FY12 INVITATION
PROPOSAL SUMMARY PAGE

Project Title: Long term monitoring: Environmental drivers component – Long-term monitoring of oceanographic conditions in Prince William Sound.

Project Period: October 1, 2012 – September 30, 2016

Primary Investigator(s): Robert Campbell, PWS Science Center – rcampbell@pwssc.org

Study Location: Prince William Sound (throughout the Sound)

Abstract: This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. This project is intended to provide physical and biological measurements that may be used to assess bottom-up impacts on the marine ecosystems of Prince William Sound. Specifically, it is proposed to deploy an autonomous profiling mooring in central Prince William Sound that will provide high frequency (~daily) depth-specific measurements of physical (temperature, salinity, turbidity), biogeochemical (nitrate, phosphate and silicate) and biological (Chlorophyll-*a* concentration) parameters that will be telemetered out in near real-time. Several regular vessel surveys are also proposed to provide ground-truth data for the mooring, and to attempt to capture some of the spatial variability in PWS. As well as the mooring site, the surveys will visit all four of the SEA bays to maintain ongoing EVOSTC funded time series measurements at those sites and to support proposed herring research (Pegau et. al). The major entrances (Hinchinbrook Entrance and Montague Strait) will also be visited. The surveys will make the same suite of measurements as the mooring, and will also collect water and plankton samples. This project will also link significantly with the herring research efforts proposed by Pegau et al., and will analyze plankton samples collected during intensive studies of juvenile herring feeding and energetics.

Estimated Budget: $955.6 ($K) without 9%GA; $1,041.6K total including the 9%GA
EVOSTC Funding Requested: *Note these include the 9%GA*

FY12	FY13	FY14	FY15	FY16
$238.1	$193.2	$197.3	$203.7	$209.3

Non-EVOSTC Funds to be used: Total of $116.5K

FY12	FY13	FY14	FY15	FY16
$23K	$23K	$23K	$23K	$23K

Date: May 25, 2011

(NOT TO EXCEED ONE PAGE)

PROJECT PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

Justification

Marine ecosystems are not static over time, they may change gradually from year to year or shift abruptly; those changes are in part driven by bottom up factors, such as environmental changes (e.g. temperature, salinity, turbidity), and biogeochemical interactions (the availability and recycling of nutrients). Long term monitoring of the spill-effected area is important, both in order to assess the recovery of resources, and to understand how the ecosystem is changing over time.

The ecosystems of the PWS region are influenced by physical environmental factors: metabolic and other vital rates for lower trophic species are generally temperature controlled, and water column production is ultimately limited by the amount of nitrogen made available to primary producers each year. Nitrogen availability is influenced by stratification (i.e. the onset of a seasonal thermocline or halocline) and mixing processes. These physical factors vary in space and in time, with different locations having different drivers (e.g. tidewater glaciers vs riverine estuaries, watersheds of varying size), and those parameters also change both inter- and intra-annually. Superimposed over all those changes in the physical environment are myriad changes in the marine ecosystem, both in terms of the constituents (who is there) and abundance (how many there are, or their biomass). The phenology of ecosystem components (the timing of who appears) is also important, particularly with regards to matches and mismatches between predators and prey.

B. Relevance to 1994 Restoration Plan Goals and Scientific Priorities

Please see pages 2-4 of the integrated proposal titled "Long-Term Monitoring of Marine Conditions and Injured Resources and Services," and submited by McCammon et. al

II. PROJECT DESIGN

A. Objectives

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Project objectives

The goal of this program is to deliver a monitoring program that will return useful information on temporal and spatial changes in the marine environment, at a reasonable cost, and with a reasonable amount of effort. The data should be depth-specific (because water column stability is important to ecosystem productivity), of high enough frequency to capture timing changes (changes that occur on order of weeks), and give an idea of spatial variability in the region. As well, given that PWS herring will remain a funding priority of the EVOSTC in the next 20 years, any long term monitoring efforts should be integrated with future herring studies as well as building upon ongoing work funded by the trustee council. Specific objectives include:

1. Install and maintain an autonomous profiling mooring in PWS that will measure daily profiles of temperature, salinity, chlorophyll-a (as a proxy for phytoplankton biomass), turbidity and nitrate concentration in the surface layer (0-100 m).
2. Conduct regular surveys in PWS to tie in spatial variability to the high frequency time series provided by the mooring.

3. Support continued herring research by maintaining the existing time series (hydrography, plankton and nutrients) at the four SEA bays, and participating in intensive process studies of juvenile herring overwintering.

Project integration

This project links directly with the herring research program submitted separately to the Trustee Council by Scott Pegau et al, it will provide a bottom up context for the proposed work on juvenile herring. This project also links materially with the Lower Cook Inlet/Kachemak Bay long term monitoring effort: plankton and nutrient samples collected under that program will be analyzed at PWSSC by this project.

Leveraging

This program will collaborate closely with the Alaska Ocean Observing System, which has funded some prior surveys in PWS, and is currently funding oceanographic and ecosystem modeling in the region. A proposal was submitted in October 2010 for FY11-15 activities, which included thermosalinograph cruises in PWS that are complementary to the work proposed here. Some of the instrumentation and equipment used in this project was initially purchased with AOOS funds.

B. Procedural and Scientific Methods

Project approach and logistics

The central PWS mooring (Objective 1) is best located near Naked Island (Figure 1). The proposed site is the location of the C-LAB buoy deployed during the SEA project, is slightly to the west of an existing sampling station in the central sound (the current station is between tanker lanes, not a good location for a mooring) and co-located with a Seward Line sampling site (see Hopcroft project proposal). The proposed mooring is an Autonomous Moored Profiler (AMP, WetLabs, Inc.). The AMP is self-contained, and is capable of profiling from 100 m to the surface, with multiple deployments per day and a longevity of approximately 4 months (the system is battery powered, so there will be a tradeoff between the number of casts and longevity). The instrument payload on the AMP includes a CTD (0.01 ^{o}C, 0.001 S m^{-1} and 0.005 psi resolution), a fluorometer/turbidometer (0.01 µg l^{-1} chl-a and 0.01 NTU resolution), and a UV nitrate analyzer (a Satlantic SUNA: 2 µM resolution); data will be telemetered out in near real-time by cellular modem.

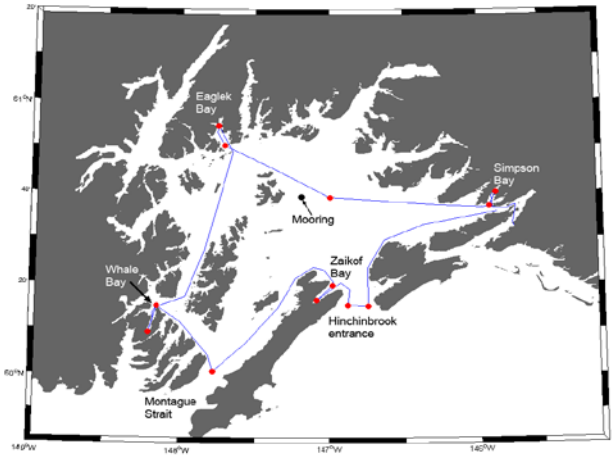

Figure 1. Proposed mooring location, cruise track and station locations visited during vessel surveys.

Vessel surveys (Objective 2) will be conducted 6 times per year, and will visit the four SEA bays that have been a focus of prior EVOSTC funded research (and a focus of the Pegau et al. herring proposal), as well as Hinchinbrook Entrance and Montague Strait (as requested by the RFP), and central PWS (to collect ground-truth data and to service the mooring). Each station will include a

CTD cast (with the same instrumentation as on the mooring), water bottles for nutrient and chl-a analysis, and a plankton tow. Two stations will be done in each of the bays, one near the head where juvenile herring are more frequently encountered, and one in more open waters at the mouth of the bay where older age classes are more common. The timing of the surveys will be structured around the "productivity season" to attempt to capture the spring and autumn blooms (i.e. pre-bloom, bloom and post-bloom). The data collected during the surveys (particularly phytoplankton abundance and nutrient concentrations) will be compared to the high frequency record in the central sound, in order to assess how the timing and magnitude of production events in the bays differs from the open waters of PWS. Stage composition of the copepod species collected by the plankton net will also give information on annual changes in phenology.

The Pegau et al. herring program is also proposing to do a number of focused process studies in the four SEA bays (Objective 3), and will provide plankton samples to be analyzed. Not all plankton is of equal quality as food to herring, and the plankton data will inform work done on herring feeding and energetics. Hydrographic, nutrient and plankton sampling will also be done during intensive overwintering juvenile surveys done by members of the Pegau et. al herring program in Simpson Bay and Port Gravina.

Methods

All of the instruments will be calibrated annually, and water samples will be taken with Niskin bottles to validate the observations. Water will be filtered through a Whatman GF/F filter (nominal pore size 0.7μm), which will be retained for the extraction of chlorophyll-*a* (Parsons et al. 1984), and the filtrate will be retained for the analysis of nitrate, phosphate and silicate. Following each cruise, quality assurance checks will be made on all the data collected, and the CTD data will be processed with standard methods; the data and associated metadata will be databased for later analysis and distribution. Zooplankton samples will be subsampled with a Folsom plankton splitter (McEwan et al. 1954), and identified to species and stage under a stereomicroscope.

C. Data Analysis and Statistical Methods

This program will result in a high frequency (~daily) time series in central PWS that will be directly comparable to a complimentary time series taken during the SEA project. It will also continue time series observations of temperature, salinity, chlorophyll fluorescence, turbidity, and nitrate concentration, all as a function of depth, at two locations in each of the SEA bays, as well as four sites representative of open water habitat and water entering and leaving PWS. Those data will be used to create temporal sections, using standard methods (e.g. Sandwell 1987; Chatfield 1995), which will then be used to describe the changes in oceanographic conditions over time within each of the bays, as well as PWS in general. Comparisons will also be made to previous observations (e.g. Meunch and Schmidt 1975; Gay and Vaughan 2001). Autocorrelation statistics such as the Mantel test (Smouse et al 1986) will be used to infer decorrelation scales between bays and the open PWS, both spatially between sites and temporally within sites.

The zooplankton collections will also provide a time series of plankton concentrations in each of the bays, in the central sound, and in the entrances and exits, although it will be depth-integrated instead of depth-specific. Differences in the concentrations of each species among the bays and open water sites will be examined with multivariate statistical methods, including hierarchical

clustering and nonmetric dimensional scaling (Manly 1994). The association between plankton species and environmental parameters will also be examined with ordination techniques, including Principle Components Analysis and Redundancy Analysis (Legendre and Gallagher 2001; Clarke et al 2008).

The data will also be used to refine conceptual models of ecosystem-level production processes in PWS (Cooney et al., 2001), and the results of several years of data collection will permit inferences about how the oceanographic climate influences the biological productivity in the nearshore and offshore waters of PWS. Data on plankton taxonomy and abundance, combined with measurements of gut contents done during the intensive herring studies proposed by Scott Pegau et al. will permit testing of hypotheses about the potential for food limitation of juvenile herring in PWS.

D. Description of Study Area

This project will be conducted throughout PWS, the stations are shown in figure 1 and table 1.

Table 1: Station locations

Station	Latitude	Longitude
Simpson Bay head	60.67	-145.87
Simpson Bay mouth	60.61	-145.93
Hinchinbrook Entrance East	60.25	-146.73
Hinchinbrook Entrance West	60.25	-146.89
Zaikof Bay head	60.27	-147.09
Zaikof Bay mouth	60.34	-146.96
Montague Strait	60.01	-147.77
Whale Bay head	60.15	-148.21
Whale Bay mouth	60.23	-148.17
Eaglek Bay head	60.93	-147.74
Eaglek Bay mouth	60.85	-147.71
Central PWS (station & mooring)	60.67	-147.17

E. Coordination and Collaboration with Other Efforts

Please see Project Integration and Leveraging sections above.

III. SCHEDULE

A. Project Milestones

Objective 1. Install and maintain an autonomous profiling mooring in PWS.
The instruments and mooring equipment will be purchased in 2011/early 2012, with the intention of installing the mooring in Spring 2012.

Objective 2. Conduct regular surveys in PWS.
Cruises will be done as part of ongoing EVOSTC project 10100132-A ("PWS Herring Survey: Plankton and Oceanographic Observations") to the end of FY12,

it is proposed that they will continue under this program from FY13 onward (i.e. met by September, 2015).

Objective 3. Support continued herring research by maintaining the existing time series (hydrography, plankton and nutrients) at the four SEA bays, and participating in intensive process studies of juvenile herring overwintering.
Time series work is described above. The intensive process studies will be completed by September 2013.

B. Measurable Project Tasks

FFY 12, 1st quarter (October 1, 2012-December 31, 2012)

November:	*Project funding approved by Trustee Council*
December:	*Order mooring components and nutrient analyzer*

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

January:	*Order mooring components*
February-March:	*Assemble mooring*

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

April:	*Install mooring*
May:	*Mooring operational, integrate telemetry into Data Management system.*

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

July-September:	*Mooring and nutrient analyzer operational.*
July:	*Service mooring*
August:	*Submit annual report*

FFY 13, 1st quarter (October 1, 2013-December 31, 2013)

October-December:	*Mooring operational, sample processing ongoing*
October:	*Vessel survey/service mooring; herring process study cruise*
November:	*Vessel survey; herring process study cruise*
December:	*Vessel survey; herring process study cruise*

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

January-March	*Mooring operational*
January:	*Annual Marine Science Symposium; herring process study cruise*
February:	*Herring process study cruise*
March:	*Vessel survey/service mooring; herring process study cruise*

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

April-June:	*Mooring operational, sample processing ongoing*
April:	*Vessel survey*
June:	*Vessel survey/service mooring*

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

July-September:	*Mooring operational, sample processing ongoing*
July:	*Service mooring*
August:	*Submit annual report*

FFY 14, 1st quarter (October 1, 2014-December 31, 2014)

October-December:	*Mooring operational, sample processing ongoing*
October:	*Vessel survey/service mooring*
November:	*Vessel survey*
December:	*Vessel survey*

FFY 14, 2nd quarter (January 1, 2014-March 31, 2014)

January-March	*Mooring operational, sample processing ongoing*
January:	*Annual Marine Science Symposium*
March:	*Vessel survey/service mooring*

FFY 14, 3rd quarter (April 1, 2014-June 30, 2014)

April-June:	*Mooring operational, sample processing ongoing*
April:	*Vessel survey*
June:	*Vessel survey/service mooring*

FFY 14, 4th quarter (July 1, 2014-September 30, 2014)

July-September:	*Mooring operational, sample processing ongoing*
July:	*Service mooring*
August:	*Submit annual report*

FFY 15, 1st quarter (October 1, 2015-December 31, 2015)

October-December:	*Mooring operational, sample processing ongoing*
October:	*Vessel survey/service mooring*
November:	*Vessel survey*
December:	*Vessel survey*

FFY 15, 2nd quarter (January 1, 2015-March 31, 2015)

January-March	*Mooring operational, sample processing ongoing*
January:	*Annual Marine Science Symposium*
March:	*Vessel survey/service mooring*

FFY 15, 3rd quarter (April 1, 2015-June 30, 2015)

April-June:	*Mooring operational, sample processing ongoing*
April:	*Vessel survey*
June:	*Vessel survey/service mooring*

FFY 15, 4th quarter (July 1, 2015-September 30, 2015)

July-September:	*Mooring operational, sample processing ongoing*
July:	*Service mooring*
August:	*Submit annual report*

FFY 16, 1st quarter (October 1, 2016-December 31, 2016)

October-December:	*Mooring operational, sample processing ongoing*
October:	*Vessel survey/service mooring*
November:	*Vessel survey*
December:	*Vessel survey*

FFY 16, 2nd quarter (January 1, 2016-March 31, 2016)

January-March	*Mooring operational, sample processing ongoing*
January:	*Annual Marine Science Symposium*
March:	*Vessel survey/service mooring*

FFY 16, 3rd quarter (April 1, 2016-June 30, 2016)

April-June:	*Mooring operational, sample processing ongoing*
April:	*Vessel survey*
	Submit draft final report
June:	*Vessel survey/service mooring*
	Reply to peer reviews

FFY 16, 4th quarter (July 1, 2016-September 30, 2016)

July-September:	*Mooring operational, sample processing ongoing*
July:	*Service mooring*
	Final acceptance of final report
September	*Publication of final report complete, delivered to ARLIS*

Literature Cited:

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Meunch, R.D. and C.M. Schmidt. 1975. Variations in the hydrographic structure of Prince William Sound. IMS/Sea Grant Report R75-1. University of Alaska Institute of Marine Science, Fairbanks.

Parsons, T.R., Y.Maita and C.M. Lalli. 1984. A manual of biological and chemical methods for seawater analysis. Pergamon Press, Oxford. 173 pp.

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 12-FY16

Budget Category:	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED
Personnel	$12.4	$121.6	$125.4	$131.2	$136.3	$526.8
Travel	$0.0	$1.0	$1.0	$1.0	$1.0	$4.0
Contractual	$1.0	$43.7	$43.7	$43.7	$43.7	$175.8
Commodities	$0.0	$11.0	$11.0	$11.0	$11.0	$44.0
Equipment	$205.0	$0.0	$0.0	$0.0	$0.0	$205.0
Indirect Costs (*will vary by proposer*)	waived	waived	waived	waived	waived	waived
SUBTOTAL	$218.4	$177.3	$181.1	$186.9	$192.0	$955.6
General Administration (9% of subtotal)	$19.7	$16.0	$16.3	$16.8	$17.3	$86.0
PROJECT TOTAL	$238.1	$193.2	$197.3	$203.7	$209.3	$1,041.6
Other Resources (Cost Share Funds)	$23.3	$23.3	$23.3	$23.3	$23.3	$116.5

COMMENTS: The Science Center waives Indirect Costs for this project due to its administration of the overall proposal. The Science Center will contribute all field sampling gear including a CTD, chlorophyll fluorometer, transmissometer, Submersible Ultraviolet Nitrate Analyser, plankton net, ropes, cables and sampling bottles. The field equipment has a replacement value of on order of $50,000. The Science Center will also contribute a Turner designs fluorometer for the analysis of chlorophyll, and assorted laboratory glassware, with an approximate replacement value of $20,000. For the purposes of cost share calcuations, the annual cost is estimated at 1/3 of the replacement cost.

FY12-16

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3A
NON-TRUSTEE AGENCY SUMMARY

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:		Months	Monthly		Personnel
Name	Project Title	Budgeted	Costs	Overtime	Sum
Technician TBD	Field/lab technician	2.0	6.2		12.4
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
		Subtotal	6.2	0.0	
				Personnel Total	$12.4

Travel Costs:	Ticket	Round	Total	Daily	Travel
Description	Price	Trips	Days	Per Diem	Sum
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$0.0

FY12

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
PERSONNEL & TRAVEL
DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description		Contract Sum
Shipping		1.0
If a component of the project will be performed under contract, the 4A and 4B forms are required.	**Contractual Total**	$1.0

Commodities Costs: Description	Commodities Sum
Commodities Total	$0.0

FY12

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
Mooring (Instruments, profiler, assorted hardware)	1.0	125.0	125.0
Submersible Underwater Nitrate Sensor	1.0	20.0	20.0
Agilent Capillary Electrophoresis System	1.0	60.0	60.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$205.0

Existing Equipment Usage: Descriptior	Number of Units	Inventory Agency
Seabird Conductivity Temperature Depth (CTD) meter	1	PWSSC
WETlabs fluorometer	1	PWSSC
Satlantic SUNA	1	PWSSC
Mooring releases	2	PWSSC
Mooring flotation	4	PWSSC

FY12

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:		Months	Monthly		Personnel
Name	Project Title	Budgeted	Costs	Overtime	Sum
Robert Campbell	Principle Investigator	5.0	8.5		42.6
Robert Campbell - at sea rate	Principle Investigator	0.5	9.1		4.6
Technician TBD	Field/lab technician	12.0	6.2		74.4
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
		Subtotal	23.8	0.0	
				Personnel Total	$121.6

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Alaska Marine Science Symposium	0.4	1	3	0.2	1.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.0

FY13

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
PERSONNEL & TRAVEL
DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description	Contract Sum
Instrument calibration	3.0
Vessel charter	37.8
Network and Telephone	2.6
Printing	0.3
If a component of the project will be performed under contract, the 4A and 4B forms are required. **Contractual Total**	$43.7

Commodities Costs: Description	Commodities Sum
Reagents and lab supplies	5.0
Mooring supplies	5.0
Sampling hardware	1.0
Commodities Total	$11.0

FY13

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Descriptior	Number of Units	Inventory Agency
Seabird Conductivity Temperature Depth (CTD) meter	1	PWSSC
WETlabs fluorometer	1	PWSSC
Satlantic SUNA	1	PWSSC
Mooring releases	2	PWSSC
Mooring flotation	4	PWSSC

FY13

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:		Months	Monthly		Personnel
Name	Project Title	Budgeted	Costs	Overtime	Sum
Robert Campbell	Principle Investigator	5.0	9.0		45.0
Robert Campbell - at sea rate	Principle Investigator	0.5	9.5		4.8
Technician TBD	Field/lab technician	12.0	6.3		75.6
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
		Subtotal	24.8	0.0	
				Personnel Total	$125.4

Travel Costs:	Ticket	Round	Total	Daily	Travel
Description	Price	Trips	Days	Per Diem	Sum
Alaska Marine Science Symposium	0.4	1	3	0.2	1.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.0

FY14

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description		Contract Sum
Instrument calibration		3.0
Vessel Charter		37.8
Network and telephone		2.6
Printing		0.3
If a component of the project will be performed under contract, the 4A and 4B forms are required.	**Contractual Total**	$43.7

Commodities Costs: Description	Commodities Sum
Reagents and lab supplies	5.0
Mooring supplies	5.0
Sampling Hardware	1.0
Commodities Total	$11.0

FY14

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Descriptior	Number of Units	Inventory Agency
Seabird Conductivity Temperature Depth (CTD) meter	1	PWSSC
WETlabs fluorometer	1	PWSSC
Satlantic SUNA	1	PWSSC
Mooring releases	2	PWSSC
Mooring flotation	4	PWSSC

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Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:		Months	Monthly		Personnel
Name	Project Title	Budgeted	Costs	Overtime	Sum
Robert Campbell	Principle Investigator	5.0	9.4		47.0
Robert Campbell - at sea rate	Principle Investigator	0.5	10.0		5.0
Technician TBD	Field/lab technician	12.0	6.6		79.2
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
		Subtotal	26.0	0.0	
				Personnel Total	$131.2

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Alaska Marine Science Symposium	0.4	1	3	0.2	1.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.0

FY15

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description		Contract Sum
Instrument calibration		3.0
Vessel Charter		37.8
Network and telephone		2.6
Printing		0.3
If a component of the project will be performed under contract, the 4A and 4B forms are required.	**Contractual Total**	$43.7

Commodities Costs: Description	Commodities Sum
Reagents and lab supplies	5.0
Mooring supplies	5.0
Sampling Hardware	1.0
Commodities Total	$11.0

FY15

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Descriptior	Number of Units	Inventory Agency
Seabird Conductivity Temperature Depth (CTD) meter	1	PWSSC
WETlabs fluorometer	1	PWSSC
Satlantic SUNA	1	PWSSC
Mooring releases	2	PWSSC
Mooring flotation	4	PWSSC

FY15

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
EQUIPMENT DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Personnel Costs:		Months	Monthly		Personnel
Name	Project Title	Budgeted	Costs	Overtime	Sum
Robert Campbell	Principle Investigator	5.0	9.9		49.5
Robert Campbell - at sea rate	Principle Investigator	0.5	10.4		5.2
Technician TBD	Field/lab technician	12.0	6.8		81.6
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
		Subtotal	27.1	0.0	
				Personnel Total	$136.3

Travel Costs: Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Alaska Marine Science Symposium	0.4	1	3	0.2	1.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.0

FY16

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
PERSONNEL & TRAVEL DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

Contractual Costs: Description		Contract Sum
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Commodities Costs: Description	Commodities Sum
Reagents and lab supplies	5.0
Mooring supplies	5.0
Sampling Hardware	1.0
Commodities Total	$11.0

FY16

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
CONTRACTUAL & COMMODITIES DETAIL

***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**
DETAILED BUDGET FORM FY 12-FY16

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Descriptior	Number of Units	Inventory Agency
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WETlabs fluorometer	1	PWSSC
Satlantic SUNA	1	PWSSC
Mooring releases	2	PWSSC
Mooring flotation	4	PWSSC

FY16

Program Title: PWS Oceanographic monitoring
Team Leader: Robert Campbell

FORM 3B
EQUIPMENT DETAIL