SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
	Habitat Conservation				
a. Personnel	$ 10,209.00	$	$	$	$ 10,209.00
b. Fringe Benefits	1,838.00				1,838.00
c. Travel	3,330.00				3,330.00
d. Equipment					
e. Supplies					
f. Contractual	43,000.00				43,000.00
g. Construction					
h. Other					
i. Total Direct Charges (sum of 6a-6h)	58,377.00				$ 58,377.00
j. Indirect Charges	9,906.00				$ 9,906.00
k. TOTALS (sum of 6i and 6j)	$ 68,283.00	$	$	$	$ 68,283.00
7. Program Income	$	$	$	$	$

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Tracking Number:GRANT11265780 Funding Opportunity Number:NOAA-NMFS-HCPO-2013-2003491 Received Date:2012-11-08T15:36:27-04:00

Project Summary

Non-federal sponsor organization:	Copper River Watershed Project
Project Title:	Mitigating Cordova's Stormwater Run-off Through Snow Management Analysis
Site location:	Cordova, Alaska
Land owner:	City of Cordova, AK DOT/PF
Implementation date:	June 1, 2013
Marine habitats to benefit:	Orca Inlet (herring, pink and coho salmon), Cordova harbor; aquatic habitat in Eyak Lake (sockeye and coho salmon), and Odiak Pond (coho salmon)

Project scope:

Every winter the City of Cordova and the Alaska Department of Transportation spread approximately 2,300 tons of sand on Cordova streets. Hydrocarbons and heavy metals are adsorbed to the sand particles, which become entrained in plowed snow, and this combination of pollutants is often stored to facilitate drainage into salmon habitat waterbodies. The CRWP will form a partnership with the City of Cordova and the AK Department of Transportation to analyze how snow storage and handling practices could be modified to implement Best Management Practices for snow management in areas immediately adjacent to the Cordova harbor, Orca Inlet, Eyak Lake, and Odiak Pond. CRWP will contract with DOWL Engineering for an analysis of City of Cordova and Alaska DOT snow removal and storage procedures. CRWP will then facilitate a planning dialogue with City of Cordova Public Works staff and Alaska DOT Maintenance & Operations staff regarding implementation and evaluation of recommended Best Management Practices. Some BMPS will likely be procedural, e.g. having to do with the timing of snow removal, and some may be mechanical such as placement of a bio-filter to treat melting snow run-off.

Project outcomes:

This project is designed to produce several tangible outcomes:

- a report to the City of Cordova containing:
  - a snow management plan, with maps documenting snow clearing routes and snow dump sites, documentation of City crew numbers and equipment available for snow management; and
  - short-term, medium-term and long-term recommendations for Best Management Practices for snow management.
- Water quality testing funded by the City of Cordova at the largest stormwater outfall (into Orca Inlet, just outside the Cordova Boat Harbor) for hydrocarbon and sediment loading in storm water. CRWP staff will test during "dry" and "wet" periods to determine a water quality baseline and to identify stormwater pollutant levels. We may also sample for water quality at snow pile storage sites. Testing results will be factored in to snow management recommendations.
- Demonstration implementation of snow management BMPs during winter 2014 – 2015 season.

Project time line:

Activity	Date
Contract with DOWL Engineering for analysis of City of Cordova and AK DOT snow removal and storage practices	June 15, 2013
Hold roundtable meeting with City of Cordova and AK DOT Maintenance & Operations staff to introduce contractor to partners, review scope of project	By June 30, 2013
Contractor reviews file documentation and maps of current snow management practices in Cordova	July, 2013
CRWP staff conduct baseline water quality testing during "dry" and "wet" periods	July, 2013 – March, 2014
Contractor makes site visit to Cordova to meet with Cordova Public Works and AK DOT staff, assess current snow dump sites, their capacity, and drainage concerns for melting snow	September, 2013
Contractor monitors snow management practices	Nov. 2013 – May 2014
Contractor prepares draft (65%) snow management plan	March, 2014
Recommendations and plans for next winter season are finalized	May, 2014
City of Cordova and AK DOT implement short term snow management recommendations	Nov. 2014 – May 2015
CRWP conducts project de-brief with City of Cordova Public Works and AK DOT Maintenance & Ops. Road crews	April, 2015

Permits and approvals:

No fish habitat permits are anticipated as the work of assessing snow handling and storage should not involve working in marine or aquatic waters. Depending on the engineers recommendations for BMPs, we may need to apply for a Corps of Engineers permit for a wetlands bioswale BMP.

Federal funds requested: $68,283

Non-federal match anticipated: $12,700

Overall project cost: $80,983

Project Narrative

Project Need

Sitting on the edge of eastern Prince William Sound and at the foot of the Chugach Mountains, snow disposal options for the coastal community of Cordova are limited and carefully guarded by the Cordova Public Works Department. Harmful contaminants in plowed snow are well documented in national literature, though. Photographs from several places around Cordova documents that storing snow adjacent to water bodies is a common practice, even though it's prohibited by State law.

The Copper River Watershed Project (CRWP) is applying for funds to work with the City of Cordova and the Alaska Department of Transportation & Public Facilities (ADOT/PF) to identify solutions for mitigating the effects of snow storage on our salmon and herring habitat waterbodies. Plowed snow is currently dumped in Cordova's harbor, into Orca Inlet, and stored immediately adjacent to Eyak Lake and Odiak Pond. A City street sweeper truck does sweep sand from the streets, but the sand is not collected.

Since 2008, we have commissioned a series of reports on stormwater pollution:

- Cordova Stormwater Design Study Report, Bratslavsky Consulting Engineers (2008): this study characterized watersheds within the City of Cordova and identified causes and sources of pollution likely to exist within the defined watersheds. No sampling or testing was included in the scope of this study, but it estimated likely pollutants based on land use type and national averages for pollutant loading.
- Cordova Stormwater Design Study Report, Jacobs Engineering (2009): this report provided recommendations for stormwater treatment alternatives and non-point source pollution remedies for watersheds within the City of Cordova. The engineers identified Best Management Practices (BMPs) in four categories – structural, educational, source control, and maintenance – and discussed the feasibility of implementing each recommendation.
- Odiak Pond Stormwater Assessent, DOWL HKM Engineers (2012): as part of an Odiak Pond restoration effort, the engineers developed a run-off model to predict pollutant loading, including sediment, hydrocarbons, and excessive nutrients, to prioritize water treatment efforts to reduce stormwater pollution in Odiak Pond.

Each of these reports specifically recommends developing and implementing a snow management plan for Cordova: "Development of a comprehensive snow storage plan, educational BMPs, and establishing snow storage sites away from receiving waterbodies are recommended" (Jacobs Engineering, 2009).

As noted in the 2009 Cordova Stormwater Design Study Report, "Disposing of or storing snow on water bodies does not comply with Alaska regulations. . . This action is only allowed with an emergency permit, and storage must be on a marine water body. Snow

storage on fresh waterbodies is not permitted due to the water bodies' low tolerance to chloride, potential for sedimentation, and potential for stagnation or meromixis where there is permanent stratification in the waterbody (ADOT 2003)" (Jacobs Engineering, 2009). The attached photos document that storing snow next to fresh waterbodies is a common Cordova practice.

Jacobs Engineering also stated:

> A regulation that applies to runoff water quality in Cordova is 18 AAC 72, Wastewater Disposal. 18 AAC 72.500(a) states "a person who disposes of non-domestic wastewater into or onto land, surface water, or groundwater in this state must have a permit issued by the department under this chapter or under 18 AAC 83 for that disposal." Snow disposal is a form of nondomestic wastewater (ADEC 2009a, 2009b). Additionally, ADEC considers snow to be a solid waste, as debris-entrained snow and urban snow cannot, except under emergency permit for marine waters, be stored on water bodies (Alaska Department of Transportation [ADOT] 2003).

Jacobs engineering explains that "Plowed snow may be laden with contaminants such as sediments, hydrocarbons, organic material, trash, and debris. Similar snow piles have been determined to be a hazard to the environment, especially when directly melted into fresh water (ADOT 2003). As plant and animal life in [Odiak] pond comes out of winter dormancy, it may be exposed to snow-pile contaminants."

Jacobs engineering again: "Sediment may not be just sand; it may be laden with contaminants from the street, parking lots, and other sources condensed into a small area at the snow pile, which edged out to the lake ice and covered the three large culverts in their entirety. Soluble contaminants tend to exit the snow pack early in the melt season, creating a time-varied concentration release of contaminants while the less soluble contaminants remain until the later phases. These contaminants adsorb to the sediments, adhere to the surface of the snow pack, and are often flushed all at once during a rain event later in the melt season (ADOT 2003)."

Stormwater run-off in Cordova drains to three primary receiving waterbodies: Orca Inlet, Eyak Lake, and Odiak Pond (see attached Cordova sub-basin illustration).

Orca Inlet. Cordova's largest stormwater outfall (6 foot culvert) is the discharge point for approximately 265 acres of drainage, encompassing most of downtown Cordova as well as residential and industrial lands. The primary concerns for the area are sediment, debris and petroleum loading (Jacobs, 2009). The discharge point is just outside the harbor breakwater, on the southwest corner of the Cordova Harbor. At low tide, Orca Inlet is miles of exposed mudflats, critical forage habitat for migrating shorebirds. The marine inlet also hosts Pacific herring, once a highly valuable commercial species for Prince William Sound fishermen, before the *Exxon Valdez* oil spill, but one that is currently listed as "not recovering" (www.evostc.state.ak.us/recovery). Other commercial species that use Orca Inlet include pink salmon, for spawning and migration, and coho salmon for migration.

Eyak Lake. Dubbed Cordova's "Million Dollar Lake," Alaska Department of Fish and Game staff biologists estimate an annual returning escapement of 40,000 sockeye salmon and 17,500 coho salmon in Eyak Lake.[1] Overall ex-vessel value of commercial harvest of sockeye and coho salmon returns to Eyak Lake was estimated at $926,598 to $1,762,176, truly a million dollar lake.[2] The west end of the lake receives stormwater discharge from three of the City's sub-watersheds.

Odiak Pond. After Orca Inlet, Odiak Pond drains the largest surface area in Cordova city limits. Thanks to Cordova's 7th grade science class of 2010, the Pond and its influent stream are now listed in the State's Catalogue of Anadromous Waters as coho habitat. Near the pond are a hospital, parking area, snow storage areas, helicopter pad, highway, old capped landfill, culvert outfalls from stormwater, and an influent stream that drains several residential areas and runs along the Copper River Highway. Because of its central location, the pond and adjacent grass field are a popular recreation site. For years, Odiak Pond has been the site of outdoor education sessions on aquatic ecology with the Cordova K - 12 classes.

History of Stormwater Run-off Work in Cordova

"Stormwater run-off" as a water quality concern was not on the CRWP's radar until 2005 or so. In our rural community of 2,000, the term was essentially unknown -- could the pollutant level really be high enough to degrade water quality in coastal community surrounded by water? But as we worked on riparian habitat restoration around town and became familiar with drainage patterns and sources, we started noticing things. Heavy plumes of sediment-laden storm water being discharged straight into Eyak Lake. Drip lines of hydrocarbon sheen from leaking trucks running for a mile or more along the lake-shore road, and streams of rainbow sheen trickling into the parking lot drain that exits in Orca Inlet.

The visual evidence is very apparent (see attached photo series) but we've had challenges – funding availability, timing of QAPP approval -- in implementing a systematic sampling plan that would back up what we see in the streets.

In 2005 – 2006, CRWP staff followed the Kenai Watershed Forum's lead and worked with NOAA's Auke Bay Laboratory to deploy sampling "pucks" in Eyak Lake. The pucks are designed to mimic bio-accumulating aquatic organisms. Immersed in a waterbody for thirty days, they can be used to monitor long-term, chronic hydrocarbon exposure. We deployed pucks at five sites in Eyak Lake, and the two locations that showed evidence of hydrocarbon exposure had been staged offshore of the Cordova Electric Cooperative's diesel power plant clean-up site and 15' into the lake from the largest stormwater outfall pipe on Eyak Lake. NOAA researchers concluded that

[1] *Ex-vessel value of commercial harvest of sockeye and coho salmon returns to Eyak Lake*. 2011. Steve Moffitt, ADF&G, from Prince William Sound Area Annual Finfish Management Reports, 2000-2009.
[2] *ibid*.

> PAH [polycyclic aromatic hydrocarbon] composition patterns were heavily petrogenic, indicating that uncombusted oil such as spills or urban runoff was the source. Concentrations of PAH were greatest during fall, presumably associated with stormwater runoff from fall precipitation. . . . Although well below the Alaska Water Quality Criteria of 15,000 ng L^{-1} for total PAH, the highest of these concentrations are near the threshold for toxicity to salmon embryos, but any such impacts are likely to be sporadic and localized because incubation in upwelling habitats would protect embryos from exposure. (Short et al., December 2006)

We turned these observations into a campaign called *Don't Run Off Salmon* starting in 2008. CRWP staff produced a series of public service announcements that were printed in two local newspapers (Cordova Times and the Copper River Record, see attached PSA), and aired on KCHU public radio. We made presentations at Cordova City Council and Planning & Zoning Commission meetings. With NOAA ARRA funding in 2010, we also produced an interpretive sign (part of a series) on stormwater run-off. It hangs on the sidewalk railing on First Street, overlooking Orca Inlet (see attached PDF of interpretive sign).

Don't Run Off Salmon

Snow is stormwater too. Although in a solid state, it still carries with it the grease, grime, street trash, and sand that collects and eventually pollutes local waterways as it melts and drains. As always, don't litter, pick up dog waste, and be mindful of vehicle leaks, as they are rather visible on snow-covered surfaces. Don't run off salmon – by keeping streets clean, you're keeping waters clean.

CRWP radio PSA, written and aired on KLAM and KCHU radio stations as part of a series of stormwater PSAs in 2008

Along the way, the CRWP has built a working relationship with the City of Cordova and with the local ADOT/PF Maintenance & Operations road crew. We were able to act on one of the Jacobs Engineering report's recommendations to mitigate stormwater pollution being discharged into Eyak Lake. In 2011, the CRWP used funds from a NOAA Habitat Restoration/ARRA grant to install an oil and grit separator at the stormwater discharge outfall draining into the Lake. Although we lacked water quality testing at that location that complied with State water quality standards, we do know that the Stormceptor chamber filled to capacity in one year. This means that roughly three dump truck loads of sediment and adsorbed heavy metals and hydrocarbon pollutants were diverted from Eyak Lake. We developed a partnership with the City of Cordova to maintain the Stormceptor hydrodynamic separator.

Project Description

Based on recommendations in each of the three engineers' reports on stormwater in Cordova – an overall design study report on stormwater, recommendations for stormwater mitigation in Cordova, and a hydrology assessment of Odiak Pond – the CRWP is requesting funding from the EVOS Trustee Council for developing a comprehensive snow management plan for the City of Cordova.

CRWP staff have made presentations about stormwater at City Council and Planning & Zoning Commission meetings since 2008. We have also worked with the City of Cordova's Public Works Department staff on the installation of an oil and grit separator to treat

stormwater being discharged into Eyak Lake. From these efforts, City staff are familiar with our concerns, but the municipal budget for a community of 2,500 is not in a position to support this kind of investment on its own. [Much larger infrastructure needs, such as retrofitting the City's water treatment plant and addressing sewer system inflow and infiltration leaks – which drastically increase the volume of water requiring treatment by the sewage treatment plant – are the high priority budget items.]

Water Quality Monitoring. The City of Cordova is acting on its concern for stormwater discharge contaminants by making a cash contribution of $5,000 to water quality testing. As part of the planning conversations for this application, the CRWP asked the City if it would fund the cost of laboratory fees for analyzing stormwater discharge samples. The City agreed to do this, but does not have staff to collect the samples. CRWP staff will fill this role, following procedures approved in an Alaska Department of Environmental Conservation-reviewed quality assurance project plan (QAPP).

Year 1 Project Activities

DOWL HKM Engineers have outlined its evaluation approach to developing a snow management plan for Cordova:

- Document current snow management practices, including what streets are plowed and in what order, when streets are plowed (what amount of snow fall triggers road clearing), where snow is stored, and what the City's sanding practices are, e.g. when and how much sand is applied to roads.
- An efficiency analysis will be conducted to quantify the economics of hauling snow by truck (e.g. cost of hauling snow by the truckload, requiring a driver, fuel and truck wear and tear) by tracking the number of loads hauled, to which sites, and truck load capacity. These data will be used to analyze the amount hauled and what distances snow is being moved.
- Using a storm size of 85% probability, the engineers will analyze the equipment currently used by the City and determine whether a different piece of equipment added to the fleet might make operations more efficient. Perhaps adding a blower to stack snow higher at a particular site or another truck could help move snow more economically, given the size of storm events that are typical in Cordova.
- Analyze current snow dumps used and potential additional, alternative sites available for snow storage. Assess the general amount of snow hauled and to which general areas.

Analyzing the City's snow storage and sanding practices will help answer questions such as "what is the cost of sanding, or of not sweeping streets frequently, if the City needs to install an oil and grit separator at a particular outfall, or regularly clean out silted-in drainage ditches?"

Conducting this analysis will involve two site visits per year by DOWL HKM Engineers. During the first visit, in the first project year, the engineers will interview Cordova Public Works staff to document their current practices. The engineers will also create maps (from aerial imagery or CAD maps) to illustrate snow management practices. Before the snow

clearing season begins, the engineers will visit each snow storage site to analyze its drainage patterns and site conditions.

During the winter season, CRWP staff will assist with documenting current City practices by taking photos of each snow storage site. We expect that DOWL HKM engineers will make a site visit to Cordova during the first project year winter to track whether actual snow management practices match what was discussed during the initial City Public Works staff conversations.

CRWP staff will collect water quality samples in the first year of this project during the first hour of storm events and during dry periods of one week or longer. Water quality samples will be collected from Odiak Pond, at the Orca Inlet stormwater outfall, and possibly at snow dump sites during the spring melt.

Year Two Project Activities

In year two of our project, partners will implement the following steps:

- City of Cordova Public Works and AK DOT crews implement short-term recommendations as feasible
- CRWP staff monitor snow management practices with snow storage site photos
- CRWP conducts storm water education class sessions with CHS 7th grade science class
- DOWL HKM Engineers make site visit to review implementation of recommendations, track progress

Community Outreach

Beginning in 2009, the Copper River Watershed Project has coordinated monthly stormwater education class sessions with the Cordova School District's seventh grade science class. The class visits Odiak Pond for these sessions because it's so close to the school. This class began its Odiak Pond program with setting minnow traps in the Odiak Pond inlet creek (under the supervision of a local AK Department of Fish & Game fish biologist). The traps captured coho salmon fry in November, 2009 and April, 2010, which the class used to complete and submit, with 27 student signatures, a nomination of Odiak Pond to the State Catalogue of Anadromous Waters.

Starting with the 2010-2011 school year, students added an assessment of stormwater debris entering Odiak Pond. Each month a small group of students walks the drainage area around Odiak Pond, collecting and counting the different types of garbage they find. At the conclusion of the school year students generate graphs based on their data and develop outreach materials promoting stormwater stewardship with the broader Cordova community. These projects include trash sculptures, posters, boxholder mailings, movies, radio podcasts, and newspaper articles. The stormwater assessment is continuing this school year, with students adding turbidity to their regular water quality observations. Lessons learned from the snow management assessment will be

incorporated into this program and into student outreach projects (see attached Cordova Times article by 7th grade student).

CRWP is pursuing funds to remove an aged wooden culvert in the channel between the inlet stream and the pond. The culvert is left over from the railroad days, and a sediment wedge has formed at the outlet. We'll be working with the USFS to help with removing the culvert. Volunteers will help with re-vegetating the stream bank, which will re-establish a more natural stream channel for use by spawning adult coho salmon. This work, along with a snow management analysis and invasive weed treatment in the area, is part of a comprehensive effort to restore aquatic habitat in Odiak Pond.

CRWP will continue to work at the public meeting level to keep the City Council and Planning & Zoning Commission apprised of the progress and improvements made through analyzing City's snow management practices. We also use the Cordova Times newspaper as a way of communicating with a broader audience, and will continue our public education work around pollutants associated with storm water run-off.

In coordination with the overall effort to reduce stormwater pollution from snow storage in Cordova, we plan to coordinate volunteer groups to help install a vegetated buffer or bioswale filter at two snow storage sites identified in the 2012 Odiak Pond Stormwater Assessment. The CRWP will apply to the Alaska Department of Environmental Conservation in February, 2013 for funds to implement these BMPs. One site is between Chase Avenue and the Russian Orthdox church and one is on Center Drive, and both drain to Odiak Pond from the sub-basin predicted to contribute the heaviest pollutant load of biological oxygen demand, total suspended solids, settleable solids, total dissolved solids, nitrate nitrogen, total phosphorus, and grease and oil (DOWL HKM, Oct. 2012). The first site is a wetland that "ultimately flows by way of a vegetated stream channel and piped storm drain system to Odiak Pond" (DOWL HKM, October 2012). The second is on an undeveloped lot through which the influent stream channel runs. At this site, "a channel could be re-established as a bioswale, using natural vegetation to trap and break down contaminants leaching out of deposited sediment" (DOWL HKM, October 2012).

Another public education tool will be the results of storm water discharge water quality sampling. With assistance from the City of Cordova to pay for lab analysis fees, we'll collect a series of water quality samples during "wet" and "dry" periods at Odiak Pond, Eyak Lake and the Orca Inlet stormwater outfalls. The City is interested in knowing the pollutant levels entrained in our stormwater so it can better target its resources for pollution reduction. The CRWP will publicize the results of the stormwater testing in the local newspaper, at public Council and Planning and Zoning Commission meetings, and through its informal science education programs with K - 12 students.

Overall Qualifications of Applicant

As a non-profit engaged in community planning, the nature of the Copper River Watershed Project's work is collaborative by definition. In 2011, we were awarded the Public Lands Foundation's (PLF) Landscape Stewardship Award, the first time an Alaska NGO was so

recognized. The PLF looks for organizations that "demonstrated sustained outstanding leadership, vision, and purpose in contributing to BLM's efforts and in motivating other citizens and institutions to work together to more effectively manage whole landscapes, including watersheds, planning or management units, and other land systems upon which people share a common interest" (http://www.publicland.org/).

Our mission is to assist residents of the Copper River watershed in diversifying the region's economy while sustaining its resource base and its cultural heritage. Founded in 1998, we have worked since then to make collaboration our signature approach, focusing on what our far-flung communities have in common rather than our differences. Preserving and promoting the area's cultural heritage has been a successful strategy for working together to increase local participation in community development projects and to help local businesses benefit from tourism. From our experience coordinating fish habitat restoration projects with landowners and permitting agencies, the Copper River WILD! Salmon Festival to celebrate our culture of salmon, and facilitating dialogue among Copper Basin educators and community groups to create roadside interpretive signs, the CRWP has extensive practice with drawing diverse partners together to capitalize on their respective expertise and resources.

The Copper River Watershed Project has considerable experience in project and grant management. In our 14 year history, we have regularly managed grants of $100,000 and more. Sources from which we have received competitive funding in the past three years include the National Oceanic and Atmospheric Administration (ARRA stimulus funds, $1,073,886), the U.S. Fish & Wildlife Service, the National Fish & Wildlife Foundation, and the George H. and Jane A. Mifflin Memorial Fund, and we raised $45,000 in membership contributions and unrestricted funds in 2011. We have never defaulted on a grant, and have successfully closed out all inactive projects in the organization's history and completed project deliverables to the satisfaction of the funding agency. We submit our grant progress and financial reports on time. The CRWP Executive Director uses a profit and loss project budget report to track and report expenses, and uses the grant agreement work plan to track work on specific project activities.

CRWP has an accounting system capable of tracking expenditures by grant source, and contracts for book-keeping. We submit profit and loss statements by grant source with progress reports to show that only budgeted, allowable expenses are charged to grant accounts. The CRWP contracts annually for preparation of its IRS Form 990 by a CPA, and conducted Single Audits in 2010 and 2011. We have an approved indirect cost rate from the U.S.D.A. Forest Service. CRWP staff track hours charged to active projects through time sheets, which are used to charge payroll expenses to the appropriate project grant.

Our experience with fish habitat and stormwater pollution mitigation in the Copper River watershed includes:

- Facilitating three major culvert replacement projects to restore fish passage (two in Cordova, 2008 and 2010; one on the McCarthy Road, 2012);

- *Don't Run Off Salmon*, a public education campaign to raise awareness about pollution caused by stormwater run-off (begun in 2008, on-going);
- Installation of a Stormceptor oil and grit separator to filter stormwater being discharged into Eyak Lake, Cordova (2011);
- Development of a DEC-approved QAPP for water quality testing of stormwater receiving waterbodies (approval of the QAPP took up much of the grant period, and we were unable to sample as planned with those funds; we have been unsuccessful in securing funding since 2009 to be able to conduct testing as specified in the QAPP).

Each project is a collaborative partnership involving coordinating agencies, contractors, and in-kind assistance, planning for restoration and monitoring strategies, and managing grant budgets.

Budget Narrative Justification

A grant request budget for developing a snow management plan for the City of Cordova is made up of the following project expenses:

Salaries

CRWP staff: one month per project year for CRWP Executive Director, 173 hours x $28.92 + 18% fringes in year one, 173 hours x $30.09 + 18% fringes in year 2) = $12,047.

Contractual

DOWL HKM Engineering, analysis of City of Cordova snow management practices, $43,000

Travel

DOWL HKM Engineers make four trips to Cordova from Anchorage, 2 people x $360 for round-trip airfare for first trip = $720.

Three subsequent trips, one person x 3 trips = $1,080

Meals: $60/day, four trips = $480

Lodging: $150/night, four trips = $1,050

Indirect Costs

The CRWP has an approved indirect cost rate of 16.97%, $9,906.

Matching Funds

Salaries

City of Cordova Public Works staff: 20 hours x $37.50 x 3 staff x 2 project years = $4,500

AK Dept. of Transportation staff: 20 hours x $40 x 2 staff x 2 project years = $3,200

Contractual

Water quality sampling: $150 x 33 samples at Orca Inlet stormwater outfall pipe, Odiak Pond, and possibly snow dump sites, $5,000.

Snow Storage in Cordova

Snow piled up on bank of inlet creek to Eyak Lake, sockeye, coho and cutthroat trout habitat.

May, 2010

Stormwater discharge into Eyak Lake. Note road sand pile on far bank left over from snow pile.

August 2010

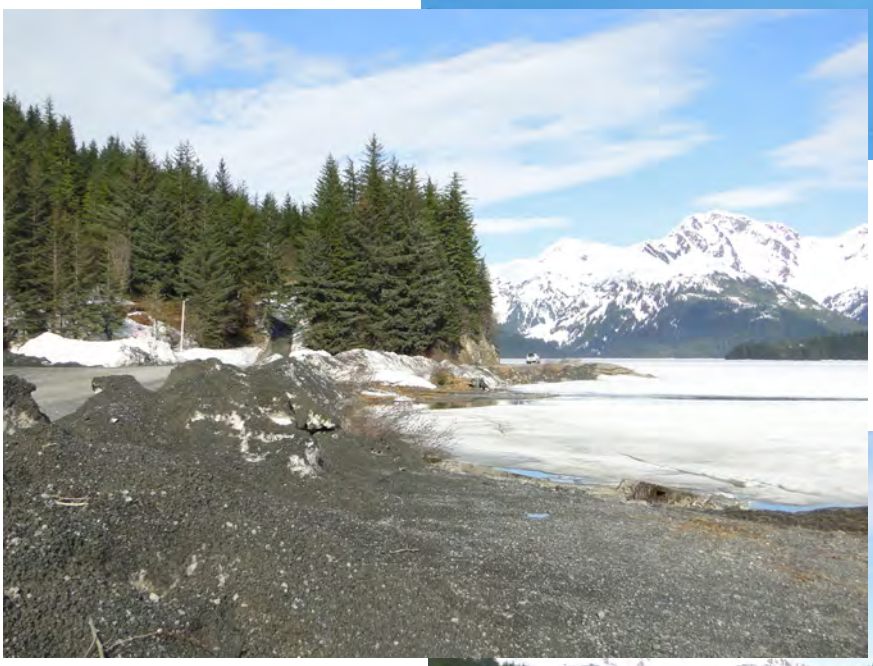
Snow pile on shore of Odiak Pond, coho salmon habitat.

May, 2012

Snow Storage in Cordova

Snow pile on north side of Odiak Pond (frozen pond is in lower left foreground).

January 2012

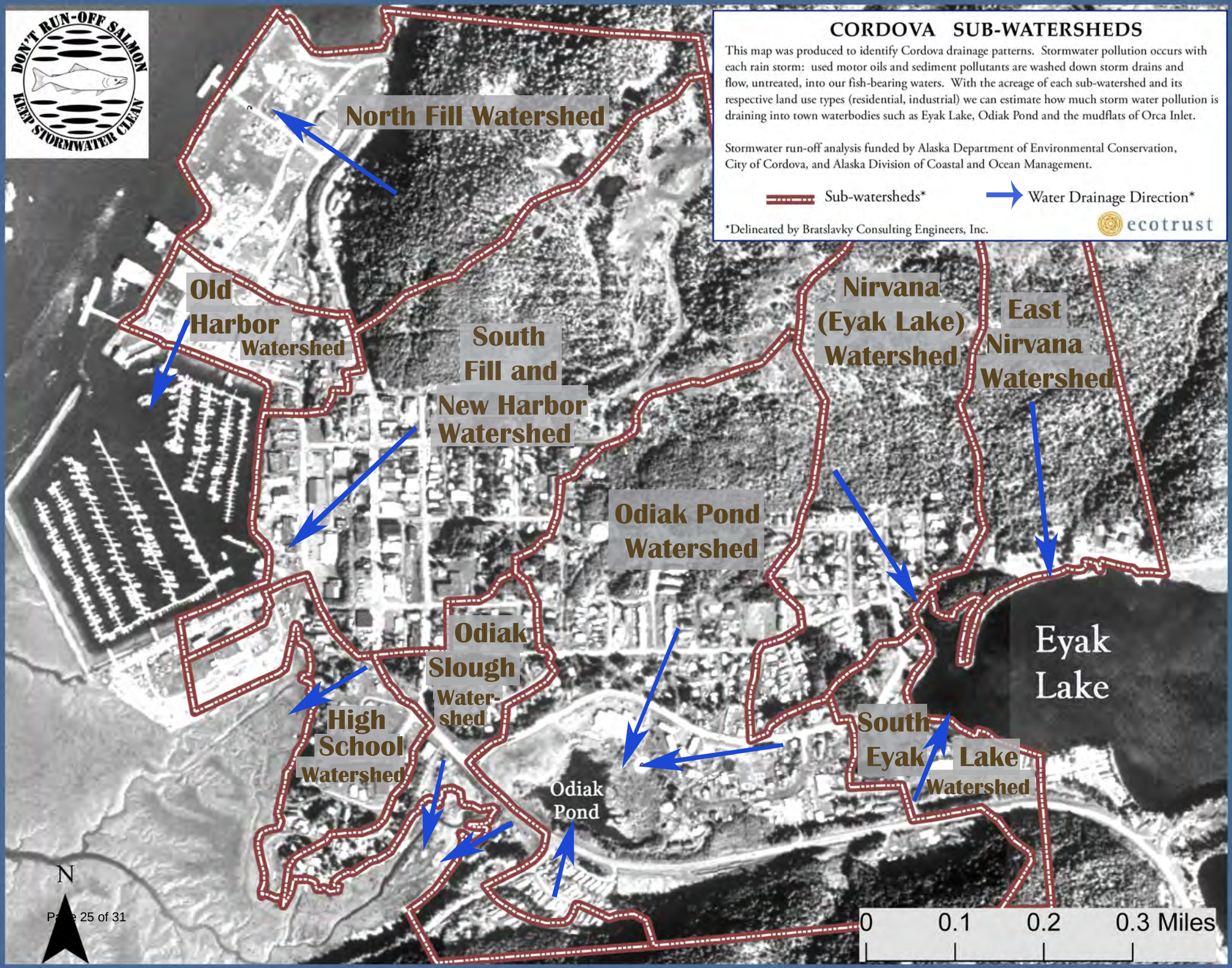


Cordova Municipal Airstrip on Eyak Lake.

Above: eastern end of air-strip with boat launch access to lake.

Right: western end of airstrip, with road sand entrained in plowed snow deposited on shore of Eyak Lake.

April 2012


DON'T RUN-OFF SALMON
KEEP STORMWATER CLEAN
CORDOVA SUB-WATERSHEDS
This map was produced to identify Cordova drainage patterns. Stormwater pollution occurs with each rain storm: used motor oils and sediment pollutants are washed down storm drains and flow, untreated, into our fish-bearing waters. With the acreage of each sub-watershed and its respective land use types (residential, industrial) we can estimate how much storm water pollution is draining into town waterbodies such as Eyak Lake, Odiak Pond and the mudflats of Orca Inlet.
Stormwater run-off analysis funded by Alaska Department of Environmental Conservation, City of Cordova, and Alaska Division of Coastal and Ocean Management.
Sub-watersheds*
Water Drainage Direction*
*Delineated by Bratslavky Consulting Engineers, Inc.
ecotrust
North Fill Watershed
Old Harbor Watershed
South Fill and New Harbor Watershed
Nirvana (Eyak Lake) Watershed
East Nirvana Watershed
Odiak Pond Watershed
Odiak Slough Water-shed
High School Watershed
South Eyak Lake Watershed
Eyak Lake
Odiak Pond
N
0 0.1 0.2 0.3 Miles

Don't Run-Off Salmon

...Keep Stormwater Clean.

It's raining, it's pouring, toxic rainbow puddles are forming? The next time it rains, look at your driveway or the nearest parking lot. See any colorful "oil rainbows" slicked across the pavement? It's a sign that someone's car is leaking fluids. The rainbows might look pretty, but these fluid leaks are composed of highly toxic materials, such as antifreeze, motor oil, brake fluid and transmission fluid. When the toxins enter the storm drain system or leach into the soil, surface and groundwater supplies are contaminated. And that means your drinking water supplies are put at risk as well as Copper River salmon habitat. You rely on your car for safe, convenient transportation; why not treat it right and protect water quality at the same time? Do your share, Don't Run-Off Salmon - repair auto fluid leaks right away, and use a drip pan or oil absorbent pads to catch leaks if repairs are delayed. Collect and dispose of fluids from routine maintenance properly.

Information brought to you courtesy of the Copper River Watershed Project, Cordova, Alaska - 424-3334 www.copperriver.org
Our stormwater education campaign is sponsored by the AK Department of Environmental Conservation.

Don't Run Off Salmon!

STORMWATER is rain or snow melt that is unable to soak into the ground. Washing over streets or parking lots, water picks up pollutants and sediments that can harm life in creeks, lakes or bays and contaminate drinking water.

With over 160" of precipitation annually, including 10 feet of snow, stormwater is abundant in Cordova.

POLLUTANTS
TOXINS
OIL
SAND
GRAVEL
TRASH
GREASE
ANTIFREEZE
CHEMICALS
HEAVY METALS

SEDIMENTS SUFFOCATE: Cleared or disturbed uplands & shorelines erode during rainfall, washing into waterways.

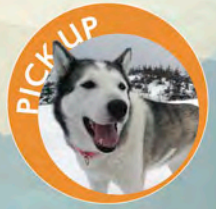
Sediments clog fish gills, irritate scales, suffocate eggs and compromise lives of aquatic insects.

Not all sediments are the same. Salmon can migrate through fine glacial flour to reach their spawning grounds.

VISIT OUR OFFICE
at 511 First Street
to obtain a copy of
"SHARING THE EDGE,"
a Landowner's Guide for Site Development and Fish Habitat Protection.

First Street

Help Keep Our Water Clean!



PICK UP
Pick up after your pet and pack out what you pack in during a hike or boat ride.

FILTER
Plant vegetation to absorb and filter runoff.

MAINTAIN
Perform routine car maintenance to avoid fluid leaks.

DISPOSE SAFELY
Properly dispose of oils, paints and hazardous materials.

COPPER RIVER WATERSHED PROJECT

IT TAKES A WATERSHED TO RAISE A SALMON

PROJECT PARTNERS: Alaska Department of Fish & Game • Chugach Alaska Corporation • City of Cordova • Cordova District Fishermen United • Cordova Historical Society • Ecotrust • National Oceanic and Atmospheric Administration • Native Village of Eyak • Prince William Sound Science Center • US Fish & Wildlife Service • USDA Forest Service

Saving salmon from unwanted silt

Grit from melting snow can be controlled better

KIRIK KUZMIN
For The Cordova Times

This year the seventh-grade class at CHS and Copper River Watershed project monitored Odiak Pond. We set up fish traps in April with local scientists to catch and show that there are fish in the pond. We found mostly sticklebacks but more importantly we found coho salmon, which are also known as silver salmon.

What does this have to do with silt? Well, during the winter the snow plows pile up the snow by the hospital and all of that sediment and oil and debris that was on the roadway goes into Odiak Pond as the snow melts. The sediment or silt is bad for young fish and eggs because it smothers eggs that are buried in the gravel and reduces how much light gets into the water. This affects how the plants grow, which in turn affect the bugs, fish, and birds up the food chain.

We don't know how many fish are in the pond right now, but we do know that the silt may lower the fish population if it continues entering the pond. What can be done to save the salmon from the silt?

One option is to plow the snow/silt somewhere else like to a non-watered area. Or another option could be to put the snow in a giant container or box that can let the water seep through but hold the silt from escaping. Another idea is to use silt fence or a material around or under the snow pile to filter the water before it drains into the pond!

I hope you have learned that the silt is bad for fish. Let's work together to stop the silt and help the fish.

KIRIK KUZMIN / COURTESY PHOTO

Sediment or silt is bad for young fish and eggs because it smothers eggs that are buried in the gravel and reduces how much light gets into the water.

Kirik Kuzmin is a 2010- 2011 seventh-grade student at Cordova Junior/Senior High School. For more information on the student project, contact Cara Heitz, science teacher, Cordova Junior/Senior High School, 907-424-3266.

The sediment or silt is bad for young fish and eggs because it smothers eggs that are buried in the gravel and reduces how much light gets into the water. This affects how the plants grow, which in turn affect the bugs, fish, and birds up the food chain.

SAVING SALMON

From Page 8

ground, potentially from a natural source, the old landfill, or old rail road activities around the pond. If you go to Odiak Pond, potentially to much iron. If we can get the culverts lowered and clean up the pond I have a feeling that the Odiak Pond salmon

GARBAGE

From Page 8

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Fish and Game

DIVISION OF HABITAT
Central Region Office

333 Raspberry Road
Anchorage, Alaska 99518-1565
Main: 907.267.2342
Fax: 907.267.2499

October 19, 2012

Elise Hsieh
Executive Director
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

Dear Ms. Hsieh,

I am writing to express support for the Copper River Watershed Project's application to the EVOS Marine Habitat/Harbor Water Quality Improvement program for funds to make a comprehensive review of snow storage and handling practices within the Cordova community. The Alaska Department of Fish and Game (ADF&G) is responsible for managing the state's fish and wildlife resources in the best interest of the economy and the well-being of the people of Alaska.

As the ADF&G Habitat Biologist responsible for project review and permitting for the Cordova area, I have long been concerned about the amount of sediment being deposited into Eyak Lake and area streams and rivers as a result of snow storage adjacent to surface waters important for anadromous and resident fish. ADF&G calculations of Eyak Lake salmon annual escapement and the corresponding harvest value indicate that the lake generates between $ 0.9 and $1.7 million annually (ADFG Annual Finfish Management Reports, 2000 – 2009).

Eyak Lake is the only freshwater lake that lies within City limits and is subject to the influences of sediment and other pollutants washed off roads and developed areas. Plowed snow is often deposited at or near the edge of Eyak Lake and Odiak Pond. Both waterbodies are used by salmon fry, and incubating eggs. These salmon life stages are the most vulnerable to injury from toxins and abrasive sediments.

The proposal for a comprehensive review of snow storage and handling practices in Cordova will provide resources to take a community-wide look at this problem for the benefit of Eyak Lake and the numerous salmon streams and creeks that flow through and around the community.

Thank you for your consideration of this effort to reduce stormwater pollutants being washed into Eyak Lake and other Cordova area ponds and streams.

Sincerely,

Megan Marie
Habitat Biologist IV
Central Region Office

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Transportation and Public Facilities

NORTHERN REGION MAINTENANCE & OPERATIONS
Valdez District

October 31, 2012

Elise Hsieh
Executive Director
Exxon Valdez Trustee Counsel
4210 University Drive
Anchorage, AK 99508-4626

Re: Involvement in Cordova Snow Handling, Storage & Management Plan

Ms. Hsieh,

We, ADOT&PF, through myself – the Valdez District M & O Superintendent, and our Cordova Maintenance Station Foreman, Robbie Matson, would like to confirm that we are willing to actively participate and help over the next two years, if the Copper River Watershed Project's application for funding to develop a snow management plan for the City of Cordova is successful. We, ADOT&PF, are responsible for the maintenance of, and in particular snow handling and snow removal for, several roads within the City of Cordova. Since many of the local roads pass alongside and sometimes cross lakes and streams, we concur that it is important to identify and properly use snow storage sites that have the least impact to these water bodies.

We acknowledge the importance of minimizing storm water runoff for the benefit of our salmon streams and lakes. We have collaborated with the Copper River Watershed Project (CRWP) in the past on several other ADOT&PF culvert replacement projects and know that we, the City and CRWP stand together in wanting to use Best Management Practices. We are therefore willing to support the CRWP in its efforts to coordinate implementing a study to optimize snow handling practices in the City of Cordova in order to help reduce sediment and petroleum storm water pollution from snow plowing and removal.

Good luck with your evaluation of the CRWP request.

Sincerely,

Robert Dunning
Valdez District M & O Superintendent

cc: Bill O'Halloran, NR M&O Director
Brett Nelson, NR M&O Environmental Specialist

Native Village of Eyak
110 Nicholoff Way
P.O. Box 1388
Cordova, Alaska 99574-1388
P (907) 424-7738 * F (907) 424-7739
www.eyak-nsn.gov

10,000 years in our Traditional Homeland, Prince William Sound, the Copper River Delta, and the Gulf of Alaska

October 30, 2012

Elise Hsieh
Executive Director
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

Dear Ms. Hsieh,

The Native Village of Eyak is writing to express its support for the Copper River Watershed Project's efforts to reduce stormwater pollution in the marine environment of Orca Inlet, and fresh waterbodies Eyak Lake and Odiak Pond, by improving snow management practices in Cordova. Eyak Lake holds profound cultural significance for our Tribe since one of our early settlements was on its shore, and residents relied on the lake's fishes for subsistence.

NVE has a vested interest in maintaining Eyak Lake's salmon productivity and has dedicated high levels of its own resources toward water quality monitoring in the lake. We are currently managing an EPA Community for a Renewed Environment (CARE) grant, which is focused on understanding and reducing risks from toxic pollutants. For the past two years, the Copper River Watershed Project has been an active participant in our community-wide CARE planning meetings. Discussions at those meetings ranked stormwater pollution high on the priorities list for action on sources of toxic pollution in our community.

We hope you can support this project for the important benefits it will have for our town's aquatic and marine resources.

Sincerely,

Joel Azure

Executive Director