

FY15 PROJECT PROPOSAL SUMMARY PAGE

Continuing, Multi-Year Projects

Proposals are due to the EVOSTC office by September 2, 2014. Please note that the information in your proposal and budget form will be used for funding review. Late proposals, revisions or corrections may not be accepted.

Project Title: EVOS Legacy: Reducing Cordova Snowmelt Pollution to Marine Habitat

Project Period: February 1, 2015 – January 31, 2016

Primary Investigator(s): Kristin Carpenter, M.P.P., Executive Director, Copper River Watershed Project

Study Location: Cordova, AK

Project Website (if applicable): N/A

The Copper River Watershed Project (CRWP) will demonstrate that application of Best Management Practices (BMPs) to managing snow in a developed community will improve the water quality of snowmelt discharges that flow directly into the Cordova harbor and Orca Inlet, the habitat range of the majority of PWS juvenile herring. Synthesized research on the long-term effects of the *Exxon Valdez* oil spill found that chronic persistence of oil has sub-lethal impacts on marine populations. Over the course of a winter, contaminants that commonly accumulate in snow include oil, grease, sediment, nitrogen, phosphorous, and metals. The CRWP will work with the City of Cordova and the Alaska Department of Transportation & Public Facilities to examine current snow handling practices in Cordova, identify BMP procedures and structures that could help reduce the concentration of contaminants in snow melt run-off, implement BMP structures at up to three snow storage sites, conduct water quality testing to assess the effectiveness of the BMP structures, and produce a guidance report for distribution to other municipalities.

**The abstract should provide a brief overview of the overall goals and hypotheses of the project and provide sufficient information for a summary review as this is the text that will be used in the public work plan and may be relied upon by the PAC and other parties.*

Estimated Budget:

EVOSTC Funding Requested* (must include 9% GA):

FY12	FY13	FY14	FY15	FY16	TOTAL
			\$141,915.30		

Non-EVOSTC Funds to be used:

FY12	FY13	FY14	FY15	FY16	TOTAL
			\$6,900		

**If the amount requested here does not match the amount on the budget form, the request on the budget form will be considered to be correct.*

Date: August 28, 2014

Reviewers will have available your annual report, original proposal, and this proposal during their review. However, to assist reviewers, please highlight or otherwise distinguish any new or additional information that was not included in your original proposal.

I. EXECUTIVE SUMMARY

Non-point source stormwater run-off is among the leading contaminants degrading water quality in the U.S. today (National Water Quality Inventory, 2004, EPA). Not only is stormwater run-off a widespread problem, but synthesized research on the long-term impacts of the *Exxon Valdez* oil spill found that chronic persistence of oil is a “major pathway” for sub-lethal population impacts in the marine environment:

Laboratory experiments show that these multi-ringed polycyclic aromatic hydrocarbons (PAHs) from partially weathered oil at concentrations as low as 1 ppb [part per billion] are toxic to pink salmon eggs exposed for the months of development and to herring eggs exposed for 16 days (Marty et al., 1997 and Heintz et al., 2001 in Peterson et al., 2003).

Melting snow becomes surface run-off, and carries entrained pollutants in the flow: “Snow removed from roads and parking lots has been shown to contain various pollutants, including road salt, sand, litter, animal waste, and automotive pollutants such as metals and oil” (Alaska Department of Environmental Conservation guidance on “Snow Disposal Area Siting”, ADEC web site).

The Copper River Watershed Project (CRWP) requests continuing project funds for its work on demonstrating that application of best management practices for managing snow removal in a developed community will improve the water quality of snowmelt discharges that flow directly into the Cordova harbor and Orca Inlet, the habitat range of the majority of PWS juvenile herring. Year one project funds are covering the cost of conducting an analysis of City of Cordova and the Alaska Department of Transportation & Public Facilities (ADOT/PF)’s snow management practices, of developing a snow melt sampling plan, and of collecting water quality samples. Year two project funds will be used to implement the most appropriate procedural and structural Best Management Practices (BMP) for mitigating the effects of snow storage on our salmon and herring habitat waterbodies, to monitor snow melt run-off water quality before and after implementation of BMPs, and produce a BMP guidance report for distribution to other small, coastal municipalities.

Assessing snow management practices with the goal of improving water quality of water bodies draining to Orca Inlet will further the EVOS Trustee Council’s objective of reducing “pollution in the marine environment to contribute to the recovery of injured natural resources” (p. 16, EVOS TC FY ’12 Invitation).

Work done to date has identified three snow storage sites used by the City of Cordova that drain snow melt-water into Orca Inlet. In order of volume of snow stored, they are: downtown, at the corner of 2nd and Adams Streets (behind the Cordova Library); at Odiak Pond; and on the North Fill (industrial land use area). Within the parameters of this project, the site of greatest concern is the Odiak Pond snow storage site and we will be focusing our BMP work on that site. At an August, 2014 roundtable meeting with City of Cordova and AK DOT/PF staff to review the draft Cordova Snow Management Practices Report, the downtown snow storage site was considered by all parties to be of greatest concern but the BMP improvements that would yield snow melt-water pollutant mitigation are estimated to be between \$130,000 - \$244,010. We will use the analysis done in this project to prepare for BMP improvements at this site in a later phase of this effort.

II. COORDINATION AND COLLABORATION

A. Within a EVOSTC-Funded Program

Copper River Watershed Project is conducting its restoration work in collaboration with Scott Pegau of the Oil Spill Response Institute who is currently funded by EVOS for herring work (see EVOS invitation for Proposals Federal Fiscal year 2012, focus area #1).

B. With Other EVOSTC-funded Projects

C. With Trustee or Management Agencies

Early in the project development process, Copper River Watershed Project sought guidance and input from AK DEC on project goals and deliverables.

III. PROJECT DESIGN – PLAN FOR FY15

A. Objectives for FY15

The CRWP's hypothesis holds that the water quality of snow melt-water and stormwater discharges can be improved by applying BMPs to snow handling and storage in Cordova. We have four objectives for improving water quality from melt-water run-off discharged from snow piles formed from clearing City of Cordova streets. In FY 2014, we completed the first objective of analyzing City of Cordova and Alaska Department of Transportation & Public Facilities snow management practices in City limits and identifying recommendations to help reduce snow melt-water pollution being discharged into aquatic and marine environments. The report from the contract engineer contains short-and long-term improvements to snow management practices, including identification of potential snow storage and treatment sites for reducing snow melt-water run-off. Snow storage sites recommended for structural improvements were chosen "based on volumetric snow load and proximity to receiving waters" ("Draft Cordova Snow Management Practices Analysis Report", July 2014).

For FY 2015, we are pursuing the following objectives:

- Implement BMP filtration structures at up to three sites around Cordova for filtering snow melt-water. Referred to as "structural BMPs," these constructed treatment areas "are designed to control the rate and volume of stormwater run-off, release of pollutants to receiving waters, and/or remove pollutants once they are incorporated into the stormwater run-off" (Shannon and Wilson, 2006, BMP Effectiveness Report 18-9001-15 Fairbanks, AK).¹
- Sample snow melt-water run-off water quality before and after implementation of BMPs. Since the goal is to reduce downstream pollutant loads and concentrations of pollutants, we will follow a water quality-testing regime with several objectives: (1.) collect snow melt-water quality data and site specific features of snow storage sites under current practices to represent baseline conditions and prioritize modifications; (2.) collect water quality data from receiving waters for comparison; and (3.) collect snow melt-water quality data after modifications to snow storage sites or management practices have been implemented to determine effectiveness (DOWL HKM, Draft Snowmelt Sampling Plan, 2014).

¹ Visit <http://dec.alaska.gov/water/wnpspc/stormwater/AKDEC%20BMP%20Effectiveness%20Report.pdf> for a copy of Shannon and Wilson report.

- Synthesize results on the effectiveness of BMPs (maintenance required, results of water quality monitoring) and the cost-effectiveness of each approach applied with regard to water quality improvements in a “BMP Guidance Report” that will be distributed to other small, coastal municipalities and at association conferences in October, 2015.

B. Changes to Project Design

As scheduled, the CRWP contracted DOWL engineering for snowmelt management analysis. DOWL conducted a site visit in March 2014, identified current snow storage sites that were of concern, and created a template for snow melt-water sampling. But Cordova’s 2013 – 2014 winter snow fall was far lower than anticipated so there was less snow piled at snow storage sites, and we had a rain-on-snow event that prevented water sampling of the little snow we did have. Alternative sampling and rationale for sampling sediment is discussed below under “Sampling for Pollutants.” Changes to our project design include:

- **Criteria for choosing BMP sites:** The lack of snow, and consequent lack of snow melt-water for sampling, caused project partners to re-evaluate how we would choose sites for snow management BMP structures. We originally planned to use the results of sampling for pollutants as one of the factors in deciding which Cordova snow storage sites would be selected for treating with BMP structures. In a June, 2014 conversation with CRWP, DOWL, and NOAA, project staff decided that other factors would have been the main drivers anyway for site selection and that we could confidently go ahead with a prioritization and identification of possible solutions for the draft analysis report due in July, 2014. Factors that were used in selecting sites for BMP improvements are volume of snow stored at a given location, proximity to marine environment, and feasibility and affordability of implementing improvements.
- **Sampling for pollutants:** we did not spend as much money as anticipated on snow melt-water sampling in spring, 2014 because of the low snow precipitation in winter 2013/2014. When we met with the City of Cordova and the Alaska Department of Transportation & Public Facilities in August, 2014 to review the draft Cordova Snow Management Practices Analysis Report, we learned that the City sweeps streets in the spring and collects sand that was spread over the winter for re-use the following winter. Since hydrocarbons are the main pollutant of concern, we decided to use some of our snow melt-water sampling funding to sample sediment in FY 2014 to determine the pollutant load entrained in used sand.
- **Timing of implementing structural BMPs.** In the proposal narrative submitted in 2013, we anticipated implementing snow melt-water treatment structures in fall, 2014 so that we could begin seeing the benefits of mitigating snow melt-water run-off as soon as possible. We did not include funds for those BMP structures in our Year One budget, though, and realize that it’s not practical to accomplish this without more consultation with the City of Cordova’s Public Works Department, which requires a bit more time. Funding for structural BMPs was included in our original FY 15 budget, but we learned from another stormwater project that was bid competitively in fall, 2013 that we under-estimated the funding needed for that part of our EVOSTC/NOAA project. What we can do in FY 2014/project year one is conduct a survey of the top priority site for structural BMP improvement in preparation for BMP improvements work that will mitigate snow melt-water pollution at that site.

We plan to complete Year One of the project by sampling as outlined in the Snow Melt Sampling Plan developed in March, 2014 as winter weather conditions allow so that we have adequate “before” data collected for comparison with “after” data collected in 2015.

IV. SCHEDULE

A. Project Milestones for FY 15

Objective 2. Implement Best Management Practice (BMP) filtration structures at up to three sites around Cordova for filtering snow melt-water.

To be met by ~~November 2014~~ August, 2015 (see explanation for schedule change in Section III (B), Changes to Project Design).

Objective 3. Monitor snow melt-water run-off water quality before and after implementation of BMPs.

To be met by January 2016

Objective 4. Synthesize results on the effectiveness of BMPs and the cost-effectiveness of each approach applied with regard to water quality improvements in a “BMP Guidance Report”.

To be met by January 2016.

B. Measurable Project Tasks for FY 15

FY 15, 1st quarter (Feb. 1 – April 30, 2015)	
Feb. – March	Contractor creates drawings for BMP structures
Feb. - April	CRWP staff collect water quality samples during wet or dry periods
March 1, 2015	CRWP staff submit EVOS annual report
FY 15, 2nd quarter (May 1 – July 31, 2015)	
April - June	CRWP staff collect snow melt water quality samples
June - July	CRWP staff, City of Cordova staff, ADOT/PF staff and local contractors (if needed) coordinate implementation of BMP structure
July	CRWP staff and engineer synthesize water quality sampling results. CRWP staff and engineer meet with City of Cordova and ADOT/PF staff to review results and discuss potential changes in snow management practices for effectiveness in treating snow melt-water
FY 15, 3rd quarter (Aug. 1 – Oct. 31, 2015)	
August – Sept. 30, 2015	Engineer drafts guidance report, CRWP circulates to project partners for review and comment.
Aug. – Oct. 31, 2015	CRWP staff collect water quality and/or sediment samples as appropriate
October, 2015	CRWP staff present guidance report at October annual meetings of Alaska Rural Water Association and Alaska Association of Port and Harbor Administrators and distribute to other small, coastal municipalities.
Sept. 2, 2015	CRWP staff submit EVOS continuing project proposal form and budget sheets
FY 15, 4th quarter (Nov. 1 2015 – Jan. 31, 2016)	
Nov. 2015 – Jan. 31, 2016	CRWP staff monitor snow management practices and structures for effectiveness in retaining snow and filtering snow melt-water (allowing for winter rain events).
By December 18, 2015	City of Cordova and ADOT/PF staff, contractor and CRWP staff meet to review lessons learned, implementation challenges and successes.
Nov. 2015 – Jan. 31, 2016	CRWP staff collect water quality samples

Jan. 15, 2016	Identify project end dates and deliverables.
Jan. 21, 2016	CRWP presents project results to City of Cordova Council.
Jan. 31, 2016	CRWP staff submit final EVOS project report.

V. PROJECT PERSONNEL – CHANGES AND UPDATES

VI. BUDGET

A. Budget Forms (Attached)

Provide completed budget forms.

B. Changes from Original Proposal

Changes in this FY 2015 budget request that are different from the version originally submitted in September, 2013 include:

- No funding requested for site survey work because we anticipate doing that work within our FY 2014 budget (as per e-mail message of 8/28/14 sent to EVOS Trustee Council Executive Director and Science Coordinator);
- More funding allocated to construction costs for BMP improvements at snow storage site. After construction of a stormwater bioswale project in fall, 2013, CRWP staff realized that the original FY 2015 budget request substantially underestimated construction costs for such work; and
- Addition of travel costs for CRWP staff to travel to Alaska Rural Water Association and Alaska Association of Port and Harbor Administrators fall conferences to present guidance report on snow management practices for reducing stormwater pollution to marine receiving waters (this was inadvertently omitted from original FY 2015 request submitted in September, 2013).

C. Sources of Additional Funding

We anticipate an in-kind match of \$6,900 from City of Cordova staff and from Alaska Department of Transportation and Public Facilities staff with their participation in the snow management analysis.

VII. BIBLIOGRAPHY

EPA, 2004 Reporting Cycle, *National Water Quality Inventory: Report to Congress*, Washington, D.C.

Peterson, Charles et al., “Long-term Ecosystem Response to the Exxon Valdez Oil Spill,” *Science*, December 19, 2003.

Shannon and Wilson, *BMP Effectiveness Report 18-9001-15*, February 2006.

DOWL HKM, 2014, *Draft Cordova Snow Management Practices Report* for the Copper River Watershed Project.

DOWL HKM, 2014, *Draft Snowmelt Sampling Plan* for the Copper River Watershed Project.

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
PROGRAM BUDGET PROPOSAL AND REPORTING FORM**

Budget Category:	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel	\$0.0	\$0.0	\$15,613.6	\$22,057.3	\$0.0	\$37,671.0	
Travel	\$0.0	\$0.0	\$2,270.0	\$2,600.0	\$0.0	\$4,870.0	
Contractual	\$0.0	\$0.0	\$61,720.0	\$83,991.0	\$0.0	\$145,711.0	
Commodities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Equipment	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Indirect Costs (<i>will vary by proposer</i>)	\$0.0	\$0.0	\$15,642.1	\$20,998.3	\$0.0	\$36,640.4	
SUBTOTAL	\$0.0	\$0.0	\$95,245.8	\$129,646.7	\$0.0	\$224,892.4	N/A
General Administration (9% of subtotal)	\$0.0	\$0.0	\$8,572.1	\$11,668.2	\$0.0	\$20,240.3	
PROJECT TOTAL	\$0.0	\$0.0	\$103,817.9	\$141,314.9	\$0.0	\$245,132.7	
Other Resources (Cost Share Funds)	\$0.0	\$0.0	\$6,920.0	\$6,920.0	\$0.0	\$0.0	N/A

COMMENTS:

This page provides an five-year overview of proposed funding and actual cumulative spending. The column titled 'Actual Cumulative' should be updated each fiscal year to provide information on the total amount actually spent for all completed years of the program. For years where funding is not requested, please leave zeroes.

The Project Total line will be considered the final requested amount and changes will not be accepted after the proposal is submitted.

Source of cost share funds: City of Cordova Public Works staff, 3 people x .25 FTE for one month (173 hours) x \$32/hour = \$4,152; AK Department of Transportation Maintenance and Operations staff, 2 people x .25 FTE for one month (173 hours) x \$32/hour = \$2,768.

FY12-16

**Project Title: Reducing Cordova Snowmelt
Pollution to Marine Habitat
Primary Investigator: Kristin Carpenter**

**PROGRAM
SUMMARY PAGE**

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
PROGRAM PROJECT BUDGET PROPOSAL AND REPORTING FORM**

Personnel Costs:		Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Project Title				
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
		Subtotal	0.0	0.0	
					Personnel Total
					\$0.0

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

FY16

**Project Title: Reducing Cordova Snowmelt
Pollution to Marine Habitat
Primary Investigator: Kristin Carpenter**

**FORM 3B
PERSONNEL & TRAVEL
DETAIL**

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
PROGRAM PROJECT BUDGET PROPOSAL AND REPORTING FORM**

Contractual Costs: Description	Contract Sum
If a component of the project will be performed under contract, the 4A and 4B forms are required.	Contractual Total
	\$0.0

Commodities Costs: Description	Commodities Sum
	Commodities Total
	\$0.0

FY16

**Project Title: Reducing Cordova Snowmelt
Pollution to Marine Habitat
Primary Investigator: Kristin Carpenter**

**FORM 3B
CONTRACTUAL &
COMMODITIES DETAIL**

