Alaska Clean Water Actions Grant Accomplishments Fiscal Year 2017

Alaska Department of Environmental Conservation

Final
October 10, 2017

FY2017 Alaska Clean Water Action Grant Accomplishments

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Introduction

The Alaska Department of Environmental Conservation (DEC) funded 15 Alaska Clean Water Action (ACWA) grants in state fiscal year (FY) 2017. These projects occurred throughout Alaska and reached thousands of citizens. Projects ranged from educational outreach events, stormwater planning, to on-the-ground restoration efforts. All of the projects strove to reduce nonpoint source pollution and to improve, protect and conserve one of Alaska's amazing natural resources – its waterways.

In FY17 $313,396 were passed through DEC to local organizations, boroughs, and cities to implement priority water quality projects identified by DEC. The grant funds required a 40% match by the recipients leading to $286,204 of in-kind or direct match dollars provided to the state. Funding sources for ACWA included Clean Water Act Section 319, Clean Vessels and Beaches Environmental Assessment and Coastal Health (BEACH) Act funding.

The following pages provide an overview of the FY17 grant projects and the environmental outcomes achieved through the efforts of many Alaskans partnering with DEC to "improve and protect Alaska's waters".

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Southeast Region

Duck Creek and Nancy Street Wetland Assessment, Juneau

Southeast Alaska Watershed Coalition, $9,997

Duck Creek and Nancy Street wetlands.

This project addresses an ACWA Restoration priority. Since 1994, in an effort to restore Duck Creek, culverts have been replaced, stream banks have been stabilized, and wetlands have been created. A full summer of effectiveness monitoring is necessary to evaluate whether water quality has improved as a result of the wetland restoration efforts. The project is a 2 year data collection effort.

Outcome: Water quality samples were collected on Duck Creek at upstream, midstream and downstream locations within Nancy Street wetland. The monitoring locations used in previous monitoring efforts were selected to allow comparison of this project's data to previously collected data, the Water Quality Standards (WQS), and the total maximum daily load (TMDL) target values. The four TMDLs include nonattainment of dissolved oxygen, residues/debris, metals (specifically iron), fecal coliform bacteria, and turbidity. FY17 monitoring occurred from April to June 2017, with FY18 monitoring being conducted from July to October 2017. The effectiveness monitoring assessment will be complete in 2018.

Project water sample locations are indicated by the yellow dots.

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Petersburg Beach Monitoring Program, Petersburg

Southeast Alaska Watershed Coalition, $28,921

Sandy Beach Park in Petersburg, AK.

This project addresses an ACWA Stewardship priority. The project collected water quality samples at Sandy Beach Park, Petersburg Alaska from 2015-2017. The park is commonly used for recreational swimming and wading activities resulting in the beach being a high priority for water quality testing. Outcome: During 2015, bacteria levels exceeded public health criteria during a 5-day period in September. Subsequent monitoring efforts during the 2016 and 2017 recreation seasons concluded recreational water quality criteria were consistently met at Sandy Beach. The publication of results, outreach and education efforts associated with this monitoring program sparked interest and engagement on the importance of water quality among the Petersburg community. Community organizations and residents are now exploring building capacity to monitor other community water resources.

Sandy Beach Park is a popular recreation area in Petersburg, AK.

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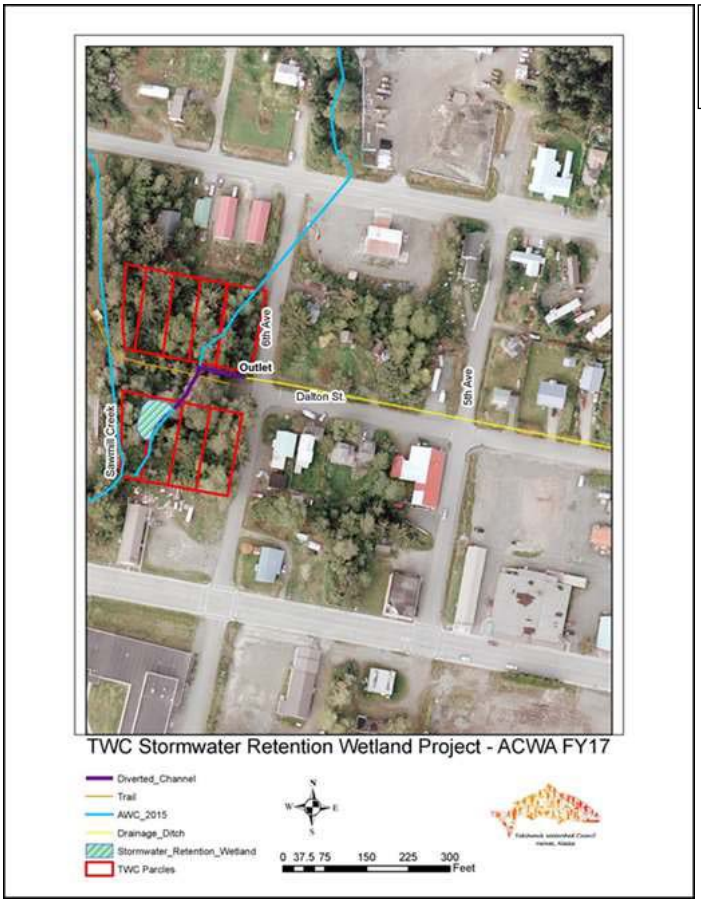
Slowing it down - Wetland Creation for Sawmill Creek, Haines

Takshanuk Watershed Council, $14,652

This project addresses an ACWA Stewardship priority. This project enhanced stormwater management by creating a stormwater retention wetland to filter stormwater prior to entering Sawmill Creek.

Sawmill Creek wetland creation site in Haines, AK.

Outcome: Previously untreated stormwater is now being treated. Community members were also educated on the value of green infrastructure to treat stormwater runoff from a variety of sources. Five green infrastructure projects within the Haines townsite were showcased: Chilkoot Indian Association rain garden, Delta Western bioswale, 6th & Dalton bioswale and stormwater retention wetland, and the Parade Grounds bioswales. These projects demonstrate how small scale applications can protect water quality.



Aerial view of project location in Haines, AK.

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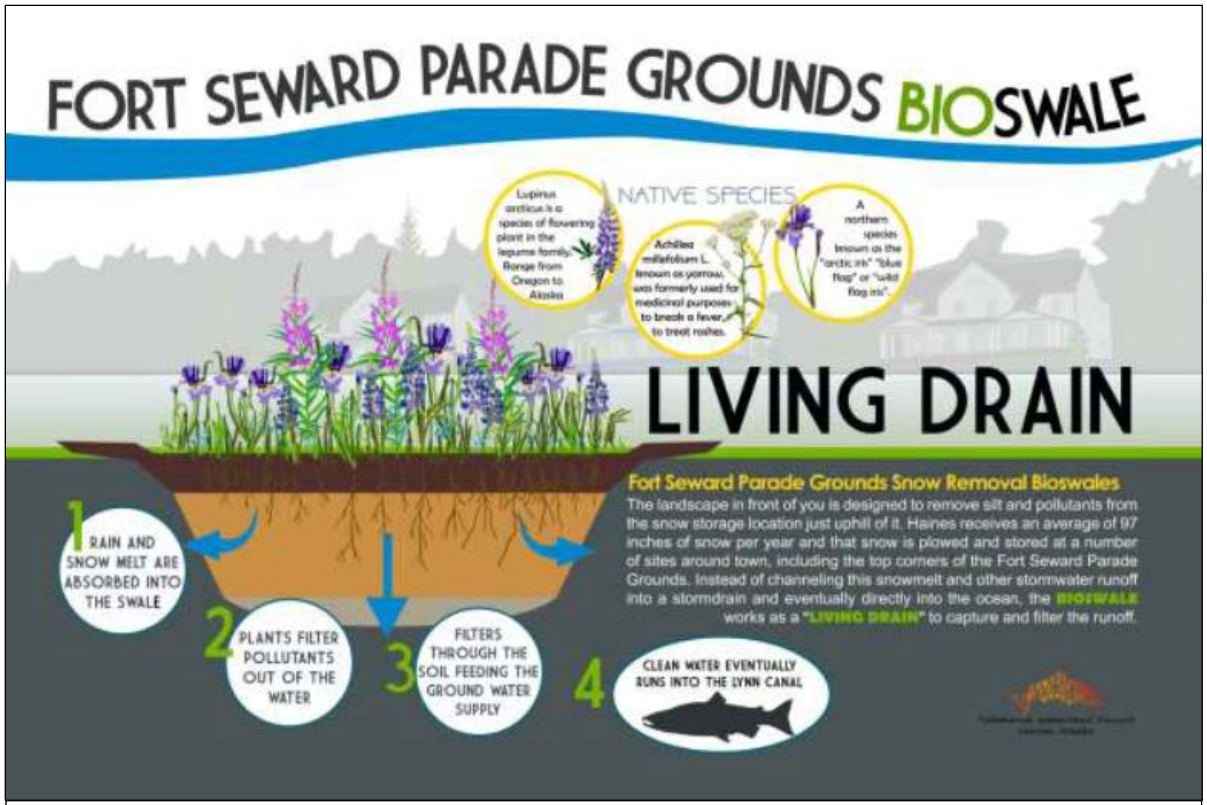
Snow Removal Bioswale, Haines

Takshanuk Watershed Council, $10,863

This project addresses an ACWA Stewardship Priority. Two 700 ft^2 bioswales were installed to capture and treat snow melt run off from adjacent Haines Borough snow storage areas along the corners of the Fort Seward Parade Grounds.

Outcome: Pollutants are now filtered thereby improving the quality of the water that ultimately discharges to Portage Cove. The five species of Pacific salmon that reside in the cove have improved water quality. In addition, Haines Middle and High School students learned how to improve water quality. Both sets of students toured the 5 green infrastructure projects within the Haines townsite. The Haines High School students mapped stormdrains within the Fort Seward area. Mapping stormdrains is frequently a first step in improving water quality.



Fort Seward Parade Grounds bioswale outreach sign located in Haines, AK. The following page is a compilation of photos showing the bioswale development and installation as well as conducting stormdrain mapping.

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Southeast Alaska Water Quality Data Inventory

Southeast Alaska Conservation Council $23,000

This project addresses the ACWA Statewide Stewardship Action to increase the amount known about Alaska's waters by conducting an inventory and evaluation of the existing water quality data in Southeast Alaska.

Outcome: Information about waters in southeast is now more widely known. Over a dozen data sets were submitted to ADEC. Sample collection sites were distributed, albeit unevenly, across Southeast Alaska. Many sites were in transboundary watersheds where sampling was designed specifically to address mining concerns. The data included many different types of parameters, including physical parameters, metals, nutrients, organic matter, and other inorganics. Water column chemistry data were far more common than sediment and tissue data.

The data, which is now available through EPA's Water Quality Portal, A includes 40,683 results from313 locations throughout southeast Alaska and British Columbia. This data will be used to understand background or existing condition of Southeast Alaska waterbodies.

South-Central Region

Assess Existing Waterfowl BMPs on Fish Creek, Anchorage

Anchorage Waterways Council, $8,500

This project addresses an ACWA Restoration priority. In 2016, outreach efforts were undertaken to educate the public on the water quality problems that result from human feeding of wild waterfowl at Anchorage's Cuddy Family Midtown Park. This project gauged the scope and effectiveness of the earlier outreach measures by conducting observations and interviews over a nine week period from July 2016 to September 2016. Forty-eight face-to-face surveys were completed. The surveys addressed whether park visitors remember any outreach messages and whether the messages changed their behaviors or attitudes about waterfowl feeding.

Outcome: Results from the surveys showed the largest source (over 50%) of information about the problems with people feeding waterfowl came from signs in the park, followed by 20% each from newspaper articles and bus signs. Relatively few people learned about the problem from other sources, including TV spots.

Conditions at Cuddy Park before informational signs and outreach. Park visitors ignored the existing signs about not feeding wild birds, and geese feces covered the walkways and lawns of the park. Runoff into Cuddy Park ponds caused nutrient pollution and algal blooms.

Municipality of Anchorage city bus sign that was part of public outreach, using current principles of effective educational signage.

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Clean Boating in the Susitna Valley & Cook Inlet, Matanuska and Kenai Boroughs

Cook Inletkeeper, $30,500

This project addresses both ACWA Restoration and Protection priorities and continues an ongoing program. Since 2010, DEC, in conjunction with Cook Inletkeeper and local partners, have been educating boat owners about clean boating practices. This project continued the education activities at popular sport fishing and other recreational locations throughout Matanuska-Susitna Borough and Kenai Peninsula. Sport fishing is an important economic asset yet some popular fishing locations are polluted or at-risk of pollution by petroleum hydrocarbons and turbidity.

ACWA grantee clean boating station at a popular boat launch on Big Lake. The station allowed for one-on-one conversations with boaters providing tips on easy ways to help improve water quality.

Outcome: A more informed boating public is leading to improved water quality in area waterways. A variety of methods were used to reach people including radio, social media, one-on-one conversations at boat launches, and a clean boating discount card program for people completing an online clean boating course. Nearly 1,500 clean boating kits were distributed this grant year. These kits include an oil absorbent pad, a clean boating sticker to display, a clean boating floating key chain and easy to understand color brochures on clean bilges, spill response, clean oil changes and clean gasoline filling. These clean boating kits can lead to direct water quality improvements when utilized. Nearly 50 new participants completed the free online clean boating course (www.boatus.org) that provides tips on proper sewage management, boat maintenance, fueling practices, and boating safety. These more-informed boaters set good examples on local waterways with reduced pollution. Overall, the clean boating program has reached thousands of recreationists in south-central Alaska since its inception in 2012.

Interested people stop at the clean boating booth at a public sports show and receive informative information and a clean boating kit.

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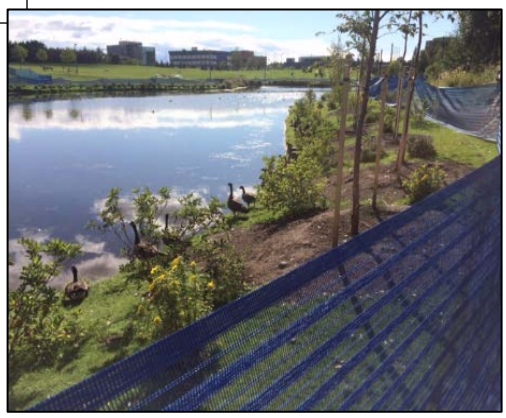
Cuddy Park Ponds Rehabilitation, Anchorage

Municipality of Anchorage, $30,000

This project addresses an ACWA Restoration priority. The development of Anchorage's Cuddy Family Midtown Park inadvertently resulted in a popular water fowl feeding area that caused an increase in bacteria in waterbodies within the park, the Cuddy Park Ponds. This project was aimed at breaking the cycle of pollution at Cuddy Park Ponds. To accomplish this, the Municipality of Anchorage Parks and Recreation Department (PRD) installed a vegetative barrier around the main pond to discourage visitors from gaining close access to the water's edge and revegetated the area around the pond with turf and trees. PRD also installed a fence set off from the trail to reroute human traffic and discourage feeding of waterfowl.

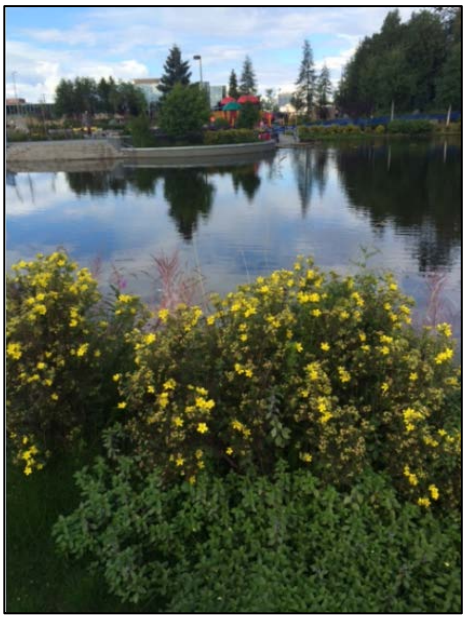
Outcome: Overall, 38 2" Caliper Birch Trees, 75 Redtwig Dogwood, 178 Potentilla, 113 #1 Iris Setosa, 13,200 Square Feet of Sod, and 39 fencing units were planted or installed. Fecal coliform testing in the main pond at Cuddy Park showed a decrease from 8000 colonies of fecal coliform (cfu)/ 100 ml in August, 2015 to 31 cfu/ 100ml in June of 2017.

Youth in Parks volunteers planting vegetation at Cuddy Park.



New potentilla bushes and fencing installed as part of BMPS to discourage human feeding of wild waterfowl at Cuddy Park.

Cuddy Park main pond, September 2015 – before outreach and installation of vegetation.



Cuddy Park main pond, August 2016 –after outreach and installation of vegetation.

Green Infrastructure Filtration for Odiak Pond, Cordova

Copper River Watershed Project, $46,506

This project addresses an ACWA Stewardship priority. This project constructed vegetative barriers at two locations along watercourses draining to Odiak Pond, to prevent stormwater runoff from flowing directly into the waterbody. Sub-drains and a sediment trap providing soil filtration were constructed at a third location. Outreach efforts were conducted to inform residents about the importance of vehicle maintenance to prevent oil leaks and to insure that local businesses had spill kits and instructions on hand to address any releases of petroleum products.

Outcome:
A sub-drain and sediment trap were installed successfully and two five-foot wide vegetative barriers were installed between construction parking pads and the stream that drains directly to Odiak Pond. Stormwater education and outreach materials were distributed and petroleum product spill cleanup instructions and materials were distributed to local businesses and utilities.

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Progression of installation of vegetative buffer at Wilson Construction from left to right: condition of lot before project began, debris collected from site, volunteers installing vegetative buffer and vegetative buffer upon completion.

Debris removed from unnamed stream; a tributary of Odiak Pond.

Volunteers with plants for habitat restoration at unnamed stream, tributary of Odiak Pond.

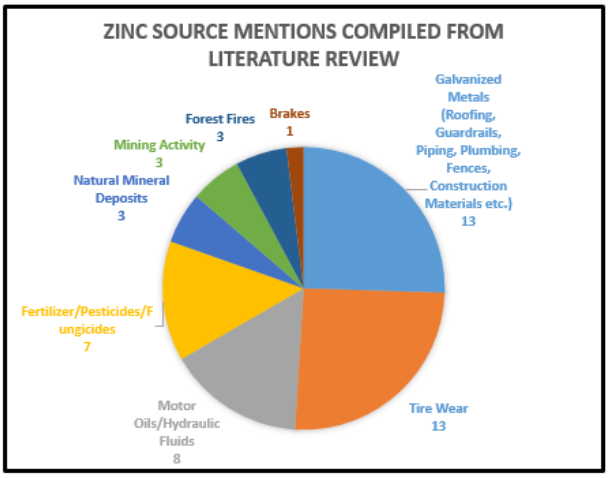
Before picture (left) of Hanson lot before subdrain and sediment trap were constructed. Hanson lot (right) after completion of construction on subdrain and sediment trap.

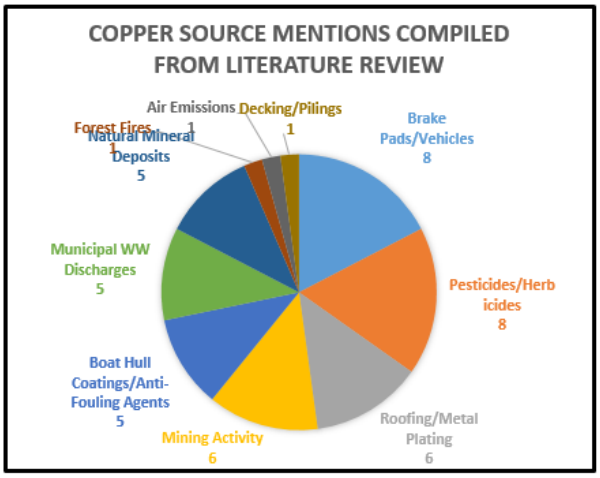
Kenai River Zinc and Copper Pollution Review, Soldotna

Kenai Watershed Forum, $14,983

This project addresses an ACWA Stewardship priority. Baseline water quality monitoring within the Kenai River watershed indicated a potential increase in dissolved zinc and copper concentrations. Given the deleterious effects that copper and zinc can have on salmonids and the ecosystems they rely on, these elevations warrant concern and further investigation. This project undertook an analysis of the monitoring locations on the Kenai River and its tributaries that recorded an increase in copper and zinc after 2010, conducted a literature review to determine potential sources of zinc and copper in the Kenai River watershed, and proposed some potential solutions for reversing the trends of increasing concentrations of zinc and copper.

Outcome: The study concluded that anthropogenic factors, including increases in near-river development, traffic intensification, and devegetation are probably playing a large role in the increased concentrations of zinc and copper. Nearly all of the most significant rises in zinc and copper concentrations occurred at lower Kenai River watershed sampling sites, in areas where anthropogenic development and urbanization are most prominent. These findings are consistent with the expected impacts described in the literature.





Protecting Healthy Waters in the Mat-Su Basin, Matanuska Susitna Borough

The Nature Conservancy, $8,389

This project addresses an ACWA Stewardship priority and completed a multi-year effort to identify and map critical salmon habitat within the Matanuska-Susitna Borough. Knowing which areas are critical to salmon will enable stakeholders, including developers and the local governments, to prioritize and implement protective measures to maintain healthy waters.

Outcome: Permitters, developers and other land use managers now have access to the most complete and up-to-date modeling for predicting salmon in local waterways. The project completed a report "*Landscape-scale mapping of Pacific salmon and their freshwater habitats in the Mat-Su Basin*" and a GIS database model. The salmon habitat model describes and predicts relative abundance of salmon by species and life stage. Presentations on the model were presented at Mat-Su Salmon Science Symposium, the GIS Alaska Hydrography Working Group, and to USFWS Alaska staff. The report is published on TNC's website for Conservation Practitioners: https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/alaska/scak/science/Pages/default.aspx

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Stormwater Analysis on Cottonwood Creek, Matanuska-Susitna Borough

Matanuska-Susitna Borough, $28,376

This project addresses ACWA Stewardship and Restoration priorities and was the culmination of several years of work. The path stormwater flows, infrastructure which captures stormwater including inadequate systems and treatment systems, are now mapped. Since Cottonwood Creek is polluted by fecal coliform bacteria, areas which may be contributing to the pollution are now identified. All of the information is captured in data layers that can be used with Geographic Information Systems (GIS) mapping tools.

Turbid stormwater discharge in Cottonwood Creek from outfall pipe downstream of the Parks Highway.

Outcome:

Land managers, including the Matanuska-Susitna Borough Planning Commission, and regulators now know the top 12 stormwater retrofit project locations and estimated costs to prevent and/or clean up discharges to Cottonwood Creek. The project also identified stormwater infrastructure deficiencies, provided recommendations for drainage facility design, and included longer-term maintenance considerations for stormwater infrastructure features. A major component of the project is a series of GIS map layers that identify the Cottonwood Creek watershed stormwater infrastructure, drainage areas, and drainage deficiencies. No stormwater sources of fecal coliform bacteria were discovered in this project. The project report, *Cottonwood Creek Stormwater Analysis*, is available to the public on the borough and DEC web pages.

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Interior Region

Green Streets and Noyes Slough Assessment, Fairbanks

Tanana Valley Watershed Association, $10,500

This project addresses an ACWA Restoration priority and expanding on-going work. Local officials and stakeholders learned about the benefits of the FMATS new Green Streets policy. In addition, the project implemented recommendations from the Noyes Slough restoration plan or Total Maximum Daily Load (TMDL) for residues.

Outcome: The project produced outreach materials about the FMATS Green Streets policy including a brochure and powerpoint presentation. Multiple presentations were conducted and in the fall of 2016 the Fairbanks City Council, North Star Borough Assembly and North Pole City Council passed resolutions of support for the policy. The Green Streets policy is the first of its kind in Alaska.

The Noyes Slough trash assessment sorted and categorized trash collected during the annual stream clean-up events and produced a report with trash reduction recommendations. DEC and local officials now have an inventory of the types of trash found in the slough. TVWA provided recommendations for trash reductions based on the type of trash and where it was found.

Goldstream Creek Education & Outreach to Miners, Fairbanks

Fairbanks Soil and Water Conservation District, $8,764

This project addresses an ACWA restoration priority. Placer mining operators and other land owners in the Upper Goldstream Creek watershed were taught what they can do to improve the water quality in Goldstream. Goldstream is polluted by increased levels of turbidity.

Outcome: A workshop for local placer miners with hands on instruction in the use of a turbidimeter, a variety of presentations, and an open "Q&A" with expert miners occurred in April. Approximately 20 miners learned how to use a turbidimeter and about agency water quality requirements. In addition, a

short presentation was conducted for the Fairbanks Small Mine Owner/Operators group.

Decreasing Sewage Discharges from Alaska Boaters

Cook Inlet Keeper, $39,444

Alaska Clean Harbors outreach booth. Information included encouraging the use of marina sewage pump-out stations.

This project addresses and ACWA protection priority. Cook Inletkeeper, in partnership with the Alaska Clean Harbors program, educated boaters and harbormasters on the importance of proper sewage management, obtained feedback on barriers to pump-out use, and encouraged harbormasters state-wide to apply for funding to improve harbor sewage management facilities.

Example of "pump-out" kit used in outreach events.

Outcome: The project developed a workshop outline including a presentation, demonstration videos, educational materials and a pump-out "kit." Visited six harbors and met with harbormasters to promote ACH program. The Juneau Harbor is pursuing ACH certification and the Kake harbor is interested in certification. Several harbors have also expressed interest in obtaining pump-outs.