennifer L (LAW); Steve Zemke (szemke@fs.fed.us); Terri Marceron (chugach_supervisor@fs.fed.us); Terri Marceron (tmarceron@fs.fed.us); Pat Pourchot (Pat_Pourchot@ios.doi.gov); Tom Brookover (tom.brookover@alaska.gov); Carroll, Samantha J (DNR); Catherine Boerner (catherine.boerner@alaska.gov); Dede Bohn (Dede_Bohn@usgs.gov); Elise M. Hsieh (elise.hsieh@alaska.gov); Jenifer Kohout (Jenifer_Kohout@fws.gov); Marit Carlson-VanDort (Marit.Carlson-Van.Dort@alaska.gov); Peter Hagen (Peter.Hagen@Noaa.gov); Veronica Varela (Veronica_Varela@fws.gov); Dawn Collinsworth (Dawn.Collinsworth@ogc.usda.gov.); Elise M. Hsieh (elise.hsieh@alaska.gov); Erika Zimmerman; Gina Belt (regina.belt@usdoj.gov); Jennifer Schorr (DOL); Joe Darnell; Ronald McClain (Ronald.McClain@usda.gov)
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Subject: Additional materials for Sept 15 TC meeting
Attachments: Ballachey-Esler.pdf; Branch Modeling Proposal.pdf; Carls.pdf; FY12DraftWorkplan 8-17-11.pdf

Attached are the proposals for Ballachey, Branch and Carls that were previously included in the overall program proposals. They were extracted from the programs to stand alone giving a more concise funding amount. Also attached is the most current FFY 2012 Draft Work Plan. The Work Plan will be posted to the EVOS web site.

For those Trustees that I am preparing binders for, these documents will be included in your binder/packet.

Cherri

Womac, Cherri G (EVOSTC)

Subject: FW: Sept 15 pre-meeting briefing materials
Attachments: Sept 15 mtg materials.zip

From: Womac, Cherri G (EVOSTC)
Sent: Monday, August 15, 2011 4:49 PM
To: Campbell, Cora J (DFG); Craig O'Connor (Craig.R.O'Connor@noaa.gov); Jim Balsiger (jim.balsiger@noaa.gov); Kim Elton (kim_elton@ios.doi.gov); Larry Hartig (larry.hartig@alaska.gov); Schorr, Jennifer L (LAW); Steve Zemke (szemke@fs.fed.us); Terri Marceron (chugach_supervisor@fs.fed.us); Terri Marceron (tmarceron@fs.fed.us); Pat Pourchot (Pat_Pourchot@ios.doi.gov); Tom Brookover (tom.brookover@alaska.gov); Carroll, Samantha J (DNR); Catherine Boerner (catherine.boerner@alaska.gov); Dede Bohn (Dede_Bohn@usgs.gov); Elise M. Hsieh (elise.hsieh@alaska.gov); Jenifer Kohout (Jenifer_Kohout@fws.gov); Marit Carlson-VanDort (Marit.Carlson-Van.Dort@alaska.gov); Peter Hagen (Peter.Hagen@Noaa.gov); Veronica Varela (Veronica_Varela@fws.gov); Dawn Collinsworth (Dawn.Collinsworth@ogc.usda.gov.); Elise M. Hsieh (elise.hsieh@alaska.gov); Erika Zimmerman; Gina Belt (regina.belt@usdoj.gov); Jennifer Schorr (DOL); Joe Darnell; Ronald McClain (Ronald.McClain@usda.gov)
Cc: Claire Fishwick-Leonard (claire.fishwick@alaska.gov); Latarsha McQueen (Latarsha.mcqueen@noaa.gov); Lesia Monson (Lesia_Monson@ios.doi.gov); Mary Goode; Pat Kennedy ; Rachael Lesslie; Smith, Abby E (DFG); Tauline_Davis@ios.doi.gov; Carrie Holba (carrie@arlis.org); Cherri Womac (cherri.womac@alaska.gov); Holba, Carrie A (EVOSTC); Hsieh, Elise (EVOSTC); John Wojtacha - Superior Computer Solutions; John Wojtacha (john.wojtacha@alaska.gov); Linda Kilbourne (linda.kilbourne@alaska.gov)
Subject: Sept 15 pre-meeting briefing materials

Hello All,

This is your second summary of issues for review at the upcoming September Council meeting. The first email was on June 3rd and summarized asset allocation for FFY'12 and gave updates on the progress of the preferred proposals. This email reviews the Council's draft agenda action items in order.

As with the prior email, the attachments are provided for those who would like review these topics in more detail. Meeting documents will be available to you in notebook and/or electronic form from Cherri Womac prior to the meeting.

The teleconferenced PAC meeting was held July 26th; the Council meeting is Sept. 15th. Briefings are scheduled with Council members August 22 and August 31. However, I'd be happy to provide additional briefings in addition to those scheduled, just send me an email to set up a time.

The FFY 12 Work Plan is currently being revised and will be forwarded mid-week, still in time for review prior to your pre-meeting briefings.

We'd be happy to answer any questions or forward additional information, just let us know.

Elise

Agenda item #5:

Asset allocation for FFY'12 (Elise Hsieh and Bob Mitchell, ADOR): The June 3rd email summarized the Investment Working Group and Executive Director's recommendation that the Council maintain the current asset allocation for FFY'12.

Correction of Erroneous date on Resolution 11-01 (Elise Hsieh): Resolution 11-01/Jacobs and Mutch Anchor River Small Parcels cited from prior Council authorizations an erroneous purchase agreement execution date. To correct this error, the dates are corrected on 11-01 and each Council member can initial the last page of the corrected resolution alongside a prepared explanation. The purchase of this parcel has already closed; this correction serves to make sure past documentation is correct.

Agenda Item #6: **Amendment to Gail Irvine Project 11100112** (Dede Bohn, USGS): Lingering oil project sampling delayed by weather. Request for $61,700 for FFY'12 to complete sampling. Recommendation by Exec. Director and Science Coordinator to approve amendment.

Agenda Item # 7: **Draft APDI** (Elise Hsieh and Linda Kilbourne, Admin. Manager): The draft FFY'12 EVOSTC Annual Administrative Budget is attached and includes highlighted summaries in any category that has a shifted budget amount. We have continued to decrease the administrative budget but have also started to position our existing and trustee agency staff to support the long-term programs. As noted last year, Public Information & Outreach is now included in our Administrative Management, though we do expect some extra costs in this area when we produce additional materials and reports after the long-term programs develop new data. Below is an overview of the administrative budget over the last five years:

APDI 5-Year Budget Comparison FY08 - FY12

Component	FFY08 Budget	FFY09 Budget	FFY10 Budget	FFY11 Budget	FFY12 Budget
Administration Management	$743,824	$720,572	$804,663	$813,693	$708,137
Data Management	$214,294	$210,902	$149,991	$152,080	$137,885
Science Management	$368,202	$696,129	$468,539	$231,336	$256,951
Public Information & Outreach	$40,330	$183.665	$136,850	$0	$0
Public Advisory Committee (PAC)	$37,060	$48,505	$37,605	$37,060	$16,132
Trustee Council Member Direct Expenses	$29,975	$29.975	$29,975	$29,975	$3,597
Habitat Protection Program	$109,000	$109,000	$109,000	$109,000	$203,174
Trust Agency Support/Project Management	$363,951	$354,339	$367,033	$339,774	$247,915
Alaska Resource Library & Information Services	$167,533	$177,565	$166,372	$137,119	$71,182
Total	**$2,270,028** Does not include FY08 NOS Grant of $89,040. **Total $2,359,068**	**$2,530,652**	**$2,270,028**	**$1,834,123**	**$1,644,973**

Agenda Item #8: **Poore Small Parcel** (Samantha Carroll, ADNR): Attached please find a summary of Kenai Habitat Parcels and the Poore parcel benefits form and pictures of the parcel.

Agenda Item #9: **FFY'12 Proposals** (Catherine Boerner, Science Coordinator)

At the last meeting, the Council selected preferred proposers and requested adjustments to some the proposals. Below are brief summaries for those preferred proposals where changes were made in response to

prior comments. Please see the attached Draft Workplan FFY'12 for more detailed summaries of each proposal and comments/recommendations by the PAC and Science Panel. PAC comments will also be updated and circulated to the Council after the July 26th meeting. Full proposals are also available; please contact Sherri Womac. Procedurally, we will provide a draft motion sheet with all proposals received; a motion will be made for each of these proposals for Council approved or opposition to indicate whether the proposal will be funded.

A. *Herring:* The herring program has responded to Science Panel recommendations. The programs and ADF&G recommend that the Council partially-fund an ADF&G position to coordinate with the program, with an emphasis on modeling. Science Panel individual comments support the inclusion of this position, and also recommend that this position review herring stock assessment models before a second-stage of modeling uses such data as a foundation. For data management for this program, see below, Agenda Item #10.

B. *Long-Term Monitoring:* The LTM program has responded to Science Panel recommendations and Science Panel individual responses are favorable. For data management for this program, see below, Agenda Item #10.

C. *Harbor Protection and Marine Restoration:* The June 3 email to you noted that the City of Seward responded to concerns regarding legal requirements of the proposed facility and addressed competitive advantage concerns. NOAA has also submitted a proposal with a reduced budget, which addresses prior concerns.

D. *Marine Debris:* Gulf of Alaska Keeper is working to strengthen their public outreach and determine whether Council funds would be eligible for federal matching funding. In between debris cleanup trips this summer, they have are collaborating with the Chugach Children's Forest.org project, Alaska Geographic, and the Chugach School District to involve students from Chenega and Tatitlek, and the Alaska Sealife Center regarding an interactive marine debris exhibit. GoAK had a teleconference with involved parties last week regarding outreach. We expect they will be requesting some additional funds and will have a rough outline of prospective outreach in time for the Sept. 15th meeting.

Agenda Item #10: **Data management for Long-Term Monitoring and Herring Programs** (Elise Hsieh)

Thank you to all for making time in your schedules to meet, discuss and review documents over the summer regarding data management. We have forwarded summaries of the teleconferences with NCEAS and WHOI in prior emails and are currently scheduling a similar discussion with AOOS. As detailed in the notes from the Aug. 5th teleconference, we have also requested from AOOS and NCEAS:

1. A "joint proposal" from AOOS and NCEAS. This would likely build on the concept paper and AOOS data management component from the Program proposal and should focus on:

a. a breakdown and identification of the components and their costs; they are particularly interested in separating the costs of the first two years of the NCEAS concept paper's suggested activities, versus the costs of the subsequent synthesis efforts.

b. an identification of the synthesis efforts of NCEAS and those of the LTM/Herring program and how they may or may not relate and/or overlap.

A brief document from AOOS identifying how a NCEAS collaboration would enhance AOOS data management activities and add value. How would the NCEAS work improve the work of the PIs and the access to data of others doing the work? This is likely to draw on documents submitted prior.

3. A teleconference with AOOS, similar to the conference they had with NCEAS and WHOI.

Considering data management options: background re-cap

As detailed in the June 3, 2011 email Update, the Council has been considering options for data management for the long-term programs and options from two leaders in the field: National Center for Ecological Analysis and Sythesis (NCEAS) and the Biological Chemical Oceanographic Data Management Office (BCO-DMO) at Woods Hole Oceanographic Institute (WHOI).

Although there was an acknowledged need for data management and work with our historical data, the FFY'12 Invitation did not address or include funds for data management, as a potential solution had not emerged. Data management can run as much as 30% of a research budget. For the long-term monitoring and herring programs, the current proposals allocate approx. $1.1 m to data and approx. $15 to research, plus 9% GA. Although under the 30% scenario, data management would be approx. $5 million for the two programs over five years, I suggested NCEAS and WHOI/BCO-DMO use a considerably lower, rough budget of $1.5 million/5-years to use as a target for their concept papers.

NCEAS/AOOS: As previously discussed, NCEAS worked with the long-term programs in developing their concept document, which collaborates with AOOS/Axiom and had access to their proposals. We asked isolated NCEAS staff to review Axiom's proposal and prior work and were pleased when they gave a positive review of the concepts and work to date which add confidence to the recommendations for a NCEAS/AOOS collaboration; Axiom has also submitted all late deliverables. The NCEAS concept paper builds the suggested $1.5m budget onto programs' proposed $1.1 and includes data management, creation of a database and two subsequent synthesis work groups, for a total of approx. 20% of the research budget.

WHOI: Although they are also open to collaboration with Axiom and/or NCEAS, the Woods Hole group here offers a stand-alone proposal for database creation and management, along with a lesser-budget option to maximize the options presented for the Council. Their proposal includes an Option 1 at $2.245 (15% of the research budget) for data management and an Option 2 at $1.567 (10%), though this Option may not be feasible due to the actual costs, as these are estimates and BCO-DMO is working without access to the program proposals.

Historical datasets: All involved also acknowledge that the Council has a backlog of historical data which feed into these long-term programs and would increase the scientific value of these datasets; integrating those historical datasets which are valuable may also take some effort.

We very much appreciate both groups and their quick work in producing options for the Council. The programs and both data groups are highly complimentary about each other and very positive about any potential collaborations that could emerge from this process.

Funding Data Management and the FFY'12 Proposals: an update

Under any scenario, data management is a necessary, but costly, expense. In addition, we also anticipate that there will be some additional expenses with the total FFY'12 amounts, if preferred proposals are approved. For example, the long-term monitoring proposal submitted lingering oil projects for separate, additional funding to allow for their $700,000 data budget and, upon request, the herring program has submitted a modeling project. The GoAK outreach proposers will also likely seek some additional funding to expand their outreach with other organizations.

At this time, we anticipate the Council will be able to allocate funds to data management using funds saved by budget-cutting and funds previously considered for other uses. Some potential savings to offset increases in other areas include:

- Due to continued budget-cutting in our administrative office, the administrative budget (APDI) from last year did not use approximately $450,000 of the budgeted amount. This substantially reduces the amount needed to be pulled from the investment funds for the 2012 APDI.

-The APDI is also $100,000 less this year than projected. This reduction would result in $500,000 plus 9% GA in savings over the next five years.

-At the April meeting and consistent with Science Panel and Public Advisory recommendations, the Council did not choose a $700,000 proposal for Lessons Learned as a preferred proposal. Consistent with recommendations to consider a better use of the funds, the herring program and ADF&G were queried by the Council as to whether additional funds would assist the program. The program and ADF&G responded with a recommendation for a $70,000 funding of a partial-herring position which has been included in the APDI, thus retaining the $700,000 plus 9% GA to fund data, which is a recognized need for the herring and Long-term monitoring programs. We have been in communication with a NOAA an effort in this area, which may require some amount of this funding but the details have not been presented for Council approval.

Over the last couple years, the Council used a long-term spending scenario forecast created by the Alaska Department of Revenue (ADOR) to assist in planning. We are currently working with ADOR to review our projections of these future spending scenarios and to include preferred proposals and proposed Data Management to give a perspective on proposed spending levels. We anticipate this update will be ready for circulation in advance of the Sept. 15th meeting.

From:	Hsieh, Elise M (EVOSTC)
To:	Craig O"Connor (Craig.R.O"Connor@noaa.gov); Pat Pourchot (Pat_Pourchot@ios.doi.gov); Schorr, Jennifer L (LAW); Steve Zemke (szemke@fs.fed.us); Brookover, Thomas E (DFG); Burns, John J (LAW); Campbell, Cora J (DFG); Jim Balsiger (jim.balsiger@noaa.gov); Kim Elton (kim_elton@ios.doi.gov); Hartig, Lawrence L (DEC); Terri Marceron (chugach_supervisor@fs.fed.us); Terri Marceron (tmarceron@fs.fed.us)
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Subject:	Update on Trustee Council matters
Date:	Friday, June 03, 2011 11:48:53 AM
Attachments:	EVOSTC 2011 May.ppt investment_policies.pdf May 13 2011 City of Swd to TC.pdf Draft Apr 19 2011 Trustee Council Meeting notes.doc Draft TC Agenda Sept 2011.doc

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Hello All,

The purpose of this email is to provide summaries and updates on some of the matters that will be reviewed at the September Council meeting. I will be sending additional email this summer with updates as these and other Council matters progress.

Attachments are included to provide additional detail, if desired. They include a draft agenda for the September meeting and the draft April meeting notes. In advance of the September meeting we will re-send any attached materials and the final proposals for FFY'12 and deliver tabbed binders, for those who request it. We will summarize any major revisions in the FFY'12 proposals and provide any new Science Panel or PAC comments to help focus your final review.

The PAC has a teleconferenced meeting scheduled for July 26. Trustees will be briefed in late-August.

Let me know if you need any additional information or would like to be briefed in the interim. Also, feel free to contact me at any time with any questions, suggestions or thoughts you may have as we move forward with these efforts.

Elise

1. **Investment Work Group: Recommendation to maintain current Asset Allocation**

Members of the Investment Work Group, Jen Schorr (ADOL), Jim Balsinger (NOAA), Bob Mitchell (ADOR) and Joe Darnell (DOI-Solicitor's office) met in May to review the Council's current asset allocation and to provide a recommendation in September to the Council for the next year's allocation. Attached is a presentation by Bob Mitchell of the Alaska Department of Revenue. See attached, *EVOSTC 2011 May.ppt*. Bob has worked closely with the Council over the last two years with regard to its investments, asset allocations and future spending projections and planning. As way of background, the Investment Working Group met sporadically from 2000 – 2006. In 2009, the group was "reconstituted" and met to discuss the dramatic market shifts and which approach

to take with regard to the investment funds. The group recommended, and the Council subsequently chose, to maintain the asset allocations and to not react to the dramatic shifts with defensive sell-offs. This choice had a positive outcome, with the Council's funds rebounding from their 2008-2009 losses.

As detailed in Bob's presentation, the Council has in recent years pursued a 5% real (after inflation) return. However, given the current expected returns for equities and fixed income in this year's Callan Capital Market Assumptions, achieving an expected return of 5% real would result in an asset allocation that has a fixed income allocation of 21% and an expected standard deviation of returns of over 14%. This would result in a fixed income allocation which would be materially lower than the historical asset allocations for the EVOSTC funds, and the standard deviation would be materially higher. See attached, *EVOSTC 2011 May.ppt* at page 8. Given recent TC discussions about spending the Research and Habitat account down over time, and the approaching Koniag option-decision date, setting the target asset allocation to its highest-ever risk level seems inappropriate at this time. Due to this, the group was supportive of the recommendation to maintain the current asset allocation.

The Council's Investment Policy, which dates from 2000, could also be updated in the near future to reflect the Council's current efforts to fund restoration efforts through the next twenty years at consistent levels and to spend down the accounts. See attached, *investment policies.pdf.* I can work with the Investment Working Group and ADOR to provide a draft update for the Trustees at a future date.

2. **Long-Term Monitoring and Herring Data Management: Working toward a data management solution**

At its April meeting, the Council requested data management options for the Long-Term Monitoring and Herring programs to address concerns raised at the Council, Science Panel and PAC meetings. Below is a status update of the progression in this area:

Past discussion: The FFY'12 Invitation had basic requirements for data accessibility, but did not include funding for development of a database, as the data issue had not been resolved at the time of the issuance. In earlier discussions, there was agreement that there was a need for a database which could eventually be turned over to a trust agency. However, there was not a clear solution with regard to whom could develop, house and maintain such a database.

Current goal: Thus, the current goal is to assist the programs in producing a database and management plan that is multi-dimensional and sophisticated enough to support subsequent scientific synthesis efforts and ease of use by others, such as managing agencies and the public. In addition, there are EVOSTC-funded historical datasets which can be valuable additions to a long-term database. Achieving these goals requires funding and both technical and scientific expertise from the outset, as well as PI involvement. The programs will benefit from getting these efforts underway so they are moderately in place for the field season next summer and the collection of data. In addition, the programs are working to ascertain a date for a late fall PI meeting; this meeting can be combined with a data management introduction and discussion so that

researchers are included early on as an inherent part of developing a successful database and plan, which all parties agree is essential.

Recommendation to bring in outside entity: To achieve this recognized need, the Science Panel, PAC, science coordinator and executive director suggested that an outside entity work with the long-term program's data contractor, AOOS/Axiom, to establish a data management plan and database. By hybridizing the data management, the programs can take advantage of the leveraged assets of AOOS and the reduced cost of a local contractor populating and maintaining a database and handling PI communications, but with the experienced review and collaboration from an expert in the field.

Which outside entity? The number of entities which have experience in facilitating the development of complex, scientific databases are few in number. We have been in discussions with the National Center for Ecological Analysis and Synthesis (NCEAS) and the Biological Chemical Oceanography Data Management Office, at the Wood's Hole Oceanographic Institution (BCO-DMO):

-NCEAS (http://www.nceas.ucsb.edu/impact) was universally recognized and lauded by each member of the science panel and the science coordinator. They typically work through a competitive process to provide funding for working groups, though the Council work would be a special project funded by the Council and taken by NCEAS on due to their interest in the potential data to be used by subsequent working groups for analysis and synthesis. NCEAS has 12-20 Ph.D. programmers and scientists who specialize in facilitating complex working groups with regard to data, including terrestrial, global, marine, economic, sociological , with a core focus on ecology. NCEAS has hosted over 450 working groups, over 4000 visiting scientists and has on-site data storage, a scientific programming crew, collaborative web area and specialize in facilitating solutions in informatics and analysis.

-NCEAS is ranked one of the top ecological institutes and has produced more than 1,800 publications in over 250 journals, with participation from 57 countries and over 500 entities, including over 240 public agencies and NGOs focused on resource management. NCEAS projects have influenced public policy and resource management, including providing testimony before Congress to the development of analytical tools. NCEAS Ecoinfomatics group is a leading developer of technological tools for analysis and synthesis in ecology and has obtained significant funding from NSF and private foundations for more than a dozen ecoinfomatics research projects. NCEAS also provides access to its data through an international data repository.

-The programs are supportive of a collaborative relationship to develop the needed plan and database and welcomes the opportunity to work with NCEAS. The programs note that NCEAS is an established entity with an excellent track record for facilitating the development of complex databases in this field while AOOS provides leveraged assets of long-term support for a data warehouse and archive system for Alaska physical, biological and chemical data. NCEAS has expressed interest in working with the program and has been generous with their time during this initial, exploratory phase.

- BCO-DMO, at the Wood's Hole Oceanographic Institution (http://bco-dmo.org/), also specializes in managing data sets of similar complexity and diversity as would be produced by the Council's long-term programs. There is less familiarity with this entity by our Science Panel and staff and they do not work with synthesis, as NCEAS does. However, the group has experience with diverse datasets and is interested in the programs. We look forward to continuing to work with them on a potential data option for the programs and appreciate their interest in the programs.

3. **Seward Harbor Project: Response received to Council's requests**

Attached is additional information from the Seward Harbormaster regarding their proposed Vessel Wash-Down and Wastewater Recycling Facility. See attached, *May 13 2011 City of Swd to TC.pdf.*

Proposed Facility Legally-Required? With regard to the question of whether the proposed Facility is legally required, the attached packet includes the ADEC APDES Inspection report from June 2010 and the City attorney's letter summarizing the status of the 2005 lawsuit against the City of Seward. It appears that there are no outstanding legal requirements. ADOL and USDOJ are currently reviewing this additional information and I will let you know if they reach an alternate conclusion.

Would Council funding of the proposed project give the City of Seward an unfair economic advantage over other Harbor's facilities? The proposed project is for a vessel wash down and wastewater recycling facility. The City notes that vessel owners chose a facility based upon their homeport, fuel cost involved to reach the facility, size/cost of the travelift services and the availability of parts and maintenance. The availability of a wash-down pad, as proposed in this project, is not typically a consideration. Each spill-area community had the opportunity to submit an application, though only the City of Seward made the effort to do so.

4. **NOAA Clean Harbor Proposal: Submitted revised proposal with reduced budget, as requested by Council**

The City of Seward project does not require the use of all the funds set aside in the Council's invitation for Harbor protection. Thus, in response to the TC's request, NOAA has submitted a revised proposal with a reduced budget of $1,000,000 and with an additional $450,450 of NOAA leveraged funding. We will circulate this proposal with all final proposals in mid-July to those members of the PAC who have submitted a confidentiality form and to the Trustees.

5. **Gulf of Alaska Keeper Marine Debris Proposal: Working on improving community outreach and determining eligibility of funds for fed match**

In response to the Council's request, the Gulf of Alaska Keeper has contacted Eyak Corporation, Native Village of Eyak and Howard Ferren, Director of Conservation at the Seward SeaLife Center. They have also reached out to Chenega and Port Graham. In addition, they are working with NOAA to ascertain whether TC funds would be eligible for matching federal grants. It appears that they may be if transferred through certain channels for the funds to maintain their eligability.

Resolutions

RESOLUTION 11-01 OF THE *EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL REGARDING THE JACOBS AND MUTCH ANCHOR RIVER SMALL PARCELS

We, the undersigned, duly authorized members of the *Exxon Valdez* Oil Spill Trustee Council ("Trustee Council"), after extensive review and after consideration of the views of the public, find as follows:

1. On March 17, 2008, the Trustee Council resolved through Resolution 08-03 to provide funds for the State of Alaska to contribute matching funds in the amount of $175,000 toward the purchase of the Seller's rights and interests in the Jacobs and Mutch Anchor River small parcels, consisting of a total of 84 acres, subject to certain conditions. One of the conditions was that a purchase agreement had to be executed by ~~June 30~~ DECEMBER 31, 2009, 2009. The Seller is The Nature Conservancy.

2. Although The Nature Conservancy agreed to convey the land to the State for the matching funds authorized in the Trustee Council's resolution of March 17, 2008 ($175,000) and the State expected to complete the acquisition, a purchase agreement was not executed prior to ~~June 30~~ DECEMBER 31, 2009, 2009 as required by the Trustee Council's March 17, 2008 resolution.

3. On August 31, 2009, the Trustee Council reauthorized the funds through Resolution 09-12 and set June 30, 2010 as the deadline for execution of the purchase agreement. That deadline passed without an executed purchase agreement. The closing documents are currently under review by the Seller and then will be reviewed by the Bureau of Land Management.

4. For all of the reasons detailed in the Trustee Council's resolution of March 17, 2008, the Trustee Council continues to find that the purchase of the Jacobs and Mutch small parcels is an appropriate means to restore a portion of the injured resources and services in the spill area. The Nature Conservancy has agreed that the requested matching funds from the Trustee Council remain at $175,000.

THEREFORE, we resolve to provide matching funds for the State of Alaska to acquire all of the seller's rights and interests in the Jacobs and Mutch small parcels pursuant to the conditions outlined in the Trustee Council's Resolution 08-03, except that the authorization for funding for any acquisition described in Resolution 08-03 shall terminate if a purchase agreement is not executed by October 30, 2011.

/// /// ///

Approved by the Trustee Council at its meeting of November 3, 2010, held in Anchorage, Alaska, as affirmed by our signatures affixed below:

STEVE ZEMKE
Trustee Alternate
Chugach National Forest
U.S. Department of Agriculture

for DANIEL S. SULLIVAN
Attorney General
State of Alaska

KIM ELTON
Senior Advisor to the Secretary
for Alaska Affairs
U.S. Department of the Interior

CRAIG R. O'CONNOR
Special Counsel
National Oceanic & Atmospheric
Administration
U.S. Department of Commerce

DENBY S. LLOYD
Commissioner
Alaska Department of Fish and Game

LARRY HARTIG
Commissioner
Alaska Department of Environmental
Conservation

*We approve correcting the erroneous purchase agreement execution date of June 30, 2009 to the correct date of December 31, 2009 in paragraphs 1 and 2 on page 1 of this resolution. The December 31, 2009 date was correctly identified in the Trustee Council's Resolution 08-03 dated March 17, 2008. The June 30, 2009 purchase and execution date was erroneously identified in Trustee Council Resolution 09-12 dated August 31, 2009. Approved at the Trustee Council's September ____, 2011 meeting as affirmed by our initials affixed below.

_____ US DOA, Forest Service Trustee alternate: Steve Zemke

_____ US DOI, Senior Advisor to the Secretary for Alaska Affairs: Kim Elton

_____ US NMFS, Regional Administrator Jim Balsiger

_____ ADOL, alternate for Attorney General John Burns: Jennifer Schorr

_____ ADEC, Commissioner Larry Hartig

_____ ADF&G, Commissioner Cora Campbell

RESOLUTION 11-** OF THE *EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL PERTAINING TO THE ASSET ALLOCATION FOR PERIOD OCTOBER 2011- OCTOBER 2012

The *Exxon Valdez* Oil Spill Trustee Council (the "Council") is responsible for the management and investment of the *Exxon Valdez* Oil Spill Joint Trust Fund (the "Joint Trust Fund"). The Joint Trust Fund is used by the governments for purposes of restoring, replacing, enhancing, rehabilitating or acquiring the equivalent of natural resources and services lost or injured as a result of the oil spill.

Public Law 106-113 allows investment of the Joint Trust Funds (EVOSTC Research Investment, EVOSTC Habitat Investment, EVOSTC Koniag Investment) outside the United States Treasury but limits investments to "income-producing asset classes, including debt obligations, equity securities, and other instruments or securities that have been determined by unanimous vote of the Council to have a high degree of reliability and security."

The investment objective for the joint Trust Funds, as described in the Investment Policies adopted by the Trustee Council on February 29, 2000, is to provide adequate liquidity for ongoing restoration purposes and preserve the inflation-adjusted value of the principal, while realizing competitive, total rates of return. In order to meet this investment objective, the Trustee Council unanimously agreed on this date that Joint Trust Fund monies shall be invested outside the Federal Court Registry under the authority of Public Law 106-113. The Council has reviewed the capital market returns and risk assumptions developed by the Alaska Department of Revenue, Division of Treasury's, Callan Associates (dated February 2011).

THEREFORE, BE IT RESOLVED THAT the Council adopts the following asset allocation.

ASSET ALLOCATION

Domestic Equities	47% +/- 7%
International Equities	23% +/- 7%
Domestic Bonds	30% +/- 5%

Approved by the Council at its meeting of September __, 2011 held in Anchorage, Alaska, as affirmed by our signatures affixed below.

STEVE ZEMKE
Trustee Alternate
Chugach National Forest
U.S. Department of Agriculture

JOHN J. BURNS
Attorney General
Alaska Department of Law

KIM ELTON
Senior Advisor to the Secretary
for Alaska Affairs
U.S. Department of the Interior

JIM BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service
U.S. Department of Commerce

CORA CAMPBELL
Commissioner
Alaska Department of Fish and Game

LARRY HARTIG
Commissioner
Alaska Department of Environmental
Conservation

DRAFT 8/2/2011

RESOLUTION 11- OF THE *EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL REGARDING AUTHORIZATION FOR ADDITIONAL FUNDS FOR PROJECT 11100112-A**

We, the undersigned, duly authorized members of the *Exxon Valdez* Oil Spill Trustee Council do hereby certify that, in accordance with the Memorandum of Agreement and Consent Decree entered as settlement of *United States of America v. State of Alaska* No. A91-081 Civil, U.S. District Court for the District of Alaska, and after public meetings, unanimous agreement has been reached to expend funds received in settlement of *State of Alaska v. Exxon Corporation, et al.,* No. A91-083 CIV, and *United States of America v. Exxon Corporation, et al.,* No. A91-082 CIV, U.S. District Court for the District of Alaska, to make available additional funds for Irvine Project 11100112-A, Lingering Oil on Boulder-Armored Beaches in the Gulf of Alaska, 22 Years After the *Exxon Valdez* Oil Spill in the amount of $56,600 plus applicable General Administration (GA) for federal fiscal year 2012. These funds are necessary to complete sampling, which was aborted due to weather delays. The funds being requested under this amendment replace those spent in FFY11, and will allow for completion of the fieldwork in FFY12. The monies are to be distributed according to the following schedule:

U.S. Geological Survey (includes 9% GA)	$61,700
TOTAL TO UNITED STATES OF AMERICA	$61,700
TOTAL APPROVED	**$61,700**

By unanimous consent, we hereby request the Alaska Department of Law and the Assistant Attorney General of the Environmental and Natural Resources Division of the United States Department of Justice to take such steps as may be necessary to make available additional funds as noted above for Irvine Project 11100112-A from the appropriate account designated by the Executive Director.

Approved by the Council at its meeting of September 15, 2011 held in Anchorage, Alaska as affirmed by our signatures affixed below.

STEVE ZEMKE
Alternate Trustee
Chugach Nation Forest
U.S. Department of Agriculture

JOHN J. BURNS
Attorney General
Alaska Department of Law

KIM ELTON
Senior Advisor to the Secretary
for Alaska Affairs
U.S. Department of the Interior

JIM BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service
U.S. Department of Commerce

CORA CAMPBELL
Commissioner
Alaska Department of Fish and Game

LARRY HARTIG
Commissioner
Alaska Department of Environmental
Conservation

DRAFT 9/8/2011

RESOLUTION 11-__ OF THE *EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL REGARDING THE FFY 2012 WORK PLAN

We, the undersigned, duly authorized members of the *Exxon Valdez* Oil Spill Trustee Council do hereby certify that, in accordance with the Memorandum of Agreement and Consent Decree entered as settlement of United States of America v. State of Alaska, No. A91-081 Civil, U.S. District Court for the District of Alaska, and after public meetings, unanimous agreement has been reached to expend funds received in settlement of State of Alaska v. Exxon Corporation, et al., No. A91-083 CIV, and United States of America v. Exxon Corporation, et al., No. A91-082 CIV, in U.S. District Court for the District of Alaska. This funding is for necessary natural resource damage assessment and restoration activities for the Annual Program Development and Implementation Budget (APDI), as described in Attachment A, and the FFY 2012 Budget Summary All Projects - Final, as described in Attachment B. The total amount of approved funding is $_____. The first year's funding for the multi-year Long Term Monitoring Program, Project 12120114 and PWS Herring Research and Monitoring Program, Project 12120111, and related projects as noted in Attachment B, are approved, for October 1, 2011 through January 31, 2013. The monies are to be distributed according to the following schedule:

Alaska Department of Fish & Game	$_____
Alaska Department of Environmental Conservation	$_____
Alaska Department of Natural Resources	$_____
Alaska Department of Law	$_____
SUBTOTAL TO STATE OF ALASKA	$_____
National Oceanic & Atmospheric Administration	$_____
U.S. Department of the Interior - USGS	$_____
U.S. Department of the Interior – USFWS	$_____
U.S. Department of the Interior – BLM	$_____
U.S. Department of the Interior – SEC	$_____
U.S. Department of the Interior – OEPC	$_____
U.S. Forest Service	$_____
SUBTOTAL TO UNITED STATES OF AMERICA	$_____
TOTAL APPROVED	$_____

By unanimous consent, we hereby request the Alaska Department of Law and the Assistant Attorney General of the Environmental and Natural Resources Division of the United States Department of Justice to take such steps as may be necessary to make available for the Federal Fiscal Year 2012 Work Plan, the amount of $_____ from the appropriate accounts designated by the Executive Director. Funds must be spent in accordance with Attachments A and B, with the following conditions: (1) If a Principal Investigator (PI) has an overdue report or manuscript from a previous year, no funds may be expended on a project involving the PI unless the report is submitted or a schedule for submission is approved by the Executive Director; (2) the lead or managing agency for each project or program must demonstrate to the Executive Director that requirements of the National Environmental Policy Act (NEPA) are met before any project funds may be expended (with the exception of funds spent to prepare NEPA documentation); and (3) a PI or Program Team Lead, where the project is part of a Council-funded long-term Program, for each project must submit a signed form to the Executive Director indicating their agreement to abide by the Trustee Council's data and report requirements, including any future revisions, before any project funds may be expended.

Approved by the Council at its meeting of September 15, 2011, held in Anchorage, Alaska, as affirmed by our signatures affixed below:

STEVE ZEMKE
Trustee Alternate
Chugach National Forest
U.S. Department of Agriculture

JOHN J. BURNS
Attorney General
Alaska Department of Law

KIM ELTON
Senior Advisor to the Secretary
for Alaska
U.S. Department of Interior

JAMES BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service
U.S. Department of Commerce

CORA CAMPBELL
Commissioner
Alaska Department of Fish and Game

LARRY HARTIG
Commissioner
Alaska Department of Environmental
Conservation

Attachments
Attachment A: Annual Program Development and Implementation Budget
Attachment B: FFY 2012 Budget Summary All Projects – Final

RESOLUTION 11-__ OF THE *EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL REGARDING SMALL PARCEL KEN 3010 (POORE)

We, the undersigned, duly authorized members of *Exxon Valdez* Oil Spill Trustee Council ("Council"), in accordance with the Memorandum of Agreement and Consent Decree entered as settlement of *United States of America v. State of Alaska* No. A91-081 Civil, U.S. District Court for the District of Alaska, and after public meetings, unanimous agreement has been reached to expend funds received in settlement of *State of Alaska v. Exxon Corporation, et al.,* No 91-082 CIV, U.S. District Court for the District of Alaska, for necessary natural resources damage assessment and restoration activities as follows:

1. The owner of small parcel KEN 3010 (Poore), comprised of lots 6 and 7 of the Government subdivision at Eagle Rock, as described in Attachment A, ("Seller") has indicated an interest in selling this small parcel.

2. KEN 3010 is within the oil spill area as defined by the Council in the Final Restoration Plan approved November 2, 1994.

Pursuant to Resolution 11-04, adopted February 11, 2011, the Council authorized funds for an appraisal of small parcel KEN 3010. The appraisal has been completed and reviewed by the state and federally-approved review appraiser. The fair market value for KEN 3010 is one million, one hundred thousand dollars ($1,100,000).

3. KEN 3010 has attributes which, if they are acquired and protected, will restore, replace, enhance and rehabilitate injured resources and the services provided by those natural resources, including important habitat for several species of fish and wildlife for which significant injury resulting from the *Exxon Valdez* oil spill ('EVOS") has been documented.

4. Existing laws and regulations, including but not limited to the Alaska Forest Practices Act, the Alaska Anadromous Fish Protection Act, the Clean Water Act, the Bald Eagle Protection Act and the Marine Mammal Protection Act, are intended, under normal circumstances, to protect resources from serious adverse affects caused by activities on the lands. However, restoration, replacement, and enhancement of resources injured by the EVOS present a unique situation. Without passing judgment on the adequacy or inadequacy of existing law and regulation to protect resources, scientists and other resource specialists agree, that in their best professional judgment, protection of habitat in the spill area to levels above and beyond that provided by existing laws and regulations will have a beneficial effect on recovery of injured resources and lost or diminished services provided by these resources.

5. There has been widespread public support within Alaska, as well as on a national basis, for the acquisition of lands within the oil spill area.

The purchase of KEN 3010 is an appropriate means to restore a portion of the injured resources and services in the oil spill area.

6. Acquisition of the parcel is consistent with the Final Restoration Plan.

THEREFORE, we resolve to provide funds for the State of Alaska to purchase all of the Seller's rights and interests in small parcel KEN 3010 as recommended by the Executive Director of the Council ("Executive Director"), and pursuant to the following conditions:

a. the amount of funds (hereinafter referred to as the "Purchase Price") to be provided by the Council to the State of Alaska for the purchase of small parcel KEN 3010 shall be one million, one hundred thousand dollars ($1,100,000);
b. authorization for funding for any acquisition described in the foregoing paragraph shall terminate if a purchase agreement is not executed by September 30, 2012;
c. filing by the United States Department of Justice and the Alaska Department of Law of a notice, as required by the Third Amended Order for Deposit and Transfer of Settlement Proceeds, of the proposed expenditure with the United States District Court for the District of Alaska and with the Investment Fund established by the Council within the Alaska Department of Revenue, Division of Treasury ("Investment Fund"), and transfer of the necessary monies from the Investment Fund to the State of Alaska Department of Natural Resources;
d. a title search satisfactory to the State of Alaska and the United States is completed, and the Seller is willing and able to covey fee simple title by warranty deed;
e. no timber harvesting, road development or any alteration of the land will be initiated on KEN 3010 without the express written agreement of the State of Alaska and the United States prior to purchase of this parcel;
f. a hazardous materials survey satisfactory to the State of Alaska and United States is completed;
g. compliance with the National Environmental Policy Act; and
h. a conservation easement on parcel KEN 3010 shall be conveyed to the United States which must be satisfactory in form and substance to the United States and the State of Alaska Department of Law.

It is the intent of the Council that the above-referenced conservation easement will provide that any facilities or other development on the foregoing small parcel shall be of limited impact and in keeping with the goals of restoration, that there shall be no commercial use except as may be consistent with applicable state or federal law and the goals of restoration to pre-spill conditions of any natural resource injured, lost, or destroyed as a result of the EVOS, and the services provided by that resource or replacement or substitution for the injured, lost or destroyed resources and affected services, as described in the Memorandum of Agreement and Consent Decree between the United States and the State of Alaska entered August 28, 1991 and the Restoration Plan as approved by the Council.

By unanimous consent, following execution of the purchase agreement between the Seller and the State of Alaska and written notice from the Executive Director that the terms and conditions set forth herein and in the purchases agreement have been satisfied, we request the Alaska Department of Law and the Assistant Attorney General of the Environment and Natural Resources Division of the United States Department of Justice take such steps as may be necessary for withdrawal of the Purchase Price for the above-referenced parcel from the appropriate account designated by the Executive Director.

Such amount represents the only amount due under this resolution to the Seller by the State of Alaska to be funded from the joint settlement funds, and no additional amounts or interests are herein authorized to be paid to the Seller from such joint funds.

Approved by the Trustee Council at its meeting of September 15, 2011, held in Anchorage, Alaska, as affirmed by our signatures affixed below.

STEVE ZEMKE
Trustee Alternate
Chugach National Forest
U.S. Department of Agriculture

JOHN J. BURNS
Attorney General
State of Alaska

KIM ELTON
Senior Advisor to the Secretary
for Alaska Affairs
Office of the Secretary
U.S. Department of the Interior

JIM BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service
U.S. Department of Commerce

CORA CAMPBELL
Commissioner
Alaska Department of Fish and Game

LARRY HARTIG
Commissioner
Alaska Department of Environmental
Conservation

Attachment A – Restoration Benefits Report and Map

DRAFT 9/15/2011

Draft Motions for September15, 2011 Trustee Council meeting

Agenda Item 2, September 15, 2011 Agenda and April 19, 2011 Meeting Notes:
I move we approve the September 15, 2011 meeting agenda.
I move we approve April 19, 2011Trustee Council meeting notes as prepared.

Agenda Item 5, Asset Allocation:
I move we approve the following Asset Allocation for the period October 2011 through October 2012: Domestic Equities 47% +/- 7%, International Equities 23% +/- 7%, and Domestic Bonds 30% +/- 5%.

Agenda Item 5, Correction erroneous date on Resolution 11-01:
I move we approve correcting the erroneous date of June 30, 2009 to December 31, 2009 in Resolution 11-01.

Agenda Item 6, Amendment to Irvine PJ 11100112-A:
I move we approve additional funding for Irvine project 11100112 **Lingering Oil on Boulder-Armored Beaches** for $61,700, which includes 9% General Administration, and for any applicable project management costs.

Agenda Item 7, Habitat-Poore Parcel:
I move we approve $1.1 million for the State of Alaska for the purchase of small parcel KEN 3010.

Agenda Item 8, FFY 2012 Workplan Projects:

A. Continuing Projects:

I move we approve funding for the continuing projects identified in the FFY 2012 Draft Work Plan, which includes 9% General Administration, and for any applicable project management costs; with the exception of funding for Irons Project 11100853, which may be reviewed by the Council at a future meeting after completion of the NEPA review of the project.

B. Long-Term Monitoring Program:

1. Long-Term Monitoring Program: McCammon – PJ 12120114

I move we approve funding McCammon project 12120114, **Long-Term Monitoring of Marine Conditions and Injured Resources and Services,** including General Administration fee not to exceed 9% and any applicable project management costs; the first year of this multi-year funding is authorized for October 1, 2011 – January 31, 2013, is to be reviewed annually thereafter by the Council and is to lapse on January 31, 2016.

2. NCEAS/AOOS Collaborative Data Management: NCEAS/AOOS – PJ 12120120

I move we approve funding, as part of the Long-Term Monitoring and Herring Programs, NCEAS/AOOS project 12120120, **Collaborative Data Management and Holistic Synthesis of Impacts and Recovery Status Associated with the Exxon Valdez Oil Spill**, including General Administration fee not to exceed 9% and any applicable project management costs; the first year of this multi-year funding is authorized for October 1, 2011 – January 31, 2013, is to be reviewed annually thereafter by the Council and is to lapse on January 31, 2016.

[or Request additional information or approve WHOI/BCO-DMO concept paper.]

3. Tracking Oil Levels : NOAA/Carls– PJ 12120121

I move we approve funding, as part of the Long-Term Monitoring Program, Carls project 12120121, **Long-Term Monitoring: Lingering Oil – Extending the Tracking of Oil Levels and Weathering (PAH composition) in PWS Through Time**, including General Administration fee not to exceed 9% and any applicable project management

costs; the first year of this multi-year funding is authorized for October 1, 2011 – January 31, 2013, is to be reviewed annually thereafter by the Council and is to lapse on January 31, 2016.

4. Evaluating Chronic Exposure: USGS/Ballachey –PJ 12100808

I move we approve funding, as part of the Long-Term Monitoring Program, Ballachey project 120100808, **Long-Term Monitoring: Evaluating Chronic Exposure of Harlequin Ducks and Sea Otters to Lingering EVO in Western PWS**, including General Administration fee not to exceed 9% and any applicable project management costs; the first year of this multi-year funding is authorized for October 1, 2011 – January 31, 2013, is to be reviewed annually thereafter by the Council and is to lapse on January 31, 2016.

C. Long-Term Herring Program:

1. PWS Herring Research and Monitoring Program: PWSSC/Pegau – PJ 12120111

I move we approve funding the Pegau project 12120111, **PWS Herring Research and Monitoring**, including General Administration fee not to exceed 9% and any applicable project management costs; the first year of this multi-year funding is authorized for October 1, 2011 – January 31, 2013, is to be reviewed annually thereafter by the Council and is to lapse on January 31, 2016.

2. Modeling Population Dynamics: Univ. of WA/Branch – PJ 12120120

I move we approve funding, as part of the Herring Program, the Branch project 12120120, **PWS Herring Research and Monitoring Program: Modeling the Population Dynamics of PWS Herring**, including General Administration fee not to exceed 9% and any applicable project management costs; the first year of this multi-year funding is authorized for October 1, 2011 – January 31, 2013, is to be reviewed annually thereafter by the Council and is to lapse on January 31, 2016. This funding is contingent on the Executive Director's approval of a revised proposal that addresses the concerns identified in the ADF&G comments. Modification of the budget will also be considered to reduce indirect costs. The funding provided is not to exceed that proposed in the original.

D. Harbor Protection and Marine Restoration

i. Stormwater, Wastewater and Harbor Projects

a. Seward Vessel Wash-down: City of Seward /Anderson –PJ 12120115

I move we approve funding Anderson project 12120115, **Seward Marine Industrial Center Vessel Wash-down and Wastewater Recycling Facility**, including 9% General Administration and any applicable project management costs; this multi-year funding is to be reviewed annually by the Council and is to lapse on September 30, 2013.

b. PWS Harbor Cleanup: NOAA /Jennings –PJ 12120112

I move we approve funding Jennings project 12120112, **PWS Harbor Cleanup Project**, including 9% General Administration and any applicable project management costs; this multi-year funding is to be reviewed annually by the Council and is to lapse on September 30, 2016.

ii. Marine Debris

a. Marine Debris Removal: Gulf of Alaska Keeper / Pallister –PJ 1212116

I move we approve funding Pallister project 12120116, **Marine Debris Removal** [and Public Outreach Proposal(s) # ____ of the Addendum], including 9% General Administration and any applicable project management costs; this multi-year funding is to be reviewed annually by the Council and is to lapse on September 30, 2014.

b. Community-based Marine Debris Removal: NOAA/ Ammann –PJ 12120118

I move we approve funding Ammann project 12120118 **Community-based Marine Debris Program**, including 9% General Administration and any applicable project management costs; this multi-year funding is to be reviewed annually by the Council and is to lapse on September 30, 2013.

c. Marine Debris Program: Eyak/Whissel –PJ 12120119

I move we approve funding Whissel project 12120119, **Marine Debris Program**, including 9% General Administration and any applicable project management costs.

E. Lingering Oil

Spatial Synthesis: USGS/Nixon/Michel/Ballachey/Bodkin/Esler – PJ 12120117

I move we approve funding, as part of the Long-Term Monitoring Program, Nixon project 12120117, **Spatial Synthesis of Lingering Oil Distribution Modeling with Population and Biomarker Data for Recovering Species**, including 9% General Administration and any applicable project management costs.

F. Response, Damage Assessment and Restoration Implications

Lessons Learned: PWSSC /Pegau –PJ 12120113

I move we approve funding Pegau project 12120113, **Lessons Learned and Implications to Future Spill Response**, including 9% General Administration and any applicable project management costs; this multi-year funding is to be reviewed annually by the Council and is to lapse on September 30, 2013.

Agenda Item 9, Annual Budget (APDI):

I move we approve $1,711,790 funding for the **Annual Program Development and Implementation (APDI) Budget** project 12120100.

Agenda

DRAFT 9/8/2011

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, AK 99501-2340 • 907 278 8012 • fax 907 276 7178

AGENDA
EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
September 15, 2011, 12:30 – 4:30 p.m.
Anchorage, Alaska

Trustee Council Members:

JEN SCHORR
Trustee Alternate/Attorney General
Alaska Department of Law

LARRY HARTIG
Commissioner
Alaska Department of
Environmental Conservation

CORA CAMPBELL
Commissioner
Alaska Department of Fish and Game

JAMES BALSIGER
Administrator, Alaska Region
National Marine Fisheries Service
U.S. Department of Commerce

KIM ELTON
Senior Advisor to the Secretary for
Alaska Affairs
Office of the Secretary
U.S. Department of the Interior

STEVE ZEMKE
Trustee Alternate
Chugach National Forest
U.S. Department of Agriculture

Meeting in Anchorage, Trustee Council Office 441 West 5th Avenue, Suite 500
Teleconference number: 800.315.6338. Code: 8205
Federal Chair: Steve Z

1. Call to Order – 12:30 p.m.

2. Consent Agenda
   - Approval of Agenda*
   - Approval of Meeting Notes*
     April 19, 2011

3. Public comment – 12:45 p.m. (3 minutes per person)

4. PAC Chairperson Report *(10 min.)* — Kurt Eilo, PAC Chairperson

5. Executive Director's Report *(25 min.)* — Elise Hsieh, Executive Director
   -Investment Working Group Update — Bob Mitchell, ADOR
   -Asset Allocation for FFY 2012*
   -Correction of erroneous date on Resolution 11-01*

6. Amendment to Gail Irvine Project 11100112-A* (*10 min.*) — Dede Bohn, USGS
   -Lingering oil sampling delayed due to weather field delay

7. Habitat *(15 min.)* — Samantha Carroll, Alaska Dept. Natural Resources
   -Poore Parcel*

8. FFY 2012 Proposals — Catherine Boerner, Science Coordinator

   A. Continuing Projects *(10 min)*
   B. Long-Term Monitoring Program *(40 min.)*
      1. Long-Term Monitoring Program: AOOS/PWSSC - McCammon/Pegau *
      2. Data Management for Long-Term Monitoring and Herring Programs*
      3. Tracking Oil Levels: NOAA - Carls*
      4. Evaluating Chronic Exposure: USGS -Ballachey*
   C. PWS Herring Research and Monitoring Program *(15 min.)*
      1. PWS Herring Research and Monitoring Program: PWSSC- Pegau*
      2. Modeling Population Dynamics: University of Washington- Branch*
   D. Harbor Protection and Marine Restoration *(25 min.)*
      i. Stormwater, Wastewater and Harbor Projects
         a. Seward Vessel Wash-down: City of Seward/Anderson*
         b. PWS Harbor Cleanup: NOAA/Jennings*
      ii. Marine Debris
         a. Marine Debris Removal: Gulf of Alaska Keeper/Pallister*
         b. Community-Based Marine Debris Removal: NOAA/Ammann*
         c. Marine Debris Program: Eyak/Whissel*

E. Lingering Oil: Spatial Synthesis: Nixon/Michel/Ballachey/Bodkin/Esler*
F. Response, Damage Assessment and Restoration Implications *(5 min.)*
Lessons Learned: PWSSC/Pegau*

9. Annual Budget FFY'12* *(15 min.)* — Elise Hsieh, Linda Kilbourne, EVOSTC

10. Executive Session, as needed

Adjourn – by 4:30 p.m.

* Indicates action items

April 19, 2011 TC Meeting Notes

DRAFT 5/24/2011

Exxon Valdez Oil Spill Trustee Council

441 W. 5th Ave., Suite 500 • Anchorage, AK 99501-2340 • 907 278 8012 • fax 907 276 7178

TRUSTEE COUNCIL MEETING NOTES

Anchorage, Alaska

April 19, 2011

Chaired by: Jennifer Schorr
Trustee Council Member

Trustee Council Members Present:

Steve Zemke, USFS *
Kim Elton, USDOI
James Balsiger, NMFS
•Jennifer Schorr, ADOL **
Cora Campbell, ADF&G
Larry Hartig, ADEC ***

- • Chair
- * Steve Zemke alternate for USFS
- ** Jennifer Schorr alternate for John J. Burns
- *** Dan Easton alternate for Larry Hartig at 1:40-3:22 p.m.

The meeting convened at 12:30 p.m., April 19, 2011 in Anchorage at the EVOS Conference Room.

1. Approval of the Agenda

APPROVED MOTION: Motion to approve the April 19, 2011 agenda

Motion by Elton, second by Balsiger

2. Approval of February 11, 2011 meeting notes

APPROVED MOTION: Motion to approve the February 11, 2011 meeting notes

Motion by Zemke, second by Elton

Public comment opened at 12:40 p.m.

Three public comments were offered.

Public comment closed at 1:00 p.m.

Public Advisory Committee (PAC) comments: Kurt Eilo, PAC Chair

3. ADF&G Information Technology (IT) Support

APPROVED MOTION: Motion to authorize the Executive Director to enter into a RSA for Information Technology (IT) support services with the Alaska Department of Fish and Game for the remainder of FFY 2011 to commence on July 1, 2011 ending September 30, 2012, plus applicable General Administration (GA) in the amount of $87,200

Motion by Elton, second by Zemke

4. Amendment to Conservation Easement National Wildlife Refuge Lands

APPROVED MOTION: Motion to approve the amendment to the original agreement on Old Harbor Native Corporation lands subject to the conservation easement

Motion by Zemke, second by Elton

5. Project 10100839-A Amendment, Harlequin Ducks – Springman/Hollmen

APPROVED MOTION: Motion to approve additional funds in the amount of $42,400 which includes applicable General Administration (GA) for project 10100839-A, Evaluating Injury to Harlequin Ducks

Motion by Elton, second by Campbell

6. FFY 2012 Proposals

APPROVED MOTION: Motion to request EVOS staff to work with the following identified lead proposers including Prince William Sound Herring Research and Monitoring and Long-Term Monitoring of Marine Conditions and Injured Resources and Services to develop additional information in the areas recommended by the council

Motion by Elton, second by Campbell

Off the record: 2:07 p.m.
On the record: 2:20 p.m.

APPROVED MOTION: Motion to request EVOS staff to work with the City of Seward for developing additional information in areas recommended for storm water for the amount that they have proposed in their proposal and then any additional funds would recommend that the council staff work with NOAA to see whether they can come forth with a solid proposal for the Council's decision at the August meeting.

Motion by Zemke, second by Schorr

APPROVED MOTION: Motion to request EVOS staff to work with Gulf of Alaska Keeper to develop as lead proposer for development of marine debris removal in the Gulf of Alaska and Prince William Sound, and to work with the Native Village of Eyak lead proposer, to incorporate a community involvement component

Motion by Zemke, second by _____

APPROVED MOTION: Motion to request EVOS staff to work the proposers of the synthesis project under lingering oil

Motion by Elton, second by Schorr

7. Science Panel

APPROVED MOTION: Motion to approve or direct Trustee Council staff enter into contracts for up to $5,000 plus applicable GA for each Science Panel member Gary Cherr, Charles Peterson, Ron O'Dor, Robert Spies, Marilyn Sigman, and Doug Hay

Motion by Schorr, second by Zemke

7. Adjourn

APPROVED MOTION: Motion to adjourn

Motion by Elton, second by Schorr

Off the record 3:22 p.m.

July 26, 2011 PAC
Meeting Summary

Meeting Summary D R A F T

A. GROUP: *Exxon Valdez* Oil Spill (EVOS) Public Advisory Committee (PAC)

B. DATE/TIME: July 26, 2011

C. LOCATION: Anchorage, Alaska (teleconference)

D. MEMBERS IN ATTENDANCE: (T = via teleconference)

Name	Principal Interest
Torie Baker (T)	Commercial Fishing
Amanda Bauer (T)	Commercial Tourism
Jason Brune (T)	Public-at-Large
Kurt Eilo	Sport Hunting/Fishing, PAC Chair
Gary Fandrei (T)	Aquaculture/Mariculture
Patience Andersen Faulkner (T)	Subsistence, PAC Vice-chair
John French (T)	Science/Technical
Stacy Studebaker (T)	Recreation Users

E. NOT PRESENT:

Name	Principal Interest
Jennifer Gibbins	Conservation/Environmental
David Totemoff	Native Landowner

F. OTHER PARTICIPANTS:

Name	Organization
Elise Hsieh (T)	Executive Director, Trustee Council
Doug Mutter	Designated Federal Official, Department of the Interior
Cherri Womac	Trustee Council Staff
Linda Kilbourne	Trustee Council Staff
Catherine Boerner (T)	Trustee Council Contractor
Carrie Holba (T)	Alaska Resources Library & Information Services (ARLIS)
Barat LaPorte (T)	Patton Boggs
Pete Hagen (T)	National Oceanic and Atmospheric Administration (NOAA)
Kris Holderied (T)	NOAA
Dede Bohn (T)	U.S. Geological Survey (USGS)
Veronica Varela (T)	U.S. Fish and Wildlife Service (FWS)
Samantha Carroll (T)	Alaska Department of Natural Resources (ADNR)
Molly McCammon (T)	Alaska Ocean Observing System (AOOS)

H. SUMMARY:

At 10:02 a.m. Kurt Eilo, PAC Chair, opened the meeting. Doug Mutter, Designated Federal Official, took roll call of PAC members (a quorum was present). The meeting participants introduced themselves.

The April 13, 2011, PAC meeting summary was approved. There were no modifications proposed for today's agenda.

The floor was open for public comment. Molly McCammon and Kris Holderied spoke in support of the use of the firm Axiom as a subcontractor for managing data under the Herring and Long-Term Monitoring (LTM) proposals, and emphasized the ongoing collaboration activities. Any past-due reports have all been submitted. Both said they appreciated the work the PAC members have done in reviewing proposals.

Elise Hsieh provided the Executive Director's report. The next Trustee council meeting is set for September 15, later than anticipated due to scheduling issues. She reviewed the action items on the Trustee Council's agenda. She noted that the budget was being pared down and they are starting to position agency and Trustee Council staff for the long-term program. There are several updates and revisions to FY 2012 proposals in response to questions from the PAC, Science Panel, and Trustee Council staff--Principal Investigators have been responsive.

Hsieh reviewed the proposed FY2012 budget. Staff are reviewing past expenditures and annual reports to update the overall status of funds and work to date. She summarized various modifications to budget elements. The PAC budget has been reduced due to fewer in-person meetings. She also noted that Trustee Council policies and procedures will require modification to adjust to the long-term program.

Hsieh pointed out that Carrie Holba would be working half-time on archiving records at EVOS starting this fall. Stacy Studebaker raised concern about reducing the efforts to maintain the 20-plus years of information and data at ARLIS. Hsieh said that ARLIS did not maintain "data" (other projects will address the historical data questions) and that Holba would still work part-time at ARLIS. Holba said she was discussing with Federal and State archivists, how to handle official EVOS historical records. She noted that the Trustee Council would remain a "Founders" supporting member of ARLIS this year.

It was moved by Patience Anderson Faulkner, second by Studebaker, that **the PAC supports the fiscal year 2012 EVOS budget, as presented.** There were no objections.

Hsieh and Catherine Boerner explained the updates and revisions to several projects proposed for the FY 2012 Work Plan:

- Community-based Marine Debris Program--Discussions with Alaska Geographic and the Chugach School district have taken place. The Alaska SeaLife Center is looking into providing an interactive exhibit.
- PWS Harbor Cleanup Project--A revised proposal with funds leveraged has reduced the cost of this effort, which will be managed by NOAA staff. Studebaker raised a concern about the details of the effort, it is not clear what will be done and where. John French mentioned the need to coordinate this with the U.S. Coast Guard clean harbors program. Eilo stated that he supported the cleanup of harbors. Boerner said the details of the project would not be clear until 2013, after groundwork to determine exact needs. The only changes to the project are a reduced budget. The PAC agreed that Eilo would present an oral summary of the concerns of the PAC at the upcoming Trustee Council meeting, stating that: **While there are merits to the cleanup of harbors, the Trustee Council should**

proceed with caution, as there are few details at this time explaining what this project will accomplish.

- ❑ Vessel Wash-down and Wastewater Recycling Facility--outstanding legal issues have been resolved and Trustee Council questions have been answered.
- ❑ PWS Herring Research and Monitoring Program--The Science Panel said the response to their concerns and further coordination was good. The Alaska Department of Fish and Game will partially fund a herring liaison position. Improved modeling techniques will be included as a separate project (PI is Branch). Torie Baker stated that this type of effort is what is needed to help resource managers in their decision-making. It was moved by French, second by Anderson Faulkner, that **the PAC concurs with the Science Panel recommendation to fund the Branch modeling project.** There were no objections. LTM Marine conditions and Injured Resources and Services--Lingering oil projects (Ballachey and Carls) will be included in the LTM program.

Hsieh and Boerner reviewed the situation with the data management element of the long-term program (especially for the LTM and Herring projects). Issues raised by the Science Panel, Trustee Council staff, and the PAC called for additional work and collaboration to assist with establishment of a data management system that includes accessible scientific data as well as public information. In response, the National Center for Ecological Analysis and Synthesis (NCEAS) submitted a proposal to work with Axiom (a subcontractor to AOOS), and the Woods Hole Oceanographic Institution also submitted a proposal. Elements of both options were reviewed and discussed. Data management generally consumes about 30% of a research program budget, the costs for including one of these options for assistance remain within that range.

Hsieh stated she had not made a recommendation to the Trustee Council, her role is to bring options for their consideration. She plans for the EVOS data to be open and available to the public via more than one venue. French noted that he had no problem with either NCEAS or Woods Hole—he questioned Axiom's role and staying power. McCammon said that Axiom would be a subcontractor to AOOS, had been doing cutting edge work, and was committed to the project—they have a 4-year contract. She also stated that the AOOS Board was committed to the project. French said he supported the NCEAS and Axiom collaboration. Eilo summed the PAC interest in the Trustee Council investing in and implementing a solid data management, synthesis, and public access system.

Eilo asked about the purchase of the Poore parcel on the Kenai River. Jason Brune stated that he was opposed to any new habitat acquisitions. Samantha Carroll noted that such purchases have been river frontage, sloughs, riparian habitat and tidelands. This parcel has river front and salmon rearing habitat. Eilo noted that this area is commonly referred to as "Eagle Rock" and includes a private boat launch—it would be nice to have it better managed by the State. French moved, second by Studebaker, that **the PAC supports the purchase of the Poore parcel by the Trustee Council for allowing public access to the Kenai River.** Brune's general objection was noted, there were no other objections.

The meeting was adjourned at 12:07 p.m.

I. FOLLOW-UP:

1. Eilo will provide an oral PAC report to the Trustee Council at their next meeting.

J. NEXT MEETINGS:

--Trustee Council (Anchorage on September 15, 2011)

K. ATTACHMENTS (handed out at the meeting):

1. None

L. CERTIFICATION:

PAC Chairperson _____ Date _____

ASSET ALLOCATION

Bob Mitchell PPT

Exxon Valdez Oil Spill Trustee Council

Investment Presentation

September 15, 2011

Investment Fund Performance

Fund Returns	Quarter	1 Year	3 Years	5 Years	Since Inception	Inception Date
EVOS Research Fund	**1.59%**	**23.27%**	**5.56%**	**5.09%**	**4.84%**	November 2000
Target Index	1.06%	23.05%	5.08%	4.98%	4.47%	
EVOS Habitat Fund	**1.58%**	**23.26%**	**5.35%**	**4.95%**	**7.38%**	November 2002
EVOS Koniag Fund	**1.60%**	**23.31%**	**5.24%**	**4.88%**	**7.33%**	November 2002
Target Index	1.06%	23.05%	5.08%	4.98%	7.51%	

Investment Pool Returns	Quarter	1 Year	3 Years	5 Years
SSgA Russell 3000 Index Fund	**-0.04%**	**32.44%**	**4.42%**	**3.48%**
Russell 3000	-0.03%	32.37%	4.00%	3.35%
Lazard International Equities	**2.10%**	**30.40%**	**-0.90%**	**1.45%**
MSCI EAFE	1.56%	30.36%	-1.77%	1.48%
Broad Market Fixed Income Pool	**2.43%**	**4.14%**	**6.45%**	**6.38%**
Barclays Capital Aggregate	2.29%	3.90%	6.46%	6.52%
Short Term Pool	**0.08%**	**0.48%**	**0.93%**	**2.29%**
91 Day Treasury Bill	0.04%	0.16%	0.42%	2.00%

Periods ending June 30, 2011
Source: State Street

Callan's Capital Market Projection Process

Economic outlook drives our projections.

- **Evaluate the current environment and economic outlook for the U.S. and other major industrial countries:**
  - Business cycles, relative growth, inflation.
- **Examine the relationships between the economy and asset class performance patterns.**
- **Examine recent and long-run trends in asset class performance.**
- **Apply market insight:**
  - Consultant experience - Plan Sponsor, Manager Search, Specialty
  - Industry consensus
  - Client Policy Review Committee
- **Test the projections for reasonable results.**

Capital Market Expectations

- Expected bond return reduced to 3.75%. We expect interest rates to rise resulting in capital loss before higher yields kick in. We expect cash to reach 2.75% and 10-year Treasury to reach 5%.
- Project an upward sloping yield curve, with a slim risk premium for bonds over cash (1.0%).
- Building equity returns from long-term fundamentals gets us to around 8%: 3-3.5% real GDP growth, which means 5.5-6% nominal earnings growth, 2% dividend yield. Equities look reasonably priced, but no longer cheap relative to longer-term valuations unless earnings continue to grow at above normal rates. Broad U.S. equity expectations are reduced 50 bps, from 8.5% to 8.0%. Broad non-U.S. equity returns are decreased by a similar amount.
- Real estate return reduced to 6.25%; returns may not recover as quickly as liquid equity markets.
- Hedge fund expectations of T-bill plus 3-4% keep returns close to 6%.

Callan 2011 Capital Market Assumptions

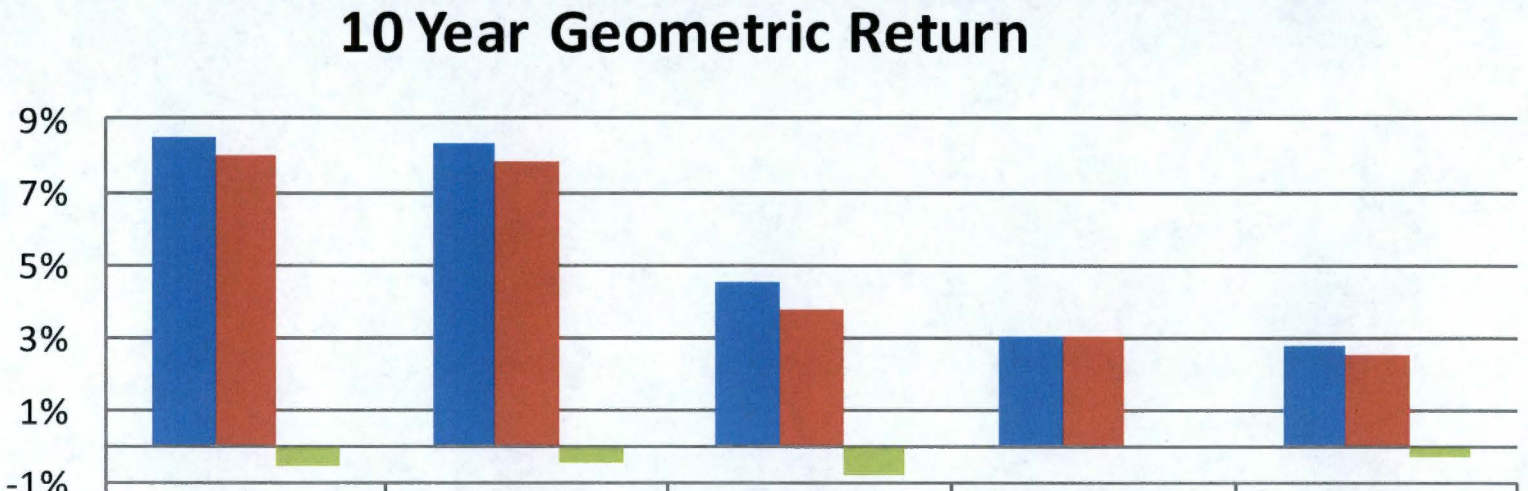
Asset Classes	Index	Single-Period Arithmetic	10-year Geometric*	Standard Deviation
Domestic Equity	Russell 3000	9.35%	8.00%	18.12
International Equity	MSCI EAFE	9.50%	7.85%	19.75
Domestic Bonds	BC Aggregate	3.80%	3.75%	4.50
Cash Equivalents	3 Month T-Bill	3.00%	3.00%	0.90
Inflation	CPI-U	2.50%	2.50%	1.40

Correlations	Domestic Equity	International Equity	Domestic Bonds	Cash Equivalents
Domestic Equity	1.000			
International Equity	0.802	1.000		
Domestic Bonds	0.010	0.000	1.000	
Cash Equivalents	(0.043)	(0.010)	0.100	1.000

* Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).

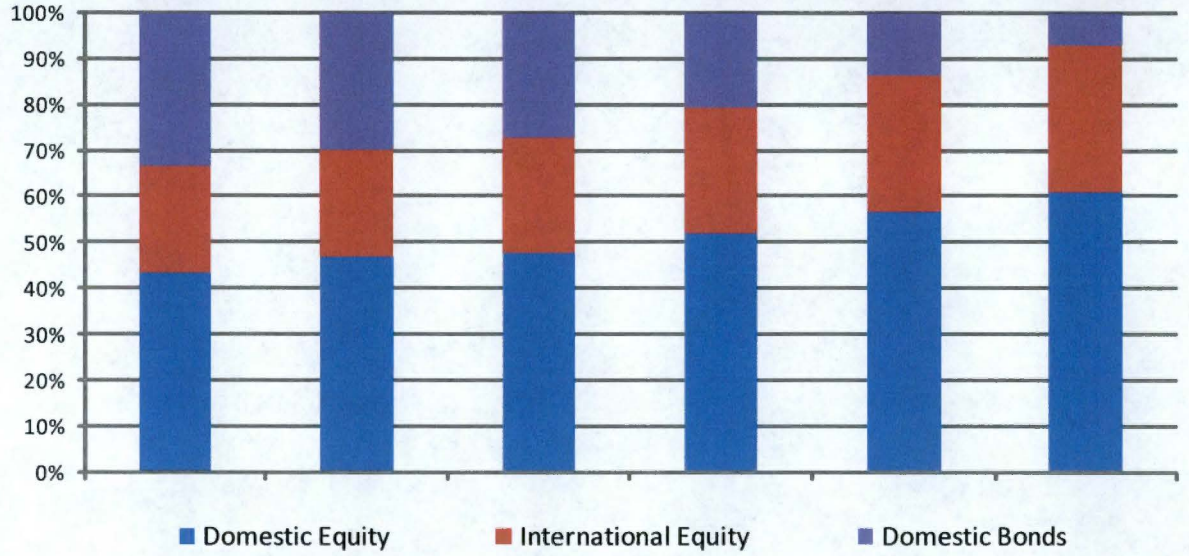
Source: Callan Associates Inc.

Change in Callan Capital Market Assumptions



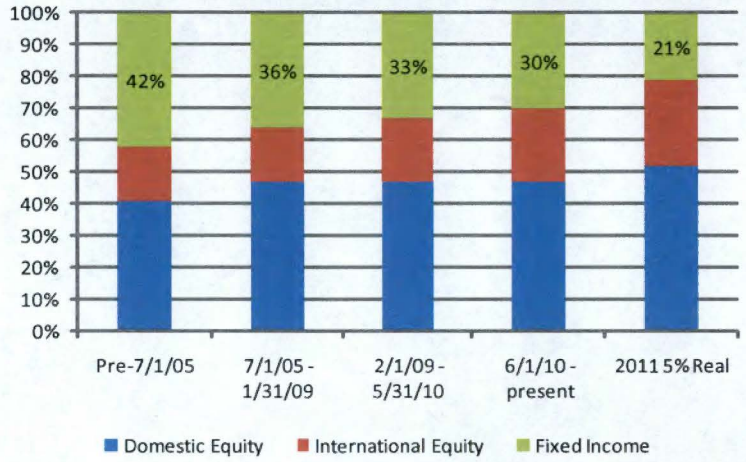
	Domestic Equity	International Equity	Domestic Bonds	Cash	Inflation
2010	8.50%	8.30%	4.50%	3.00%	2.75%
2011	8.00%	7.85%	3.75%	3.00%	2.50%
Difference	-0.50%	-0.45%	-0.75%	0.00%	-0.25%

Mean-Variance Optimization Analysis



	Last Year's Risk	Current Allocation		5% Real Allocation		
Domestic Equity	43%	47%	48%	52%	56%	61%
International Equity	23%	23%	25%	27%	30%	32%
Domestic Bonds	33%	30%	27%	21%	14%	7%
Totals	100%	100%	100%	100%	100%	100%
Expected Return	7.00%	7.14%	7.25%	7.50%	7.75%	8.00%
Projected Risk	11.96%	12.54%	13.03%	14.15%	15.34%	16.53%
1 Yr. Probability of Loss	26%	27%	27%	28%	29%	29%
5 Yr. Probability of Loss	8%	8%	9%	10%	10%	11%
10 Yr. Probability of Loss	2%	3%	3%	3%	4%	4%

Historical Target Asset Allocation – Research Account



	Domestic Equity	International Equity	Fixed Income	Expected Return	Standard Deviation
Pre-7/1/05	41%	17%	42%	7.50%	10.36%
7/1/05 - 1/31/09	47%	17%	36%	7.65%	10.93%
2/1/09 - 5/31/10	47%	20%	33%	7.75%	11.32%
6/1/10 - present	47%	23%	30%	7.75%	11.96%
2011 5% Real	52%	27%	21%	7.50%	14.15%

Historic asset allocation per State Street Analytics.

Investment Considerations

- Preserve the inflation-adjusted value of invested capital on endowment funds. - Exxon Valdez Oil Spill Trustee Council (EVOS) Investment Policy, Page X-14. EVOS has adopted a five percent spending rule.

- Callan provides capital market projections that are calibrated on an inflation projection of 2.50%. Therefore, EVOS should target 7.50% to be consistent with its investment policy.

- Revenue staff performed a mean-variance optimization process to minimize expected standard deviation while achieving 7.50% goal.

- The "5% Real" asset allocation is expected to achieve a 7.50% return over the next 10 years with standard deviation of 14.15%:

(as of March 31, 2011)	**Research Fund**	**Habitat Fund**	**Koniag Fund**	**Current Target**	**5% Real**
Domestic Equity	47.04%	47.04%	47.04%	47% +/- 7%	52% +/- 7%
International Equity	22.79%	22.79%	22.79%	23% +/- 7%	27% +/- 7%
Domestic Bonds	30.17%	30.17%	30.17%	30% +/- 5%	21% +/- 5%
Cash	0.00%	0.00%	0.00%		

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
INVESTMENT POLICIES

INTRODUCTION

The purpose of these policies is to provide the *Exxon Valdez* Oil Spill Trustee Council (the "Council") with a comprehensive set of guidelines for the proper management of its investment decisions. Pursuant to its responsibilities to administer natural resource damage recoveries from the Exxon Valdez oil spill, the Council must follow a procedurally prudent process when investing the Joint Trust Fund assets. Prudence is based on the conduct of the Council in managing the assets, and is evaluated by the *process* through which risk is managed, assets are allocated, custodians and managers are chosen, and results are supervised and monitored.

Today's standard of prudence places the emphasis on responsibilities related to the investment portfolio and its purpose, rather than on investment performance. The Council has the responsibility for the general management of the Joint Trust Fund's assets. It is responsible for setting and managing the Joint Trust Fund's investment policy. The Council is not an investment manager or investment specialist and is not responsible for the ultimate investment results. Although it is not possible to guarantee investment success, following the process outlined herein will significantly improve the odds of structuring an investment portfolio which will stand up to public scrutiny and benefit the Joint Trust Fund by providing an acceptable long-run return.

COUNCIL RESPONSIBILITIES IN GENERAL

Through a 1991 settlement of natural resource damage claims in *State of Alaska v. Exxon Corporation, et al., No. A91-083 CIV,* and *United States of America v. Exxon Corporation, et al., No. A91-082 CIV*, the State of Alaska and the United States, acting through trustees for natural resources injured by the Exxon Valdez oil spill ("Trustees"), are to jointly receive $900,000,000 in damages payable over a term of years. A substantial portion of these damages are required to be segregated and used by the governments for purposes of restoring, replacing, enhancing, rehabilitating or acquiring the equivalent of natural resources and services lost or injured as a result of the oil spill. These monies, and the interest earned on them, are to be placed in a "Joint Trust Fund" administered by the Trustees. An integral part of this responsibility is to provide prudent and productive investment management of Joint Trust Fund assets and any other receipts as provided either by law or a decision of a Court of law.

A separate Memorandum of Agreement and Consent Decree (the MOA) entered into by the State of Alaska and the United States in *Civil Action No. A91-081*, described the co-

management of these natural resource damage recoveries. The MOA specifies that the following officials act on behalf of the public as Trustees:

State of Alaska Members:

- Attorney General, State of Alaska;
- Commissioner, Alaska State Department of Environmental Conservation;
- Commissioner, Alaska State Department of Fish and Game;

U.S. Government Members:

- United States Secretary of Agriculture;
- United States Secretary of the Department of the Interior; and
- Administrator of the National Oceanic and Atmospheric Administration, United States Department of Commerce.

Subsequently the Council was created by the Trustees to manage the co-trustee relationship required under the MOA. The authority of the Council is governed by a 1992 Memorandum of Understanding ("MOU") between the state and federal Trustees. Under the terms of the MOA and MOU, all matters before the Council which require a vote, make a recommendation, approve or disapprove an item, or otherwise render a decision shall require the unanimous agreement of the six Council members or their designees.

The Council is responsible for the management of the Joint Trust Fund's assets. The Council has broad authority to engage experts and to delegate its investment responsibilities, as it deems appropriate. The Council, when formulating investment policies, has obligated itself to review the recommendations from the Executive Director. The Executive Director will consult with the Investment Working Group (IWG) and such other consultants as the Council may retain from time to time. The IWG consists of one state and one federal Council member or designee, as determined by the Council, and appropriate state and federal officials and at least two investment experts, who are selected by the Executive Director. At least two members of the IWG must have experience and expertise in financial management and the management of institutional investment portfolios.

The Joint Trust Fund is currently held in the registry of the United States District Court and invested by the Court Registry Investment System. In 1999 Public Law 106-113 was enacted, allowing the Joint Trust Fund to be invested in accounts outside the United States Treasury. Under that legislation, such outside investments are limited to income-producing asset classes, including debt obligations, equity securities, and other instruments or securities that have been determined by unanimous vote of the Council to have a high degree of reliability and security. The Joint Trust Fund is also to be managed and allocated consistent with the Resolution of the Council adopted March 1, 1999 concerning the Restoration Reserve.

MISSION STATEMENT

The Council shall establish policy, set direction, and provide oversight and stewardship for the prudent investment and management of the Joint Trust Fund.

INVESTMENT OBJECTIVES IN GENERAL

1. Achieve superior administrative and investment performance on a consistent basis when measured against a national universe of public funds.

2. Actual returns will equal or exceed target returns over time while limiting total risk to that which is appropriate to the investment time horizon.

3. Use the best known processes consistent with the Council goals and objectives, specifically but without limitation:

- Good financial reporting;
- Good custodian selection and evaluation;
- Good manager selection and evaluation;
- Asset allocation; and
- Awareness of new investment alternatives.

4. Use excellent management practices, as evidenced by:

- Staff longevity;
- Independence; and
- Education and training.

5. Regularly communicate the investment goals, objectives and performance results with the public.

STATUS

Section 311(f) of the Federal Water Pollution Control Act, as amended 33 U.S.C. 1321 (f) establishes liability to the United States and to States for injury, loss, or destruction of natural resources resulting from the discharge of oil or the release of hazardous substances or both and provides for the appointment of State and Federal Trustees.

The Memorandum of Agreement and Consent Decree (MOA) entered into by the State of Alaska and the United States in Civil Action No. A91-081, governs the use of the natural

resource damages, paid by Exxon. The State and Federal Governments act as co-trustees in the collection and joint use of all natural resource damage recoveries for the benefit of natural resources injured, lost or destroyed as a result of the 1989 *Exxon Valdez* oil spill.

The terms of the settlement are contained in the Agreements and Consent Decrees entered into by the State of Alaska and Exxon Corporation Civil Action No. A91-083, and United States of America and Exxon Corporation Civil Action No. A91-082.

The United States Congress in Public Law 102-229 recognized the MOA and Consent Decree. Alaska State Legislature recognized the MOA and Consent Decree in AS 37.14.400.

Pursuant to Public Law 106-113, Joint Trust Funds may be deposited in the Natural Resource Damage Assessment and Restoration Fund and/or accounts outside the United States Treasury. The law requires that the funds are invested only in income-producing obligations and other instruments or securities that have been determined unanimously by the Council to have a high degree of reliability and security.

Guidance regarding the authorities and responsibilities of agencies that receive Joint Trust Funds is incorporated in the Procedures of the *Exxon Valdez* Oil Spill Trustee Council, adopted August 29, 1996.

ADMINISTRATION

The Executive Director and the Trustee Council Office manage the day-to-day administrative functions of the Council, and report directly to the Council. The 1993 Agreement between the State of Alaska and the *Exxon Valdez* Oil Spill Trustee Council requires that the State create and assign an exempt position, designated as the Executive Director of the *Exxon Valdez* Oil Spill Trustee Council, to be responsible to the Council. The State is further required to create and assign exempt positions from the State service to be responsible to the Executive Director for such senior positions under the Executive Director as are approved by the Council.

Any person appointed to the position of Executive Director to the Council shall serve at the pleasure of the Council and may be removed from the position only upon the unanimous vote of all members of the Council. Any person appointed to a senior staff position by the Executive Director shall serve at the pleasure of the Executive Director. Removal of any of these individuals, including the Executive Director, need not be based on cause and no property or other interest in continued employment is or may be created. An organization chart of the Trustee Council Office is shown on Table 1.

The Executive Director of the *Exxon Valdez* Oil Spill Trustee Council shall engage experts and contract for investment services, as the Council deems appropriate. This may involve entering into 'reimbursable services agreements' with State and/or Federal agencies (*e.g.*, the Alaska

Department of Revenue and/or the United States Department of the Interior) for personal services costs and associated contractual costs.

GENERAL RESPONSIBILITES FOR THE PARTIES

Without limitation of any fiduciary, administrative, or other responsibilities, implied or expressed herein, the parties shall have the following responsibilities for the proper management and administration of the Joint Trust Fund. The parties shall include:

- Trustee Council
- Executive Director/Trustee Council Office Staff
- Investment Working Group
- Auditor
- Legal Counsel
- Bank Custodian(s)
- Investment Consultant(s)
- Investment Managers

Trustee Council

- Adopt prudent investment goals and objectives;
- Adopt an appropriate asset allocation strategy;
- Select one or more consultants, bank custodians, external investment managers, and legal counsel who may include the Alaska Department of Law and the United States Department of Justice;
- Control investment and administrative expenses, and incur only those costs that are reasonable in amount and appropriate to the investment responsibilities of the co-trusteeship;
- Provide for an annual, independent audit of the Joint Trust Fund's financial statements;
- Provide for an independent review of investment performance;
- Develop an annual budget;
- Adopt and implement an investment education policy;
- Report financial and investment policies and performance to the public; and
- Avoid conflicts of interest, and conform to the fundamental fiduciary duties of loyalty and impartiality.

Executive Director/Trustee Council Office Staff

- Maintain responsibility for the administration and management of the Trustee Council Office;
- Facilitate staff, which performs the administrative functions of the Council and ensures compliance with State and Federal law, the Memorandum of Agreement and Consent Decree, and the Memorandum of Understanding;
- Recommend budget strategies and proposals to the Council;
- Coordinate all administrative matters of the Council, including meeting agendas;

- Make recommendations concerning policies, investment strategies, and procedures in consultation with the Investment Working Group;
- Advise the Council regarding the selection of custodians, an investment consultant, and investment managers in consultation with the Investment Working Group;
- Account for and report on the investment activity of all funds under the investment responsibility of the Council;
- Advise the Council on the evaluation of investment policies and performance of the portfolios in consultation with the Investment Working Group;
- Develop, recommend and implement internal control policies and procedures in consultation with the Investment Working Group to ensure all investment assets are safeguarded;
- Monitor investment managers and custodians for compliance with investment policies established by Council; and
- Recommend and maintain the information systems adequate to fulfill the accounting, monitoring, investing, cash management and other information needs of the Council, in consultation with the Investment Working Group.

Investment Working Group

- Review investment policies, strategies and procedures;
- Make recommendations to the Executive Director concerning policies, investment strategies and procedures;
- Advise the Executive Director regarding the selection of custodians, an investment consultant, and investment managers;
- Provide other advice as requested by the Executive Director;
- Attend the asset allocation and investment manager performance review meetings of the Council;
- Brief the Council at the Executive Director's request and/or at the request of a member of the Investment Working Group;
- Act as "prudent expert" on behalf of the Executive Director;
- Develop and recommend investment policy and strategy to the Executive Director;
- Develop and recommend internal control systems and procedures to the Executive Director to ensure all investment assets are safeguarded;
- Recommend to the Executive Director information systems adequate to fulfill the accounting, monitoring, investing, cash management and other information needs of the Council; and
- Advise the Executive Director on the evaluation of investment policies and performance of the portfolios.

Auditor

- Measure and validate financial statements and management of the Joint Trust Fund;

Background Note:

The auditor is selected by the Council. However, the Council does not have a direct say over the work of the auditor because audits are based upon an independent review of financial statements consistent with the standards prescribed by the American Institute of Certified Public Accountants in conformance with generally accepted accounting principles and Government Accounting Standards Board guidelines.

Legal Counsel

- Provide legal assistance and advice to the Council as required.

Bank Custodian

- Provide safekeeping and custody of all securities purchased by managers on behalf of the Council;
- Provide for timely settlement of securities transactions;
- Maintain short-term investment vehicles for investment of cash not invested by managers;
- Check all manager accounts daily to make sure that all available cash is invested;
- Collect interest, dividend and principal payments on a timely basis;
- Process corporate actions on a timely basis;
- Price all securities at least on a monthly basis, preferably on a daily basis contingent on asset class and types of securities;
- Lend securities at the direction of the Council;
- Value and monitor derivatives and the trades from which they emanate;
- Provide monthly, quarterly and annual reports;
- The Custodians generally are asked to provide data and reports directly to the Council and service providers on a regular basis; and
- Provide continuing education programs for the Council.

Investment Consultants

- Recommend strategic procedures and process;
- Identify problems, issues and opportunities and makes recommendations;
- Upon the request of the Council, prepare an asset allocation study together with alternatives;
- Assist with manager structure, selection, monitoring and evaluation;
- Monitor and evaluate the overall performance of the portfolio;
- Carry out special projects at the request of Council; and
- Provide continuing education to the Council and staff, as appropriate.

Background Notes:
The Council selects and appoints investment consultants to provide objective, independent third-party advice on specific investment classes, including debt and equity securities, real estate, alternative investments, and other areas where focused attention is needed. Investment consultants do not accept discretionary decision-making authority on behalf of Council. Investment consultants function in a research, evaluation, education and due diligence capacity for Council and are fiduciarily responsible for the quality of the service delivered.

Investment Managers

- Act as a "prudent expert" on behalf of the Council;
- Develop a portfolio strategy within the specific mandate and asset size determined by the Council;
- Manage, purchase and sell assets for the portfolio; and
- Act as a co-fiduciary for assets under its management.

RESPONSIBILITES OF THE COUNCIL

The statutory responsibility of the Council is to invest Joint Trust Fund monies in income-producing obligations and other instruments or securities that have a high degree of reliability and security. Although it is a matter of debate whether the Joint Trust Fund is a true trust or simply a misnomer for public money restricted to a particular use, the statutory responsibilities of the Council in the management of the Joint Trust Fund are best defined through analogy to the Restatement (Third) of Trusts which indicates that trust property shall be made productive with primary emphasis on the preservation of capital and due consideration for the maximization of income. When investing trust property, the trustee has a duty to conform to the terms of the trust, and to conform to applicable law in the absence of provisions in the trust. In the absence of contrary law or trust provisions it imposes the standard of the "prudent investor" which

> *". . . requires the exercise of reasonable care, skill, and caution, and is to be applied to investments not in isolation but in the context of the trust portfolio and as a part of an overall investment strategy, which should incorporate risk and return objectives reasonably suitable to the trust."*
>
> Restatement (Third) of Trusts, §277

The standard of the "prudent investor" has been viewed as approving a portfolio theory of investments but does not impose a duty to maximize income. Indeed, the standard gives primary emphasis to preservation of the trust estate, while receiving a *reasonable* (emphasis added) amount of income rather than incur undue risks. Only where all else is equal should the trustee choose the investment that produces the greater return. In addition, the trust must be invested in such a way that the purpose of the trust is not thwarted. It is therefore imperative

that investment policies and asset allocation strategies adopted by the Council reflect the underlying purposes and intent of the Joint Trust Fund.

Looking to the Restatement (Third) of Trusts, therefore, the responsibilities of the Council can be summarized as follows:

1. Take all actions for the sole benefit of the Joint Trust Fund.

2. Prepare written investment policies and document the process. In doing so the Council shall:

- Determine the mission and objectives of the Joint Trust Fund;
- Choose an appropriate asset allocation strategy;
- Establish specific investment policies consistent with the Joint Trust Funds' objectives; and
- Select investment managers to implement the investment policy.

3. Diversify assets with regard to specific risk and return objectives appropriate to the intended use of the Joint Trust Fund.

4. Use "prudent experts" to make investment decisions.

5. Control investment expenses.

6. Monitor the activities of all investment managers and investment consultants.

7. Avoid conflicts of interest.

The Council and staff should regularly undertake continuing education relevant for their duties. Specifically, all Council members and key staff should participate in an educational program, which provides basic instruction on the four primary components of the investment management process:

- Investment responsibility and procedural process;
- Developing investment policy guidelines and designing optimal investment manager structures;
- Implementing investment policy; and
- Monitoring and controlling an investment program.

INDEMNIFICATION

State law, [AS 37.10.071(e)] provides that the State shall indemnify fiduciaries of a state fund or an officer or employee of the state against liability under AS37.10.071(d) for breach of a statutory duty in exercising investment, custodial, or depository powers or duties to the extent

that the alleged act or omission was performed in good faith and was prudent under the applicable standard of prudence. However, actions which do not fall within the area of good faith and prudent practices are not statutorily entitled to indemnification. Indemnification language consistent with AS 37.10.071(e) as well as the desire of State trustees to hold retained investment managers and other retained fiduciaries to high standards are included in contract language with such retained consultants.

The Trustee Council may wish to ensure that trust assets and its own services are protected and in that respect may purchase insurance or provide for self-insurance to cover the acts including fiduciary acts, errors and omissions of its members and agents.

As a general matter, the Attorney General has advised members of State boards analogous to that of the Council that it would act in defense of such board member actions consistent with the provisions of AS 37.10.071(e), or would retain counsel to act in that regard. There are no comparable indemnification provisions under federal law. Federal employees are normally represented by the United States Department of Justice in litigation arising out of their official duties.

A fiduciary of a state fund under Alaska law relating to the Council would be each person provided by law to manage investments in an account invested by the State of Alaska (AS 37.10.071(f)(3)). In this respect, the consultants retained by State trustees are not fiduciaries per se and as such are not entitled to the cross-indemnification for acts which were taken in good faith or within the scope of prudent behavior under AS 37.10.071. However, such consultants would certainly be held to a standard of care applicable to their standards of professional responsibility, and liability and a requirement to indemnify the Joint Trust Fund may be built into contracts. Auditors and investment consultants are not fiduciaries of a state fund within the statutory definition of AS 37.10.071(f). However, a custodial bank may have certain fiduciary obligations to the extent that, for example, it is involved in short-term cash management and securities lending functions if such services are utilized.

DELEGATION OF AUTHORITY

The Council, through the appropriate state and/or federal agencies, may contract for investment, custodial or depository services on a discretionary or non-discretionary basis to the State and Federal governments and their employees, or to independent investment management firms, banks, financial institutions or trust companies by designation through appointments, contracts or letters of authority.

CODE OF ETHICS AND CONFLICTS OF INTEREST

The State trustees and employees of the Trustee Council Office are subject to the Alaska Executive Branch Ethics Act (AS 39.52). In general, the State law provides that high moral and ethical standards are essential for the conduct of free government and that a Code of Ethics for the guidance of public officers will discourage those officers from acting upon personal or financial interests in the performance of their public responsibilities, and will improve standards for public service and promote and strengthen faith and confidence in public officers.

The State Code of Ethics provides that any effort to benefit a personal or financial interest through official action is a violation. The Code details specific prohibitions pertaining to the abuse of official position, acceptance of gifts, improper use of disclosure of information and improper influence. By law, the State trustees are subject to conflict of interest disclosure requirements of AS 39.50 which includes the delivery of annual reports on financial and business interests to the Alaska Public Officers Commission.

All federal government employees are subject to the standards of conduct provided by the Ethics in Government Act of 1978, Public Law 95-521, as amended, including the Ethics Reform Action of 1989, Public Law 101-194. The statutory prohibitions are found in Title 18 of the United States Code, Sections 201 through 209, which include representational activities, conflict of interest, and dual compensation. Standards of conduct for all government employees are also delineated by Executive Order 12674, as amended by Executive Order 12731. The federal standards of conduct are further delineated in the regulations of the Federal Register, and include acceptance of gifts from outside sources; gifts between employees; gifts from foreign sources; acceptance of travel and related expenses; outside work; honoraria; outside activities; political activity; lobbying; procurement; misuse of government time, equipment, and information; nepotism; negotiating for non-federal employment; post employment; disclosure of financial interests; and penalties. The Department of the Interior, Commerce and Agriculture have additional ethics standards and requirements for all of their employees, including annual training and financial disclosure statements for specific persons, which include members of the Trustee Council.

STRATEGIC ASSET ALLOCATION POLICY IN GENERAL

The Council recognizes that strategic asset allocation is the single most important policy decision affecting portfolio return and risk. At least annually, the Council will evaluate its current strategic asset allocation policies. The current policies will be compared with potential alternative policies on a consistent basis.

The specific status of the Joint Trust Fund, including funding status, earnings assumptions, liquidity requirements, and expected growth shall be considered. The Council's investment consultant will use a "mean variance" optimization approach to evaluate the current and alternative policies. The specific inputs to the modeling process will be defined and contrasted with actual historic results. The implications for expected return and risk will be considered

over multiple time horizons. The development of optimized asset allocations requires estimates of risk (standard deviation of returns for each asset class), the modeled return for each asset class, and the correlations of each asset class with other asset classes. The strategic analysis will include those asset classes for which the Council believes reasonable inputs are available. Asset subsets where meaningful historic data are not available shall not be considered as a part of the strategic asset allocation analysis. Such subsets or categories, however, may be included as part of an appropriate broad asset category.

Manager Structure

Within each major asset category, the Council will determine an appropriate management structure. The structure analysis will consider the potential benefits, risks and costs associated with utilizing active versus passive investment approaches, varied investment philosophies and approaches and vendor diversification.

For each major asset category, the Council will strive to achieve a structure that assures potential exposure to the entire asset category. Particular emphasis, however, may be placed on those subcategories or approaches where the Council has determined the potential benefits are superior to alternative approaches. For example, with respect to international exposure, the management structure may result in a systematic asset allocation bias in favor of developed markets and a corresponding bias against emerging market. Similarly, with respect to domestic equities, the structure decisions may result in a slight bias in favor or against a particular investment style. All such decisions shall be conscious decisions. Unless explicitly decided to the contrary, assets within each major asset category shall be allocated among managers so as to achieve broad diversification and aggregate return and risk profiles similar to the broad market.

At least annually, the Council shall review its management structure to ascertain that desired diversification is being achieved. The Executive Director, in consultation with the IWG, staff, and investment consultants shall prepare such analysis and recommendations for the Council's consideration.

Manager Selection

A rigorous, objective due diligence process will be utilized in the selection of all investment managers retained by the Council. The analysis will be conducted by the Council's investment consultant. The managers' roles in the Council program and specific evaluation criteria will be defined prior to the identification of potential candidates. Candidates will be evaluated both quantitatively and qualitatively.

- Quantitative factors will include a comprehensive analysis of historic performance over a variety of market environments. Candidate performance will be evaluated relative to appropriate market indices and peer groups. Candidates will be analyzed to determine whether portfolio construction has adhered to their stated investment styles.

- Qualitative factors such as ownership structure, depth of staff, professional expertise, experience managing comparable portfolios, key employee incentives, stability, and potential conflicts of interest also will be considered.

The consultant will identify a semi-finalist group of candidates. All semi-finalists will be judged by the consultant as capable of meeting the Council's needs. The Council will interview all or a portion of the semi-finalist group and make the final selection. The IWG's recommendations to the Executive Director shall be solicited as an integral part of this process.

Guidelines for Manager Termination

The performance of the Council's investment managers will be monitored on an ongoing basis. The Council may place a manager on a "Watch List" or terminate a manager at any time. The Council may, by separate resolution, adopt specific criteria to be utilized in identifying developments, which would cause a manager to be placed on a "watch list" and removed from such a list.

Securities Lending

The Council may enter into a securities lending arrangement with an agent(s) when the Council concludes that such arrangements would be beneficial to the Joint Trust Funds. Securities lending services may be provided by the Council's bank custodian or an independent service provider. Securities lending programs result in the agent undertaking a direct or indirect asset management function. The Council will use the same skill and due diligence in the evaluation and selection of such agent(s) as utilized in the selection of money managers.

Rebalancing Guidelines

The Council may periodically instruct staff to shift and/or limit staff's authority to shift assets within asset classes and/or among asset classes. Unless restricted by Council action, the Executive Director or an appropriate designee shall have discretion to move assets among investment managers and asset categories provided that such actions are consistent with movement of the actual asset allocation within the variability bands of the Council's strategic asset allocation policy and manager structure targets. Such adjustments to the actual asset allocation may be made without prior Council approval when the actual asset allocation falls outside of the variability target bands at end of a calendar month. The Executive Director shall make the necessary adjustments to the initial target allocation within 30 calendar days. Staff shall report any asset shifts at the next regular Council meeting. Such reports will include a description of the rationale for the shift.

INDIVIDUAL ACCOUNT PROGRAM OBJECTIVES

The Council is responsible for the prudent investment of the Joint Trust Fund within the defined purpose and investment objectives of each program mandated by law and policies of the Council. The Council anticipates that the Joint Trust Fund (Restoration Reserve), along with

other unallocated funds and accrued interest, will have a fair market value of approximately $170 million on or about October 1, 2002. Consistent with the March 1, 1999 resolution funds in the Restoration Reserve and other remaining unobligated settlement funds available October 1, 2002, shall be allocated in the following manner:

- $55 million of the estimated funds remaining on October 1, 2002 and the associated earnings thereafter will be managed as a long-term funding source, with a significant proportion of these funds to be used for small parcel habitat protection.; and

- The remaining balance of the funds on October 1, 2002 will be managed so that the annual earnings, adjusted for inflation, will be used to fund annual work plans that include a combination of research, monitoring, and general restoration.

Consequently, the Joint Trust Fund has a twofold investment mandate: (1) short-term liquidity for ongoing habitat restoration purposes, including the probable acquisition of lands, and (2) a long-term endowment to generate future income. Future land purchases are subject to ongoing negotiations and the timeline of their corresponding investments cannot be determined until such negotiations are concluded. The investment horizon of these funds would change based upon the probable acquisition date.

Each program mandate shall be evaluated relative to an appropriate market benchmark and also relative to an appropriate peer group of competitive alternatives. The number of investment options and the market benchmarks shall be determined by the Council.

STATEMENT OF INVESTMENT OBJECTIVES AND POLICIES

Introduction

The Council hereby establishes the following Statement of Investment Objectives and Policies ("the Statement") for the investment of the Joint Trust Fund. The Council assumes full and complete responsibility for establishing, implementing and monitoring adherence to the Council's policies. The Council reserves the right at any time to amend, supplement or rescind this Statement.

Investment Objectives

- Provide adequate liquidity for ongoing restoration purposes.
- Preserve the inflation-adjusted value of invested capital on endowment funds.
- Realize competitive, total rates of return.
- Incur minimum levels of risk that are appropriate to other long-term investment objectives.

Time Horizon

- Establish short and long-term investment objectives

- Evaluate performance over one-, three-, and five-year time periods, with primary emphasis for endowment funds placed on the longer time periods.

Benchmarks

Given the investment objectives and time horizons of the Joint Trust Fund, benchmarks are established to gauge progress towards their achievement. The benchmarks are as follows:

- Variability of total market value. The percentage change in the market value shall be contrasted to that expected from normal investment strategy.
- Competitive rates of return. (Unless specified otherwise, the following benchmarks are based on time-weighted rates of return.)

1. For liquidity purposes, total annualized returns equal to inflation as measured by the U.S. Consumer Price Index of all Urban Wage Earners.
2. For endowment purposes, the total annualized returns shall be established by separate resolution and shall be in excess of inflation as measured by the U. S. Consumer Price Index of all Urban Wage Earners.
3. Total annualized returns should equal or exceed the return on a *passively* managed (market index based) portfolio with the same asset mix as the normal strategic asset mix.
4. Total Joint Trust Funds' annualized returns should exceed the median return on an *actively* managed portfolio with the same asset mix as the normal strategic asset mix and comparable risk.
5. The time-weighted, total rates of return shall be compared to the total rates of return for similar public funds.

- Passively Managed Strategic Benchmark. Performance shall be compared on a quarterly basis to that of a passively managed strategic benchmark. On a biannual basis, performance will be presented to the Council. However, the main purpose of this comparison shall be to contrast the long-term, actively-managed, pre-investment fee performance results versus that of a passively managed portfolio with an asset mix identical to the normal strategic asset mix. The passively managed strategic benchmarks shall be as follows:

Asset Class	Market Indexes
Cash	90-Day U.S. Treasury Bills
Broad Domestic Equity	Russell 3000 Index
Domestic Large Cap	S&P 500 Index
Domestic Small Cap	Russell 2000 Index
International Equity	EAFE Index
Domestic Fixed Income	Lehman Aggregate Index
Intermediate Fixed Income	Lehman Intermediate Gov't Index
International Fixed Income	Salomon Non-Dollar Gov't Bond Index

On a quarterly basis, an independent contractor shall calculate the *passively* managed strategic benchmark by multiplying the respective index total return times the normal strategic asset mix percentage. These statistics will be summed to generate a weighted average total passively managed benchmark return. For periods longer than one quarter, the quarterly returns, in factor form, will be chain-linked. In the case of periods longer than one year, the return shall be annualized.

- Actively Managed Strategic Benchmark. On a quarterly basis, an independent contractor shall calculate the *actively* managed strategic benchmark by multiplying the median actively managed portfolio return for each asset class segment times the normal strategic asset mix percentage. These statistics will be summed to generate a weighted average total actively managed benchmark return. For periods longer than one quarter, median returns for each asset class segment shall be determined for the length of the period and then multiplied times the appropriate normal strategic mix percentage. Those statistics will also be summed to generate a weighted average total actively managed strategic benchmark return.

- Asset Class Segments. To maintain an efficient risk/return profile and for the purpose of setting objectives and policies for the different asset classes, assets shall be structured into domestic equity, international equity, domestic fixed income, and international fixed income segments. Collectively and/or individually, portfolios shall be called Managed Account(s), whether the investments are direct or through units of commingled funds. Managed Account investments shall be made with the care, skill, prudence and diligence under the circumstances then prevailing that a prudent investor acting in a like capacity and familiar with these matters would use in the conduct of Trust Funds of like character and with like aims.

Irvine Amendment
PJ 11100112

PROPOSAL FORM

THIS FORM MUST BE SUBMITTED BY THE PROPOSED PRINCIPAL INVESTIGATOR (S) AND SUBMITTED ALONG WITH THE PROPOSAL.

By submission of this proposal, I agree to abide by the Trustee Council's data policy (*Trustee Council Data Policy**, adopted March 17, 2008) and reporting requirements *(Procedures for the Preparation and Distribution of Reports***, adopted June 27, 2007).

PROJECT TITLE: **FY 12** Amendment to Lingering Oil on Boulder-Armored Beaches in the Gulf of Alaska 23 Years after the *Exxon Valdez* Oil Spill (Project 11100112)

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* www.evostc.state.ak.us/Policies/data.cfm

** www.evostc.state.ak.us/Policies/reporting.cfm

FY11 INVITATION PROPOSAL SUMMARY PAGE
Project Title: FY12 Amendment to Lingering Oil on Boulder-Armored Beaches in the Gulf of Alaska 23 Years after the *Exxon Valdez* Oil Spill (Project 11100112)
Project Period: FFY2011-2012-2013
Primary Investigator(s): Dr. Gail Irvine (USGS), Dr. D. Mann (Mann's Environment), Mark.Carls (NOAA, NMFS)
Study Location: Gulf of Alaska, (Katmai National Park & Preserve, Kenai Fjords NP&P)

Amendment Abstract: This FY12 amendment to Project 11100112 solely requests funding to complete sampling that was detailed in the original proposal, but which could not be accomplished in 2011 because of extremely bad weather. Costs, primarily in logistics (contracts) and personnel time, were incurred in the attempted sampling and form the main part of our request. In 2011 we were on a vessel in Cook Inlet/Shelikof Strait for 7 days and were only able to sample on 2 low tides. After five days of bad weather, when it became clear that we could not sample our suite of sites, we concentrated on accomplishing Objective 2 (determining if oil is leaking out of the sites), which involved placing passive samplers at just 2 sites and nearby controls. Since these samplers are extremely sensitive to waterborne hydrocarbons, finishing Objective 2 reduces the conflict between that sampling and some of our traditional sampling that can disrupt the oil at a site (e.g., taking oiled sediment samples, and assessing the depth of subsurface oil via dip stones). Thus, even though we visited two sites – and visually observed appreciable persistent oil at both, we could not do those disruptive forms of sampling which are extremely important components of the long-term monitoring. This amendment to our proposal will allow the complete re-sampling of our 6 Gulf of Alaska long-term monitoring sites in 2012. Our overall objectives have not changed, but we have modified the due dates for this study and have provided a budget that addresses the additional costs required.

Original Abstract: We want to continue long-term monitoring of lingering oil at six Gulf of Alaska sites where we have tracked the fate and persistence of stranded *Exxon Valdez* oil over the last 22 years. It has been six years since our last survey revealed that relatively unweathered oil still persisted at some sites. Interestingly these sites have less weathered oil (e.g., contains more *n*-alkanes) than similarly aged oil from Prince William Sound. All five of our monitoring sites on the Katmai National Park coast are boulder beaches with high wave energies. Accepted knowledge predicted that rapid natural weathering of stranded oil would occur in such settings. This was not the case, and we are still figuring out why. We think it is because the boulder armors that cover these shorelines protect the underlying oil. In addition to resampling our monitoring plots, we will be testing to see if oil is leaking out from these beaches. By extending our long term study of oil stranded on this little understood shoreline type, we will contribute important new data useful for predicting the geographic distribution of lingering oil, assessing its potential for continued pollution, and designing methods for its remediation.

Estimated Budget for FY12 Amendment: $56.6k + 9%GA = $61.7k
original project budget: $203.8k
EVOS Funding Requested:
FFY2011: $178.2k, **FFY 2012 (new): $61.7k** $ FFY2013: $25.6k
Non-EVOS Funds to be used:
FFY2011: $31.6, FFY2012: $4.0k

Date: July, 2011

FY12 AMENDMENT BUDGET JUSTIFICATION

Personnel: New amount requested FY12 - $ 21.2k

The personnel costs requested are only for that time already expended that would need to be duplicated in FY12 to accomplish the field work objectives; these include such tasks as logistics planning, contracting, hiring and purchasing in addition to the field work. Those personnel costs associated with analysis and writing, that were already received and were to be charged in FY11-12, will be shifted to the appropriate year.

Travel: New amount requested FY12– $ 1.2k

Additional travel expenses are needed for FY12 to support field work. Travel costs originally listed for FY12 (to support travel to present findings at a scientific conference) will be shifted to FY13 or FY14. The only reason FY14 is listed here is that the conference is not known at the present, and this could mean that the conference travel could shift to FY14.

Contractual: New amount requested FY12- $ 34.0k

The largest costs in this amendment are for contracts, primarily vessel support. The vessel expenditures in FY11 were $23.1k (note this covered a truncated field trip), and this amount is requested for next year. In addition, we request $2.5k to support separate vessel support for the Kenai Fjords site; this year we found that it can be advantageous or necessary to split the field work for each park. The third contract expense is for replacement of Dr. Dan Mann's time and travel expenses for costs incurred with the truncated FY11 field work (= $8.3k). An additional $0.1k is included for shipment of gear and samples.

Commodities: New amount requested FY12- $ 0.2k

The commodities cost, $0.2k, is for replacement of miscellaneous expendable supplies.

Equipment: amount requested FY12- $0k

Lingering Oil on Boulder Armored Beaches in the Gulf of Alaska 23 Years after the *Exxon Valdez* Oil Spill

PROJECT PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

Contrary to the predictions made by oil-spill experts in 1989, significant amounts of *Exxon Valdez* oil remain in the spill region 20 years later. Short et al. (2004) estimate there are 7.8 hectares of oiled shorelines left in Prince William Sound (PWS) containing some 56,000 kilograms (kg) of lingering oil in the subsurface. Furthermore, Short et al. (2007) assert that the areal extent of oiled beaches in PWS did not change significantly between 2001 and 2005, which implies that the rate of decline in lingering oil has slowed. There have been no detailed studies of the amount of lingering oil in the Gulf of Alaska; however, long-term monitoring of oiled sites shows persistence of relatively unweathered oil in Kenai Fjords National Park and Katmai National Park (Irvine et al., 1999; 2006; 2007). Is that oil still there on high wave energy beaches in the Gulf of Alaska? Has its chemical weathering changed significantly? Is it leaking from the beach, thereby potentially posing biological threat? If it is still there, what factors are causing it to persist?

1) Background

a) Lingering Exxon Valdez Oil

Our knowledge about lingering oil in the spill region has become much more complete over the last 20 years, but large gaps still exist. Some of these gaps involve geographical differences in oiling and geomorphology/exposure within the spill region. For example, in PWS oil reached shorelines in a more fluid or less viscous form than the emulsified water/oil form (mousse) that landed on GOA shores. Also, PWS is in general a more protected environment than the GOA, and this basic fact has widespread implications for the coastal geomorphologies of the two areas. We know now that in PWS much of the remaining oil is found at a lower level in the intertidal zone than was thought immediately after the spill (Short et al., 2006). On the other hand, this is not a universal pattern, since lingering oil in the GOA tends to be located high in the intertidal zone (Irvine et al., 2006). A modeling study designed to predict the location of lingering subsurface oil within the spill area, including both Prince William Sound (PWS) and the Gulf of Alaska (GOA), was begun in 2007 (Michel et al., 2010). This ground-breaking work has developed geospatial models that identify areas where subsurface oil is still present on the shorelines of PWS and the GOA and estimate the relative quantities of subsurface oil remaining at different sites. One of the most significant results of this work is its prediction that a significant number of as-yet-unsurveyed sites in PWS and the GOA still contain subsurface oil. On the down side, this geospatial model has been developed primarily based on data from PWS and so has limited applicability to GOA sites. Furthermore, it is implicit in multi-variable models that while overall predictive success may be high (as in PWS), the linkages between the data used and the physical phenomena that drive oil persistence remain unclear (Michel et al., 2010). In other words, the model may work, but we still do not understand the geomorphic and geochemical processes that allow the persistence of stranded oil.

Other recent EVOS-funded studies focus on smaller-scale processes related to subsurface oil persistence. M. Boufadel and collaborators are studying factors that limit the degradation rate of oil in PWS beaches including nutrient and oxygen concentrations and water flow (Boufadel et al., 2010; Li and Boufadel, 2010). A. Venosa et al. (2010) have researched the factors limiting biodegradability of oiled sediment. Both these small-scale, process studies emphasize the importance of oxygenation, nutrient availability, and hydraulic conductivity in the subsurface of oiled beaches. Certainly, these small-scale variables are influenced at larger spatial scales by the nature and stability of the overlying armor layers.

b) Boulder Armored Beaches

Boulder armors develop naturally when the finer particles (silt, sand, pebbles, and cobbles) are winnowed away by waves, deflating the pre-existing sediments until a layer of boulders remains that prevents further winnowing. Natural boulder armors are little studied despite their wide distribution on shorelines around the world and despite the widespread use of artificial boulder armors to stabilize eroding beaches (Dean and Dalrymple, 2004). Natural and artificial armors are distinctly different phenomena, and the stability formulae used to design artificial armors have little relevance to natural armors (Oak, 1986). A recent review of armored, gravel beaches on paraglacial coastlines is given by Hayes et al. (2010).

Boulder beaches are often intricately packed or fitted together with the projections of one boulder accommodated in the concavities of its neighbors (Shelley, 1968). Smaller boulders are often imprisoned amongst larger ones (Hills, 1970). The fitting together of boulder armors occurs by boulders shifting in place, rubbing against their neighbors until achieving a packing of maximum stability. Tracking of the positions of individually marked boulders on the Katmai coastline shows that while individual boulders regularly roll and shift in place, few ever move out of their niches within the surrounding armor (Irvine et al., 2006; 2007). Armors form tightly fitted fabrics that are highly resistant to wave attack and may be stable for thousands of years (Bishop and Hughes, 1989). Hence boulder armors represent equilibrium geomorphic features; that is, they develop into progressively more stable entities to the point where most wave events cannot disturb them or the sediments (and oil) they cover. Boulder armors are ubiquitous on Gulf of Alaska shorelines (Hayes et al., 2010). Exceptions are shorelines where sea-level changed radically during the Great Alaskan Earthquake in 1964 and shorelines experiencing rapid progradation by glacial outwash.

In summary, naturally occurring boulder armors are widespread on rocky shorelines. Because they are created through waves, armors are most common and best developed on high energy shorelines like many in the GOA and on exposed shorelines in PWS. The dynamics of boulder armors have been little studied relative to sandy and gravel beaches, which tend to be more widespread at lower latitudes. As a result, the processes important in the development and maintenance of boulder armors remain poorly known, though it is clear that boulder beaches are quite different from sand and gravel beaches with a unique set of formative processes (Oak, 1984; Hayes et al., 2010). Another thing that is clear is that boulder-armored shorelines can harbor slightly weathered oil for long periods of time (Irvine et al., 2006; 2007; Short et al., 2007). It seems likely that if there is still *Exxon Valdez* oil in the environment of southern Alaska 50 years hence, it will be associated with boulder armors.

c) Our Long Term Monitoring Study of GOA Shorelines

Since 1994, we have monitored the status of *Exxon Valdez* oil at six sites in the Gulf of Alaska (Irvine et al., 1999; 2006; 2007; Short et al., 2007). These sites are now the most consistently studied, long-term monitoring sites of stranded oil in the spill region. Sixteen years post-spill, surface oiling had declined markedly at all sites, but subsurface oil remained abundant. The oil collected from beneath the boulder armor at three of the four sites surveyed was still compositionally similar to eleven-day old *Exxon Valdez* oil (Short et al., 2007). Remarkably, this oil still contained *n*-alkanes, which normally would be degraded by microbes within weeks of a spill. When the composition of *Exxon Valdez* oil from the GOA was compared to that from PWS, the GOA oil was less-weathered (Short et al., 2007). These findings indicate that our GOA study of the long-term persistence of stranded oil may provide insights not possible from PWS studies and that may apply to some of the extensive coastline that was oiled outside of PWS.

The persistence of oil at high wave-energy sites in the GOA seems to be related to the presence of stable boulder armors. Though not initially chosen for this reason, all five of our monitoring sites on the Katmai National Park and Preserve coast in the GOA possess such boulder armors. The prediction that oil persistence correlates with armor stability has been borne out over the last 16 years. Analysis of movements in the boulder armors reveals that only minor shifts have occurred since 1994. These findings suggest that boulder armors, combined with the stranding of oil mousse high in the intertidal zone, results in the unexpectedly lengthy persistence of only slightly to moderately weathered oil within otherwise high-energy wave environments on GOA coastlines. The three-dimensional matrix provided by boulder-armored beaches allows oil to penetrate into finer sediments lying beneath stable, boulder lags. Previously it was thought that oil would be rapidly removed from such geomorphic settings by the vigorous wave action (Vandermuelen, 1977). Instead, these surface armors attenuate wave energy and reduce wave reworking of the underlying substrates and the included oil. Additionally, oil on boulder-armored beaches is sheltered by the boulders from sun exposure (Irvine et al., 1999). Similar inferences about the importance of boulder armors in allowing oil to persist for long periods on exposed shorelines comes from observations made inside PWS (Michel and Hayes, 1993a, b; 1995; 1999; Hayes and Michel, 1999; Hayes et al., 2010). Understanding the dynamics of armored shorelines is basic to understanding what determines the distribution of persistent, subsurface oil.

The persistence of this oil in the GOA raises questions about it potential or realized biological effects. In PWS a number of studies have examined biological effects of the spill over the years (e.g., Bodkin et al., 2002; Esler and Iverson, 2010), but these types of studies are lacking in the GOA except for more limited temporal sampling of oiled mussel beds (Babcock, et al., 1996; Carls, et al., 2001, Irvine et al., 2007). Thus the ability to tie lingering oil to biotic effects is limited. We propose to examine whether oil is being released from these sites as a first step in addressing this particular gap in our understanding of biological effects of lingering oil.

B. Relevance to 1994 Restoration Plan Goals and Scientific Priorities

Our proposed work will address the physical and chemical processes responsible for the persistence of lingering oil in the spill region within the GOA and seeks to understand the

reasons why this long lingering oil has failed to degrade. Additionally, we are investigating whether the oil is being released and may be affecting biota. Of particular significance is the fact that five of our long-term monitoring sites are located within a designated wilderness area in Katmai National Park and Preserve. Our findings will provide direct evidence of the recovery status of these special-value lands and will assist in the evaluation of remediation options that could lead to restoration of these injured natural resources. Our proposed study of lingering subsurface oil on boulder armored beaches in the GOA will fill a geographical gap in our understanding of the distribution of lingering oil and directly complement recent or ongoing studies of oil biodegradation at finer spatial scales.

II. PROJECT DESIGN

Objective #1. What is the status of oiling at our long-term monitoring sites, 23 years after the *Exxon Valdez* spill? Specifically, how chemically weathered is the oil today, and how have the extents of surface and subsurface oiling changed?

Objective #2: How much of the subsurface oil preserved under boulder armors at our GOA monitoring sites is presently leaking into the surrounding environment?

Objective #3: How stable have the boulder armors on our study beaches been over the last 23 years and how does this relate to the findings from Objectives #1 and 2?

B. Procedural and Scientific Methods

1) What is the status of oiling at our long-term monitoring sites, 23 years after the *Exxon Valdez* spill? Specifically, how weathered is the oil and how have the extents of surface and subsurface oiling changed?
We will reassess the extent of both surface and subsurface oil using the same methods we have used since 1994 at these sites. Additionally, we will collect two oiled sediment samples from each site for hydrocarbon analyses. These samples will be analyzed via gas-chromatography/mass-spectrometry (GCMS) by NOAA's Auke Bay Laboratory.

2) Is the subsurface oil preserved under boulder armors presently leaking into surrounding environment?
Although oil has persisted at our GOA monitoring sites for at least 16 years, we do not know if oil is presently leaking from the subsurface into the environment. If it is occurring, such leakage could be having biological impacts. To ascertain if oil is leaking out, we will deploy low density polyethylene strips (LDPEs), which we refer to here simply as "plastic strips." These plastic strips function like the better known semi-permeable membrane devices (SPMDs) (Chapman, 2006), but are superior when the hydrocarbon signal is low (e.g., in relatively unpolluted environments), since they record less background 'noise' than do SPMDs (Jeep Rice, pers. comm.). Polynuclear aromatic hydrocarbons (PAHs) are adsorbed onto the plastic strips, but not alkanes or particulate oil. We will deploy the plastic strips, in their protective containers, in radiating patterns near boulder armors that still shelter remnant oil, and also at control sites. Our plan is to place the plastic strips at two of our long-term monitoring sites on the Katmai coast and at two un-oiled control sites relatively near these oiled sites. At each oiled site, we will deploy

10 plastic strips, while at each control site we plan to deploy 4 plastic strips. Trip and field blanks will be collected and analyzed for control purposes. At all sites, the plastic strips will be left in place for up to 30 days, then collected for analysis of hydrocarbons. We also plan to collect mussels (*Mytilus trossulus*) near these same sites - where they are present - and analyze them for hydrocarbons as well, since they are better indicators of particulate hydrocarbons (Jeff Short, pers. comm.).

3) How stable are the boulder armors?

We will resurvey the locations of the marked boulders at each site, using the same methods as previously. The deviations from the previous locations will be calculated and used to determine if individual boulders have moved significantly over time. The degree of boulder movement on each beach will be used to interpret the data gathered in Objectives #1 and #2 on the extent, chemical composition of oiling and whether oil is being released into the environment. If boulder armors are responsible for the long term persistence of EVOS oil, we expect to see the most oil and the least weathered oil at sites whose armors have moved the least.

C. Data Analysis and Statistical Methods

Surface oiling at our GOA monitoring sites is reassessed in marked quadrats by estimating oil percent cover. Percent cover data for individual quadrats will be compared through time (1994, 1999, 2005, and 2012) via pair-wise tests. As for all tests discussed here, the data will be tested for normality and the appropriate parametric or non-parametric test chosen. Data from previous years (1994, 1999 and 2005) were compared in our latest report and manuscript via Wilcoxon signed-rank tests.

Subsurface oiling is assessed through the sampling of "dip stones" at each site. These are naturally occurring cobbles that extend from the sub-armor surface of the substrate downwards through the zone of subsurface oiling. Means and ranges of the depth of oiling for each site will be compared through time.

Hydrocarbon analyses:

Oil composition and weathering: As in our previous studies, chemical analysis of sediment, mussel and LDPE samples will be conducted via gas-chromatography/mass-spectrometry (Short et al., 1996a). We will compare the presence and relative abundance of polynuclear aromatic hydrocarbons (PAH) within samples, and compute a weathering index based on a first-order kinetic loss rate model of Short and Heinz (1997), which will be used to compare the degree of weathering of different samples at the same and different sites. Additionally, the proportion of *n*-alkanes and PAHs remaining through time will be compared among samples and sites. These analyses permit identification of the source of the oil.

LDPE data: The concentration and distribution of PAHs in these samples will be compared between oiled and non-oiled (control) armored beaches.

Boulder movement: We will use the same combination of survey methods employed in our earlier surveys. Measurement of boulder movement will be compared between years, by site. Various measures of movement, e.g., horizontal and vertical displacements, changes in angular orientation of the marker bolts, will be considered separately. Measurement error is determined

through repeated measurements of selected marked bolts. The significance of displacements for the boulder armoring will be evaluated in relation to the size classes of the boulders on the beach. Variations between beaches will be contrasted, especially in relation to the extent of chemical weathering of oil samples.

D. Description of Study Area

As detailed above, we are proposing to continue monitoring of six sites located on the GOA coastline, in Katmai National Park & Preserve and Kenai Fjords National Park and Preserve (Irvine et al., 1999; 2006; 2007; Short et al., 2007). We have monitored oiling conditions and boulder movements at these sites since 1994. Maps with the location of the study sites and details of site morphology and sampling have been included in previous reports submitted to the EVOS Trustee Council.

E. Coordination and Collaboration with Other Efforts

NOAA is a cooperating agency, and Mark Carls, the head of the analytical lab at NOAA's Auke Bay Fisheries Laboratory, is a principal investigator on the project. We have been in communication with the NPS regarding this project, and most closely there with Bud Rice. We plan to have NPS staff with us in the field, and will be training staff in our sampling procedures. The NPS continues to be interested in and concerned with the persistence of oil on the Katmai and Kenai Fjords National Park coastlines.

III. SCHEDULE

A. Project Milestones

Objective 1. Determine status and extent of persistent oiling at the long-term GOA study sites.
To be met by March 2013

Objective 2. Determine if oil is leaking from GOA armored beaches.
To be met by March 2012

Objective 3. Determine the stability of the boulder armors.
To be met by February 2013

B. Measurable Project Tasks

FFY 11, 2nd quarter (January 1, 2011-March 31, 2011)
February: *Project funding approved by Trustee Council*

FFY 11, 3rd quarter (April 1, 2011-June 30, 2011)
Contracting, hiring, preparation for field work
Field work

FFY 11, 4th quarter (July 1, 2011-September 30, 2011)

Shipment of LDPE and mussel samples to Auke Bay Labs

FFY 12, 1st quarter (October 1, 2011-December 31, 2011)

December 15: *Begin hydrocarbon analyses of LDPEs and mussel samples*

FFY 12, 2nd quarter (January 1, 2012-March 31, 2012)

January 18: *Annual Marine Science Symposium*

March 1: *Complete hydrocarbon analyses of LDPEs and mussel samples*

Begin contracting for FY12 field work

FFY 12, 3rd quarter (April 1, 2012-June 30, 2012)

April 15: *Submit annual report*

Contracting, hiring, preparation for field work

FFY 12, 4th quarter (July 1, 2012-September 30, 2012)

Field work

Shipment of hydrocarbon samples to Auke Bay Labs

FFY 13, 1st quarter (October 1, 2012-December 31, 2012)

December 15: *Begin data and hydrocarbon analyses*

FFY 13, 2nd quarter (January 1, 2013-March 31, 2013)

January 18: *Annual Marine Science Symposium*

March 1: *Complete hydrocarbon analyses*

Write report/manuscript

FFY 13, 3rd quarter (April 1, 2013-June 30, 2013)

April 15: *Submit final report to the Trustee Council Office. This will consist of a draft manuscript for publication.*

FFY 13, 4th quarter (July 1, 2013-September 30, 2013)

Present findings at national conference (during FFY13 or FFY14)

C. Publications & Reports

The study results will be submitted to EVOS TC as a manuscript that will later be submitted for publication in a peer-reviewed journal. We are requesting funding for the writing of this manuscript and its publication in a peer-reviewed journal. The tentative title of one manuscript is: "Oil persistence 23-years after the *Exxon Valdez* spill on boulder-armored beaches distant from the spill origin." We plan to target the journal, Marine Environmental Research, with a submission date planned for Dec. 2013.

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V. RESUMES

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Coastal Resources Specialist, National Biological Survey/U.S. Geological Survey, 1993-1995
Coastal Resources Specialist, National Park Service, 1991-1993
Marine Biologist/Fisheries Scientist, Minerals Management Service, 1984-1991

Assistant Research Biologist, Marine Science Institute, University of California, Santa Barbara, 1983

C. Scientific Involvement

Editorial Board of Marine Systems Domain, online journal, TheScientificWorld, 2001-present

Member, Non-indigenous Species Working Group, PWS RCAC

D. Five Recent Publications Related to the Lingering Oil Project

Irvine, G.V., Mann, D.H., Short, J.W. Sixteen-year persistence of slightly weathered *ExxonValdez* oil under boulder armors on beaches distant from the 1989 spill. (***in revision***)

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E. Other Publications

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FIVE RELATED PUBLICATIONS

Mann, D.H. and Streveler, G.P. (2008). Relative sea level history, isostasy, and glacial history in Icy Strait, Southeast Alaska. *Quaternary Research* 69, 201–216.

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Gail Irvine (US Geological Survey, Alaska Science Center)
Jeffrey Short (NOAA, Auke Bay Laboratory)
Jacqui Michel (Research Planning, Inc., South Carolina)
Zach Nixon (Research Planning, Inc., South Carolina)

Curriculum Vitae for Mark G. Carls

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Education

M.Sc., 1978, biological oceanography, Dalhousie University, Halifax, Nova Scotia.
B.A., 1975, biology; Magna cum laude, Gustavus Adolphus College, St. Peter, Minnesota.
Additional coursework (30 semester hours), University of Alaska Southeast (statistics, genetics, fish, and misc)

Professional Experience

Fisheries Biologist, 1979-present, Auke Bay Laboratory.
Principal Investigator for *Exxon Valdez* Oil Spill Trustee Council

- Embryo toxicity: pink salmon, Pacific herring, zebrafish
- Pink salmon habitat
- Herring Synthesis
- Mussel and sediment contamination
- Hydrocarbon chemistry: sampling, interpretation, modeling

Biological Review Teams

- Pacific herring, Lynn Canal, Alaska (chairman)
- Status of Pacific herring in Puget Sound, Washington, Habitat and Ecological Processes Team

Recent related publications (lead author only)

Carls MG, Meador JP. 2010. A perspective on the toxicity of petrogenic PAHs to developing fish embryos related to environmental chemistry. Human and Ecological Risk Assessment 15:1084-1098.

Carls, M.G. 2006. Nonparametric identification of petrogenic and pyrogenic hydrocarbons in aquatic ecosystems. Environ Sci Technol. 40:4233-4239.

Carls, M.G., S.D. Rice, G.D. Marty, and D.K. Naydan. 2004. Pink salmon spawning habitat is recovering a decade after the *Exxon Valdez* oil spill. Trans Am Fish Soc 133:834-844.

Carls MG, LG Holland, JW Short, RA Heintz, SD Rice. 2004. Monitoring polynuclear aromatic hydrocarbons in aqueous environments with passive low-density polyethylene membrane devices. Environ Toxicol Chem 23:1416-1424.

Carls MG, Thomas RE, Rice SD. 2003. Mechanism for transport of oil-contaminated water into pink salmon redds. Mar. Ecol. Prog. Ser. 248:245-255.

Other significant publications

Carls MG, Thedinga J.F. 2010. Exposure of pink salmon embryos to dissolved polynuclear aromatic hydrocarbons delays development, prolonging vulnerability to mechanical damage. Marine Ecology Research 69:318-325

Carls MG, Holland L, Larsen M, Collier TK, Scholz NL, Incardona JP. 2008. Fish embryos are damaged by dissolved PAHs, not oil particles. Aquatic Toxicology 88:121-127.

Carls MG., PM Harris, SD Rice. 2004. Restoration of Oiled Mussel Beds in Prince William Sound, Alaska. Mar. Environ. Res. 57:359-376.

Carls MG, GD Marty, JE Hose. 2002. Synthesis of the toxicological impacts of the *Exxon Valdez* oil spill on Pacific herring (*Clupea pallasi*) in Prince William Sound, Alaska, U.S.A. Can. J. Fish. Aquat. Sci. 59:1-20.

Carls MG, MM Babcock, PM Harris, GV Irvine, JA Cusick, SD Rice. 2001. Mar Env Res 51:167-190.

Recent Collaborators (excluding ABL staff):

Dr. Mace Barron (P.E.A.K. Research)
Frederick C. Funk (consultant, Juneau, AK)
Dr. Jo Ellen Hose (Occidental University, CA)
Dr. John Incardona (NOAA, Northwest Fisheries Science Center)
Dr. John Kern (NOAA Damage Assessment and Restoration Center Northwest, Seattle, WA)
Dr. Gary Marty (Animal Health Centre, Abbotsford, BC)
Dr. Brenda Norcross (University of Alaska Fairbanks)
Dr. James Payne (Payne Environmental Consultants)
Dr. Terrance J. Quinn II (University of Alaska Fairbanks)
Dr. Robert Spies (Applied Marine Sciences, Livermore, CA)
Dr. Katherine Springman (University of California, Davis)
Dr. Bob Thomas (University of California, Chico).

Habitat –
POOR E

POORE PARCEL EVALUATION

Parcel Description:

- ~ 52 acres total: Wetland =30ac // uplands = 18 ac // launch and facilities = 4 acres
- ~ Located at Mile 11 of the Kenai River and across the river from the Eagle Rock unit of the state park system
- ~ Approximately 1250 feet of liner river footage, half of which is protected by a slough; other half is exposed to the main channel of the Kenai River.

Threshold Criteria:

1. There is a willing seller of the parcel or property right.
   Yes – the parcel was nominated by the owner.

2. The parcel contains key habitats that are linked to, replace, provide the equivalent of, or substitute for injured resources or services based on scientific data or other relevant information.
   Yes:
   a. *Anadromous stream – stream number* 244-30+10010-2029-3002
      - ~ *ADF&G cataloged*
      - ~ *Provides rearing habitat for Coho and Sockeye Salmon*

   b. *Wetlands - 30 acres of lowland wetlands*
      - ~ *Characterized as relict glacial lakebed ecosystem wetland with riparian wetlands along the parcel's water bodies[1]. The northern portion of lot 6 is freshwater emergent wetlands and forested/shrub wetlands are present in the southern portion of lots 6 and 7.[2]*
      - ~ *Used by Injured Species such as: Barrow's Goldeneye and Bald Eagles.*
        - ∝ *Nesting has been documented for both species on the Kenai National Wildlife Refuge and along the river corridor.*

   c. *Riparian Habitat – 1,250 ft of Kenai River frontage (and unknown amount of area along the tributary stream)*
      - ~ *Riparian habitat supports Chinook, sockeye, pink and coho salmon and Dolly Varden*
        - ∝ *Sockeye salmon migrate and rear along the banks of the Kenai River*
        - ∝ *Anadromous stream supports coho and sockeye salmon rearing habitat*
        - ∝ *Fish species support Injured Services, Recreation & Tourism, Commercial Fishing and Subsistence.*

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[1] Kenai Peninsula Borough, Wetland Mapping and Classification of the Kenai Lowland, Alaska: http://www.kenaiwetlands.net/index.htm

[2] MacSwain Associates LLC – *Appraisal Report on Virginia Poore Kenai River Parcel* at pg. 22 (11/17/2010).

- ~ *Used by Injured Species such as: Barrow's Goldeneye (Recovering), Bald Eagles (Recovered) and Harlequin Ducks(Recovering)*
  - ∝ *Use of riparian corridor area as a spring and fall migration corridor, for feeding, staging, nesting and rearing broods along the river and its tributaries (mostly further upstream and at Kenai and Skilak lakes).*
- ~ *Common Loons and Cormorants have also been known to use the Kenai River corridor as a migration route.*
- ~ *Continuous and intact riparian habitats are more effective at protecting a diversity of fauna and aquatic ecosystems by providing:*
  - ∝ *Good water quality; and*
  - ∝ *Food web structure supporting Injured Species.*

d. *Uplands – 18 acres of aspen, spruce, birch, alder and low-lying brush.*
   - ~ *Barrow's Goldeneye – Recovery status: Recovering*
     - ∝ *Nesting (cavity nesters in mature tree species) habitat*
     - ∝ *Use of corridor in Spring, Summer and Fall – feeding and staging on main channel of river.*
     - ∝ *A population of birds overwinters just below Skilak Lake in the available open water.*
   - ~ *Bald Eagles– Recovery status: Recovered*
     - ∝ *River corridor supports all life stages – prime nesting habitats along entire river corridor.*
     - ∝ *Nest locations can be found throughout the Kenai River corridor.*

e. *Intertidal – the tidal reach of the Kenai River extends to River Mile12*
   - ~ *Tidal marshes and associated wetlands adjacent to the river are extensive and biologically productive.*
   - ~ *Provides a major migration and resting area for many Injured Species.*

f. *Recreational & sport fishery – 45% of total sport fishing effort is on the lower 20 miles of the Kenai River:*
   - ~ *Strategic recreational site – access to and safe (unique slow-moving water) boat launch into the lower Kenai River*
   - ~ *Existing boat launch, parking, water well and restrooms*
   - ~ *Popular recreational fishery for Chinook, sockeye, pink and coho salmon*
   - ~ *Popular shore fishery for pink and coho*

g. *Subsistence*
   - ~ *Access to river*
   - ~ *Existing boat launch, parking, water well and restrooms*

~ *Parcel habitat supports Injured Species that support Injured Services*

h. *Commercial fisheries*

~ *Parcel habitat supports Injured Species that support Injured Services*

i. *Passive use - Passive use is the appreciation of the aesthetic and intrinsic values of undisturbed areas and the value derived from simply knowing that a resource exists.*

3. The seller acknowledges that the governments can purchase the parcel or property rights only at or below fair market value.
   Yes - An appraisal established a Fair Market Value of $1.1 million for the parcel.

4. Recovery of the injured resources or services would benefit from protection in addition to that provided by the owner and applicable laws and regulations.
   Yes - The current land owners could sell the property to a developer if the parcel is not protected. A boat launch business is currently run on the parcel (4 acres of the parcel), supporting Injured Services by providing river access for recreational, sport fish and subsistence users, and the 30 acres of wetlands provides habitat needed by Injured Species.

5. The acquired property rights can reasonably be incorporated into public land management systems.
   Yes - The Division of Parks and Outdoor Recreation could reasonably integrate management of this parcel, the boat launch and supporting facilities into their existing management portfolio along the Kenai River and has agreed to do so.

Linkage/How is the parcel linked to injury?

- Occurrence – the parcel contains key habitats/sites that benefit the recovery of injured resources or services.
  Yes – Wetland and riparian habitat; anadromous stream; river frontage; slough; strategic recreational site – public and safe access to the lower Kenai River

- Uniqueness – key habitats/sites on the parcel are unique in relation to key habitats/sites off-parcel (within the region.)
  Yes – It is a rare large parcel along the Kenai River with river frontage – "demand for large parcels fronting the Kenai River is greater than the supply."[3] *Strategic recreational site – access to and safe boat launch into the lower Kenai River.*

- Connectedness – the essential habitats/sites linked to injured resources/services on parcel are connected to other elements/habitats in the greater ecosystem.

MacSwain Associates LLC – *Appraisal Report on Virginia Poore Kenai River Parcel* at pg. 2 (11/17/2010).

Yes – habitat protection "helps prevent additional injury to species due to intrusive development or loss of habitat."[4] In addition, Harlequin ducks and Barrow's Goldeneye, and all salmon species migrate to other locations both within the Kenai watershed and to other areas within the EVOS area. For example, a portion of the Barrow's Goldeneye that use the Kenai River riparian area during the spring, summer and fall most likely winter in PWS intertidal areas.

- Quality – does the parcel have high levels of production, diversity, use levels or other measures of habitat richness?

  Yes – the habitat richness attributes are listed below. The transition zone between the different wetland types creates more productive habitats, including along the shoreline of the Kenai River. This parcel also provides productive habitat for a large number of species not included on the EVOS list. At certain times throughout the fishing season the site receives a high level of recreational, sport fish and subsistence uses.

  Habitat Richness:

  - ~ Anadromous stream
  - ~ Wetlands = 30 acres containing 4 types of wetlands:
    1. Relict glacial lakebed ecosystem wetlands
    2. Riparian wetlands
    3. Freshwater emergent wetlands
    4. Forested/shrub wetland
  - ~ Uplands = 18 acres
  - ~ Riparian = 1250 feet+
  - ~ Intertidal = 1250 feet

Protection potential/What is the restoration potential of the parcel?

- Key habitats or sites on the parcel are vulnerable to or potentially threatened by disturbance or habitat loss.

  Yes – residential development of Kenai Riverfront property threatens disturbance or loss of the habitat values provided by the 30 acres of wetlands.

- Key habitats or sites on nearby lands are vulnerable to or potentially threatened by disturbance or habitat loss from development of the subject parcel

  Yes, the area to the east of the parcel is a residential subdivision and there is potential for the parcel in question, along with several other private adjacent parcels to be subdivided for residential or recreational development. This parcel is adjacent to state and local governments to the north and west, a native allotment to the south east, other private lands and subdivision developments to the east and northeast. This parcel borders the river to the west.

[4] *Exxon Valdez* Oil Spill Trustee Council, *2009 Annual Report: Legacy of An Oil Spill – 20 Years After the Exxon Valdez*, at pg. 9 (2009).

- Key habitats or sites on the parcel are protected (not vulnerable from incompatible adjacent land uses)
  No – lands can be developed for residential or recreational use. The parcel is currently zoned as Rural Residential.

- Recovery of the injured resources/services would benefit from protection in addition to that provided by the owner and applicable laws and regulations
  Yes - acquisition of this parcel would assist in recovery of those resources and services injured by the Oil Spill – especially the Injured Service Recreation and Tourism. High sport fish and recreational fisheries take place from this parcel's riverfront.

Management/How will management of the parcel contribute to recovery?

- Acquisition of the parcel will allow for enhancement of injured resources and services
  Yes - Under management by the Division of Parks and Outdoor Recreation, the parcel will provide recreational users with opportunities along the lower Kenai River. The 30 acres of wetlands will remain undeveloped.

- The parcel has strategic value to protect or provide access to key habitats or sites that occur on or beyond the parcel's boundaries.
  Yes. This parcel will provide needed access to a boat launch on the lower Kenai River. The location of this boat launch is strategic in that it provides users of a novice capacity the opportunity to launch a boat in slow moving water of a slough.

Community Benefits/How will acquisition of the parcel benefit the public and the local community?

- The parcel contributes to the social and cultural values of the local community
  The local community benefits from increased public recreational and subsistence access to the lower Kenai River.

- Acquisition of the parcel contributes economic benefits to the community
  Management of the parcel to support the Injured Service, Recreation will provide the local community with the indirect economic benefits from recreational, tourism and subsistence user dollars.

- Acquisition of the parcel provides enhanced public access to resource
  Yes – if the parcel is purchased access to 1250 feet of river frontage: main channel of the Kenai River and slough.

- *Acquisition of the parcel supports traditional or subsistence use*
  Yes - This parcel would provide traditional and subsistence users a safe access point to the lower Kenai River, especially for novice boaters.

Kenai Peninsula Small Parcels

Overview

Small parcel acquisitions on the Kenai Peninsula have largely focused on the Kenai River Watershed, the Anchor River, the Ninilchik River and the Homer Spit. The Small Parcel Program has provided the Trustee Council with a unique opportunity to address local needs and concerns by securing small parcels that provide additional recreational and sport fish access and address specific community needs in addition to providing important restoration values for injured resources and services.

The Tulin, Coal Creek, Overlook, Beluga Slough, and Green Timbers parcels are located along the shoreline of Cook Inlet and contributed to the restoration of sockeye salmon, pink salmon, harbor seals, intertidal and subtidal resources and recreation.

The Morris, Icicle Seafoods, and Swartz parcels are located along the Ninilchik River and contributed to the restoration of species dependent upon riparian habitat such as sockeye salmon, pink salmon, harlequin ducks, and services such as recreation and sport fishing.

Along the Anchor River small parcel acquisitions include Eliot, Crowther, Knol, Nakada, and Thompson which have contributed to the protection of riparian habitat which in turn contributes to the restoration of sockeye salmon, pink salmon, Dolly Varden, harlequin ducks and recreation and sport fishing access.

The Kenai River Small Parcels

The Council also has pursued acquisition of strategic parcels nominated by willing sellers along the Kenai River. The Kenai River is an increasingly popular recreational destination for tourists, sport fishers, boaters and others. These diverse uses threaten to degrade fish spawning and rearing habitat on the Kenai River. In addition, development of these parcels threatens important wetland habitat that serves as a filtering system for upland runoff and an important source of nutrients and materials essential to the welfare of the Kenai's fishery resources. Pink salmon and Dolly Varden spawn along the banks of the Kenai. The many sloughs and wetlands provide rearing and overwintering habitat for Dolly Varden, chinook, and coho salmon. Sockeye salmon also migrate and rear along the banks of the Kenai. Recreation use on the Kenai is high and very much dependent upon the health of the fisheries resources injured by the *Exxon Valdez* oil spill, particularly sockeye salmon and Dolly Varden.

Kenai River Acquisitions include Salamatof, Kenai Natives Association package, Cone, River Ranch, Girves, Patson, Schilling, Mansholt, and Kobylarz parcels. These parcels have particular value to the restoration of injured resources and services because of their riparian habitat and access opportunities for recreation and sport fishing. These parcels have contributed to the restoration of sockeye salmon, Dolly Varden, pink salmon, bald eagles, river otters, intertidal and subtidal resources, cultural resources, wilderness, and recreation.

Example of Benefits pursued by the Council with Kenai River Parcels:

- protects and reestablishes riparian habitat and wetlands
- recreational use depends on fisheries resources that were injured in the spill, particularly sockeye salmon and Dolly Varden
- protects river frontage habitat as Dolly Varden and Sockeye salmon migrate and rear along the banks of the river
- streamside vegetation along the river stabilizes riverbanks, protects water quality, moderates temperatures and provides cover for fish
- high-valued tidal marsh supports intertidal and subtidal resources
- extensive wetlands maintain water quality and flood control

Descriptions of Parcels Purchased & Injured Species Benefits

Kobylarz – ADNR/ADFG

The Kobylarz parcel has approximately 1100 feet of river frontage on Big Eddy at mile 14 of the Kenai River, one of the most popular fishing areas on the river. Pink salmon and Dolly Varden spawn in the river adjacent to the parcel and sockeye salmon migrate and rear along the banks of the river. A slough on the parcel provides excellent rearing and overwintering habitat for Dolly Varden, chinook and coho salmon.

Acquisition of this parcel addressed an ongoing trespass use by fishermen attempting to gain access to Big Eddy. Recreational use of the Kenai River depends on fisheries resources that were injured in the spill, particularly sockeye salmon and Dolly Varden. The parcel receives a high level of use.

Mansholt – ADNR/ADFG

The Mansholt parcel has approximately 100 feet of river frontage and is strategically located adjacent to the Kobylarz parcel in the Big Eddy area of the river. The property supports a spring fed slough and riparian wetlands providing rearing habitat for coho and chinook salmon. Pink salmon and Dolly Varden spawn in the river adjacent to the property and the parcel provides overwintering habitat for Dolly Varden. The property provides pedestrian access to the Big Eddy fishing hole.

Cone - ADNR/ADFG

The Cone parcel located near the mouth of the Kenai River has an extensive high valued tidal marsh supporting intertidal/subtidal resources. Tidal marshes of this parcel are considered unique in this evaluation because of their limited distribution and high productivity. Estuarine wetlands such as those on the subject property are used by salmon smolt for cover and feeding

prior to their outmigration. Hundreds of thousands of waterfowl, shorebirds, and raptors use this area for feeding, nesting, and staging.

Girves - ADNR/ADFG

The Girves parcel is located near mile 19 of the Kenai River just outside the city of Soldotna and experiences high levels of trespass use resulting in erosion of the riverbank. Acquisition of this parcel has allowed active management of access to protect and reestablish riparian habitat. The parcel provides key habitat for Chinook salmon, Coho salmon, pink salmon and Dolly Varden.

Salamatof – USFWS (three parcels)

The Salamatof parcel encompasses approximately two miles of river bank between River Miles 26 and 28, upriver from the Soldotna Airport. The parcel is composed of uplands and riparian wetlands. Pink Salmon and Dolly Varden spawning and rearing habitat occur adjacent to the property. There are two documented bald eagle nests. Key river otter habitat is also found on this parcel, including denning areas and concentrated latrine sites. Bank fishing impacts are prevalent. Sockeye salmon migrate and rear along the banks of the Kenai River. They may also spawn along the river however site-specific use has not been documented.

Roberts/Shilling – ADNR/ADFG

The Roberts/Shilling parcel is located on the Kenai River adjacent to the Kenai Peninsula Visitors Center in Soldotna. It has approximately 644 feet of river frontage and experiences high levels of sportfishing use. Acquisition of this parcel allowed for the development of elevated grate walks designed to manage sportfishing and recreational access and reestablish and protect riparian habitat. Pink salmon and Dolly Varden spawn and rear in this stretch of the river. The streamside vegetation afforded by this and other parcels along the river stabilizes riverbanks, protect water quality, moderate temperatures and provide cover for fish.

Patson - ADNR/ADFG

The Patson parcel is located at mile 24.5 just outside the City of Soldotna. The parcel contains approximately 1,500 linear feet of river frontage. Acquisition of this parcel close to the City of Soldotna provided an opportunity to protect riparian habitat and provide managed access as appropriate close to town such as overhanging grassy banks for fish rearing, extensive wetlands for maintaining water quality, flood control, forested uplands.

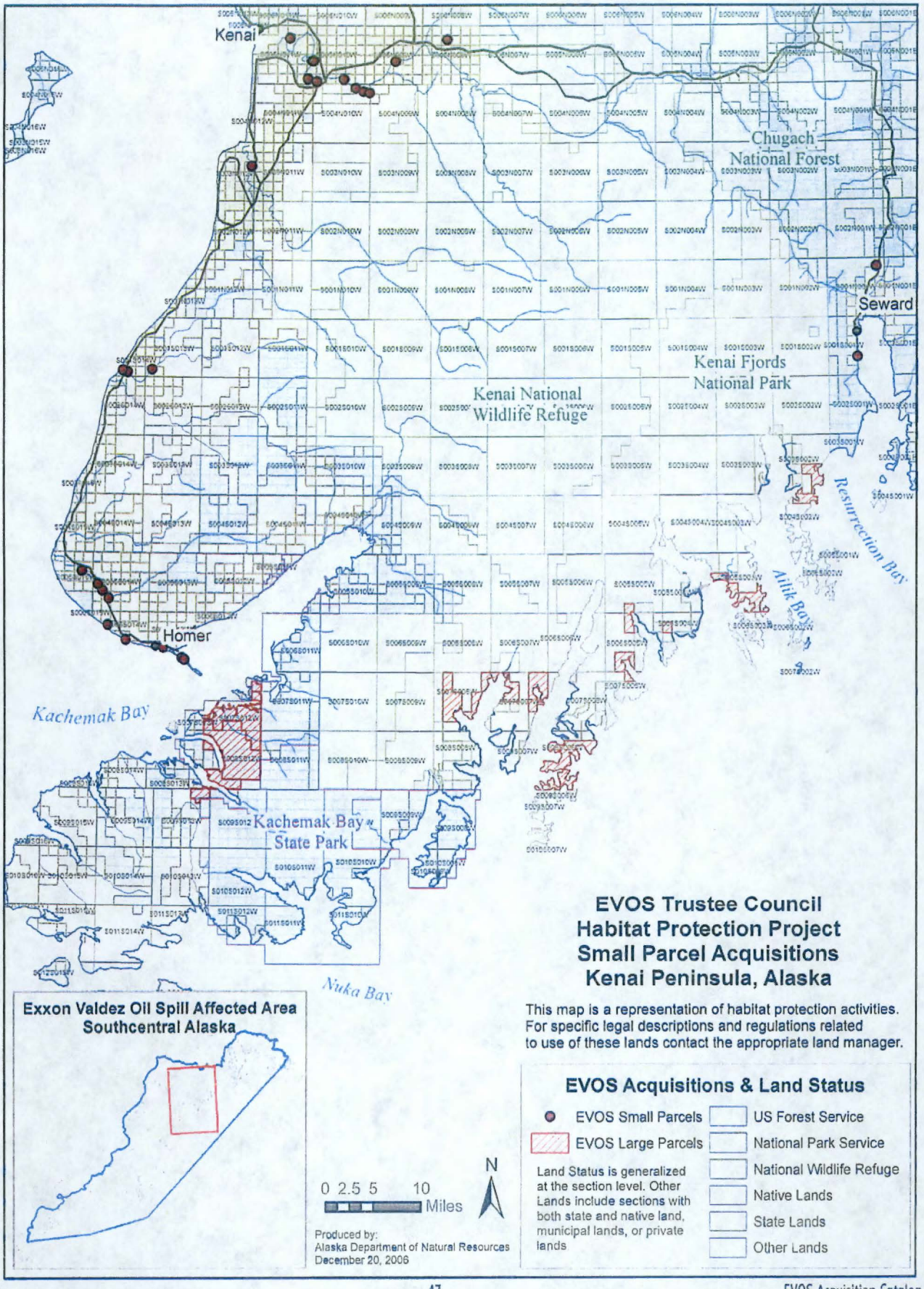
River Ranch - ADNR/ADFG

The River Ranch parcel is located near Mile 32 of the river and provides access to the river from Funny River Road on the southern side of the river. It was developed primarily as a horse and cattle ranch and removal of livestock has allowed riparian vegetation to reestablish and provide additional fish habitat.

Kenai Natives Association (Stephanka/Moose River) - USFWS

The Kenai Natives Association package contains habitat important to bald eagles for feeding during the fall and winter as they congregate in this area to feed on the late silver salmon run. This parcel also contains significant archaeological resources including the Stephanka Village site. This package and the surrounding Kenai National Wildlife Refuge lands possess high value wilderness characteristics.

Parcel ID	Description	Acres	Value	Manager
KEN 5	Salamatof	1,377.0	$2,540,000	USFWS
KEN 1002/03/04	KNA Package	3,254.0	$4,000,000	USFWS
KEN 1051	Salamatof Parcels	14.5	$149,500	USFWS
KEN 1052	Salamatof Parcels	6.6	$33,500	USFWS
KEN 10	Kobylarz	20.0	$320,000	ADNR/ADFG
KEN 34	Cone	100.0	$600,000	ADNR/ADFG
KEN 148	River Ranch	146.0	$1,650,000	ADNR/ADFG
KEN 1006	Girves	110.0	$1,835,000	ADNR/ADFG
KEN 1034	Patson, Parcel	76.3	$450,000	ADNR/ADFG
KEN 1038	Schilling/Roberts	3.3	$698,000	ADNR/ADFG
KEN 1049	Mansholt	1.6	$55,000	ADNR/ADFG
Kenai River	**Total:**	**5,109.3**	**$12,331,000**	


Kenai
Chugach
National Forest
Seward
Kenai Fjords
National Park
Kenai National
Wildlife Refuge
Resurrection Bay
Aialik Bay
Homer
Kachemak Bay
Kachemak Bay
State Park
Nuka Bay
Exxon Valdez Oil Spill Affected Area
Southcentral Alaska
EVOS Trustee Council
Habitat Protection Project
Small Parcel Acquisitions
Kenai Peninsula, Alaska
This map is a representation of habitat protection activities.
For specific legal descriptions and regulations related
to use of these lands contact the appropriate land manager.
EVOS Acquisitions & Land Status
EVOS Small Parcels
EVOS Large Parcels
US Forest Service
National Park Service
National Wildlife Refuge
Native Lands
State Lands
Other Lands
Land Status is generalized
at the section level. Other
Lands include sections with
both state and native land,
municipal lands, or private
lands
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Miles
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Produced by:
Alaska Department of Natural Resources
December 20, 2006

KEN 3010: Poore – Kenai River

Owner:	Virginia Poore
Physical Location:	This parcel is located at mile 11 of the Kenai River
Acreage:	52 acres
Brief Description:	T 5 N, R 10 W, SM, Sec. 6, Lots 6 and 7
Agency Sponsor:	Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation
Appraised Value:	$1,100,000

Parcel Description

The Poore parcel is located along the Kenai River near Eagle Rock and has approximately 1,250 linear feet of river frontage. It is located across the river from the Eagle Rock unit of the state parks on an outside bend of the Kenai River where the shoreline is actively eroding. The parcel has a boat launch facility, including a parking area and restrooms but most of the parcel is undisturbed with numerous areas of lowland wetlands. *Wetland Mapping and Classification of the Kenai Lowland, Alaska* (Gracz et al.) characterizes most of this parcel as lakebed ecosystem wetland with riparian wetlands along waterbodies. A small stream, cataloged in the Alaska Department of Fish and Game Anadromous Waters Catalog, meanders through the parcel east to west before entering the Kenai River in the adjacent parcel. The parcel provides valuable lowland wetland and riparian habitat as well as recreational opportunities for shore based anglers. The boat launch and parking area is especially busy during the end of July when nearby facilities are at capacity.

Linkage to Restoration:

Restoration Benefits

Injured species that will benefit from this parcel acquisition include pink and sockeye salmon, bald eagles, and Barrow's goldeneyes. Although bald eagles, and pink and sockeye salmon are considered to be recovered, protecting important habitats is essential to maintaining recovery objectives. The parcel also supports coho and sockeye salmon rearing habitat. All of these salmon species contribute to the commercial fisheries of Cook Inlet.

This area also supports popular recreational fisheries for Chinook, sockeye, pink and coho salmon. Since 1981 approximately 45% of the total sport fishing effort expended on the Kenai River has occurred in the lower 20 miles of river. In particular, this area supports a popular shore fishery for pink and coho salmon during August and September.

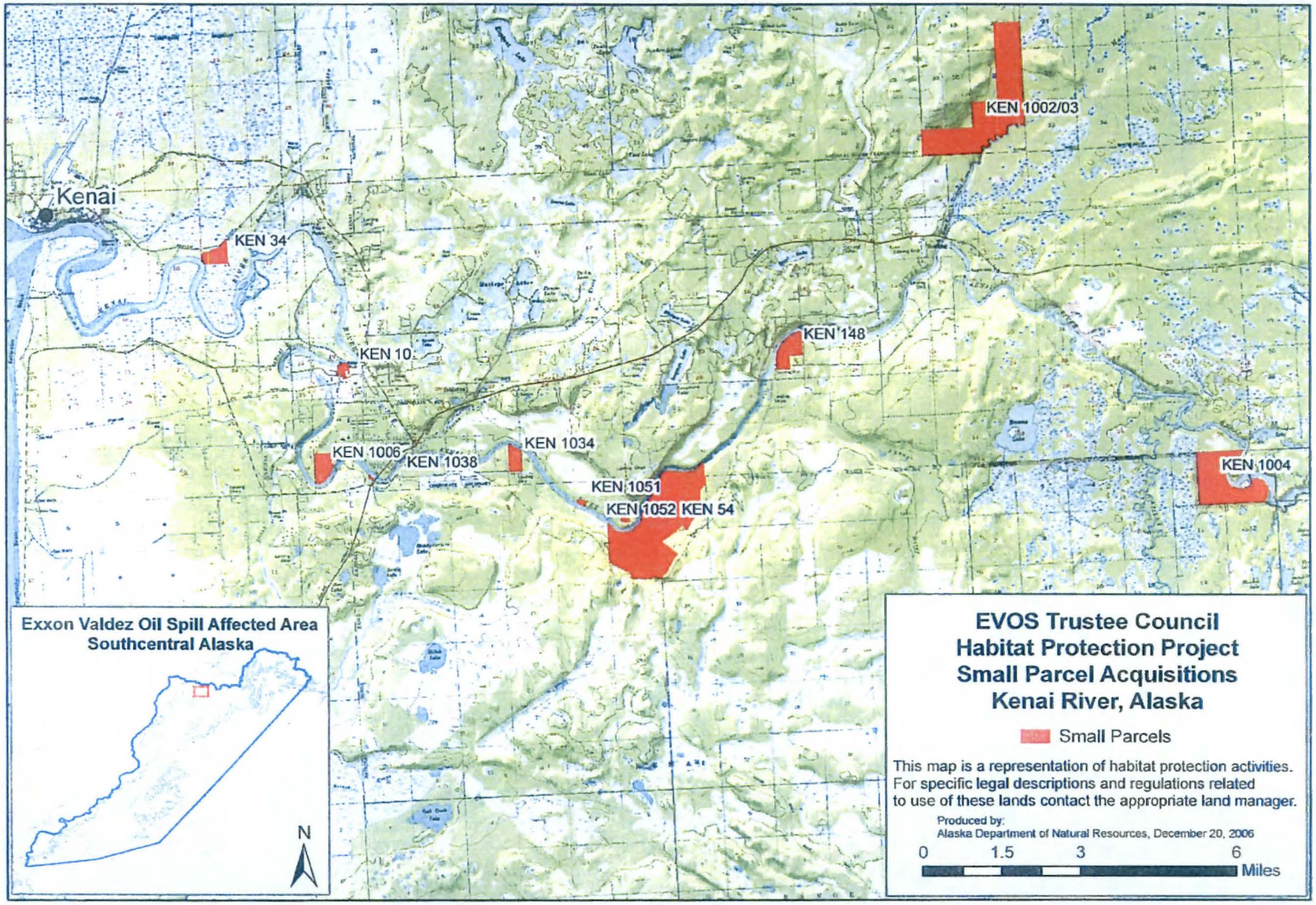
Potential Threats

The current owner has indicated that she would like to sell the property. The development potential of the parcel is unknown but would appear to be high, as it is a large parcel with

significant riverfront footage. This is an opportunity to acquire lowland and riparian habitat that may be unavailable in the future.

Proposed Management

This parcel has been identified as a priority for the Division of Parks and Outdoor Recreation. This parcel will be managed by the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation, in consultation with the State Historic Preservation Officer for the purposes of protecting resources and services injured by the *Exxon Valdez* Oil Spill and will be recommended for addition to KRSMA.


Kenai
KEN 34
KEN 10
KEN 1006
KEN 1038
KEN 1034
KEN 1051
KEN 1052
KEN 54
KEN 148
KEN 1002/03
KEN 1004
Exxon Valdez Oil Spill Affected Area
Southcentral Alaska
N
EVOS Trustee Council
Habitat Protection Project
Small Parcel Acquisitions
Kenai River, Alaska
Small Parcels
This map is a representation of habitat protection activities.
For specific legal descriptions and regulations related
to use of these lands contact the appropriate land manager.
Produced by:
Alaska Department of Natural Resources, December 20, 2006
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Miles

Overview of Poore parcel looking across parcel towards Kenai River

Poore parcel boat launch into a slough that accesses the Kenai River

Poore parcel boat launch and slough

Poore parcel slough

Poore parcel restrooms. Wetlands in background

Poore parcel parking lot adjacent to Kenai River

Poore parcel slough

Poore parcel Kenai River frontage – Eagle Rock (is in the middle of river)