ALASKA CLEAN WATER ACTIONS (ACWA)

Departments of Environmental Conservation, Fish and Game, and Natural Resources

High Priority Waters and Actions for State Fiscal Year 2017,
July 1, 2016 – June 30, 2017

Introduction

The following pages provide a list of actions needed on waterbodies (sorted by region of the state) that are considered High priority by the Alaska Clean Water Actions (ACWA) program through the State Departments of Environmental Conservation, Fish and Game, and Natural Resources. These actions are for state fiscal year 2017 (FY17) which runs from July 1, 2016 to June 30, 2017.
This list of actions listed is not a funding solicitation. The annual ACWA grant solicitation can be found http://dec.alaska.gov/water/acwa/acwa_index.htm, along with a description of currently funded (FY17) ACWA grant projects and general information about the ACWA program.

Please note, this list of actions includes those requested in the FY17 ACWA grant solicitation (high priority actions) as well as many actions that were not solicited. Some of the solicited actions were funded and are noted as such. However, the State does not have the resources to fund all high priority actions nor actions on all high priority waterbodies. As such, organizations may find this list of waters and actions useful in developing and prioritizing projects and pursuing other grant and funding requests.

In the list of waters to the left of this page, click on the waterbodies' name to see the specific Action(s) that the ACWA agencies would like conducted over the next few years to meet the Goal(s) described. The date ranges on the Action(s) shows the applicable time period.

If a waterbody you are concerned about is not on the list below, contact one of the staff listed to determine if it has been nominated, is considered a high priority, or if the agency currently has an on-going project or activity.

Contacts

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Anvil Creek (Nome) – This action was on the FY17 Grant Solicitation and not funded	
Geographic Location	Lat: 64.5286440 Long: -165.4931550 Nome, Alaska
Concerns and Sources of Problems	(Turbidity) Anvil Creek is in the Data Collection and Monitoring Track with water quality and habitat as the primary concerns. Threats include sedimentation, turbidity, and metals. Other concerns include barriers to fish passage, bank erosion and riparian damage.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to evaluate the current water quality.
Priority Actions Summary	(Collect Data) Research and collect all available background information on water quality for selected waterbodies in the Nome area. This project involves collection of existing data and does not include any new field data collection. The inventory should include a review of published reports and solicitation of information from local organizations, universities, State and Federal agencies and others. The applicant will compile all information and prepare a draft and final report. Based on the data evaluation, the report should include a summary of data, identification of data gaps, and recommendations for future data collection. The report must also include an annotated bibliography with summaries of all data sources (including unpublished information and personal communications). To the extent feasible, electronic and hard copies of the background information used in the report will be copied and compiled for inclusion in the Water Division's files on those waterbodies. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Anvil Creek, Dry Creek, Glacier Creek, Nome River and Snake River).

Auke Bay	
Geographic Location	Lat: 58.3680000 Long: -134.6780000 Juneau
Concerns and Sources of Problems	(Urbanization) Auke Bay is in the Protect and Maintain Waterbodies at Risk Track with water quality and habitat being primary concerns. Numerous anadromous streams are associated with this bay, including the presence of eel grass beds. Threats to the bay include Municipal storm and sewer point sources, onsite septic systems, underground storage tanks, and non-point source pollutants associated with land use.

Goals & Objectives	(Protect and maintain water quality) The goal is to maintain water quality and aquatic habitat by implementing stewardship and protection activities including education and outreach activities. Coordinate activities with other agencies and organizations working in the watershed to maintain water quality for all uses with a focus on urban runoff and fecal coliform bacteria. The project will apply best management practices (BMPs) and existing regulatory means to reduce non-point source pollutants.
Priority Actions Summary	(Conduct education and outreach) Develop and implement an education program in collaboration with local community members, local watershed environmental groups, tribal entities, resource agencies (e.g., Alaska Departments of Fish and Game, Natural Resources), and other stakeholders (e.g., City/Borough of Juneau, Auke Lake Homeowners Association). The program should encompass both clean boating practices (where applicable) and other best management practices. Clean boating activities suggested in the Clean Boating Stewardship Action should be augmented with information about actions landowners can take to protect and improve adjacent land uses and how adjacent land use activities affect water quality. For example, short educational videos, attend workshops, hosting tours, attendance at specific community meetings, and/or distributing information to property owners adjacent to the waterbody and riparian areas. The educational campaign must demonstrate measureable results such as the actual number of people reached and must include a final project report that describes the outreach activities, public response and an evaluation of success including the types of follow up activities with people reached. The report should also include recommendations for future effective outreach activities. Contact the Gretchen Pikul (465-5023) for recent and ongoing watershed studies.

Auke Creek

Geographic Location	Lat: 58.3809740 Long: -134.6421720 Flows 0.3 mi. SW from Auke Lake to Auke Bay. On N. end of Mendenhall Peninsula, 1 mi. W of Juneau Airport
Concerns and Sources of Problems	(Urbanization) Auke Creek is in the Protected and Maintain Waterbodies at Risk Track with water quality being a primary concern and aquatic habitat as a secondary concern. Threats to the creek include petroleum hydrocarbons and other pollutants associated with road runoff, on-site septic systems, and construction development on sites less than one acre in size on sites adjacent to the creek.
Goals & Objectives	(Protect and maintain water quality) The goal is to maintain water quality and aquatic habitat through implementing

	stewardship and protection activities including education and outreach. Coordinate activities with other agencies and organizations working in the watershed to maintain state water quality standards for all uses focus on urban runoff and fecal coliform bacteria. The project will apply best management practices (BMPs) and existing regulatory means to reduce non-point source pollutants.
Priority Actions Summary	(Conduct education and outreach) Develop and implement an education program in collaboration with local community members, local watershed environmental groups, tribal entities, resource agencies (e.g., Alaska Departments of Fish and Game, Natural Resources), and other stakeholders (e.g., City/Borough of Juneau, Auke Lake Homeowners Association). The program should encompass both clean boating practices (where applicable) and other best management practices. Clean boating activities suggested in the Clean Boating Stewardship Action should be augmented with information about actions landowners can take to protect and improve adjacent land uses and how adjacent land use activities affect water quality. For example, short educational videos, attend workshops, hosting tours, attending specific community meetings, and/or distributing information to property owners adjacent to the waterbody and riparian areas. The educational campaign must demonstrate measureable results such as the actual number of people reached and must include a final project report that describes the outreach activities, public response and an evaluation of success including the types of follow up activities with people reached. The report must also include recommendations for future effective outreach activities. Contact the Gretchen Pikul (465-5023) for recent and ongoing watershed studies.

Auke Lake

Geographic Location	Lat: 58.3833333 Long: -134.6333333 Located near Juneau, mile 11.5 Glacier Highway
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Auke Lake is in the Protect and Maintain Waterbodies at Risk Track with water quality a primary concern and aquatic habitat a secondary concern. Threats to the lake include petroleum hydrocarbons from motorized water craft in areas of concentrated use including boat launches. National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS) conducted periodic water quality sampling between 1999 and 2008 for polycyclic aromatic hydrocarbon (PAH) discharges. The data collected by NMFS used different test methods than those required by Alaska's water quality standards (WQS). In 2013 and 2014, monitoring and outreach was conducted under the ACWA Grant (ACWA-13-08 and 14-05). Two

	sampling events conducted in June/July 2013 were above WQS of 10 ug/l for Total Aromatic Hydrocarbons (TAH). The days of elevated air temperatures and heaviest motorized use on the lake correlated with the highest levels of TAH concentrations.
Goals & Objectives	(Protect and maintain water quality) The goal is to maintain water quality and aquatic habitat through implementing stewardship and protection activities including education and outreach. Coordinate activities with other agencies and organizations working in the watershed to maintain state water quality standards for all uses focus on urban runoff and fecal coliform bacteria. The project will apply best management practices (BMPs) and existing regulatory means to reduce non-point source pollutants.
Priority Actions Summary	(Conduct education and outreach) Develop and implement an education program in collaboration with local community members, local watershed environmental groups, tribal entities, resource agencies (e.g., Alaska Departments of Fish and Game, Natural Resources), and other stakeholders (e.g., City/Borough of Juneau, Auke Lake Homeowners Association). The program should encompass both clean boating practices (where applicable) and other best management practices. Clean boating activities suggested in the Clean Boating Stewardship Action should be augmented with information about actions landowners can take to protect and improve adjacent land uses and how adjacent land use activities affect water quality. . For example, short educational video, attend workshops, hosting tours, attending specific community meetings, and/or distributing information to property owners adjacent to the waterbody and riparian areas. The educational campaign must demonstrate measureable results such as the actual number of people reached and must include a final project report that describes the outreach activities, public response and an evaluation of success including the types of follow up activities with people reached. The report must also include recommendations for future effective outreach activities. Contact the Gretchen Pikul (465-5023) for recent and ongoing watershed studies.

Auke Nu Cove

Geographic Location	Lat: 58.3805555 Long: -134.6916666 Auke Bay, Juneau; Southeast Alaska.
Concerns and Sources of Problems	(Habitat degradation) Auke Nu Cove is in the Protect and Maintain Waterbody at Risk Track with aquatic habitat the primary concern. Auke Nu Cove hosts a small area of eel grass and is of concern to National Marine Fisheries Service (NMFS). Potential threats include road and parking lot runoff associated with Egan Drive, a seafood processing facility, and

	the Alaska Marine Highway terminal. In 2014, SE Alaska Land Trust completed a conservation easement on 30 acres of CBJ property as mitigation for COE permit POA-2005-2019-2 located in Auke Bay; Auke Bay is east of Auke Nu Cove and within the same watershed. Conservation values include: open space, recreation, research opportunities, preserves biologically diverse intertidal marine ecosystem including eelgrass.
Goals & Objectives	(Protect and maintain water quality) Maintain water quality and aquatic habitat through collaboration with agencies and stakeholders on green infrastructure, stormwater, construction and monitoring projects, and by implementing stewardship and protection activities including education and outreach.
Priority Actions Summary	(Collaboration) Continue collaboration efforts with stakeholders and agencies through related groups (e.g., Interagency Review Team (IRT), Juneau Wetland Review Board, Southeast Alaska Fish Habitat Partnership) to maintain state water quality standards for all uses, with focus on urban runoff and fecal coliform bacteria.

Bear Creek (Hogatza)

Geographic Location	Lat: 66.1606150 Long: -155.5497550 Bear Creek is located on the east side of the Zane Hills at Hogatza in the Yukon-Koyukuk borough.
Concerns and Sources of Problems	(Sediment) Bear Creek stream is in the Protect and Maintain Waterbodies at Risk Track. Reclamation efforts of past mining practices may not have been adequate to restore habitat and water quality.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Ensure that reclamation efforts have been successful. (Determine the existing condition of the water body) Ensure that reclamation efforts have been successful.
Priority Actions Summary	(Collect Data) In collaboration with ADF&G, Federal, local watershed/environmental and/or tribal entities, survey stream and evaluate condition of fish habitat. Any existing information should be compiled and summarized before field work. Methods used should follow one or combination of standard methods found in: Bain & Stevenson 1999, U.S Forest Service Aquatic Stream Habitat Survey Manual, ENRI Stream Condition Index or similar well-documented methods. Results should identify fish use, describe condition of aquatic and riparian habitat, and identify anthropogenic alterations if possible and areas needing restoration or additional protection.

	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Berners Bay

Geographic Location	Lat: 58.7440000 Long: -134.9710000 40 miles north of Juneau; Point Bridget and Point St Mary; Southeast Alaska - Tongass National Forest
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Berners Bay is in the Adequately Protected Waterbodies Track with water quality and aquatic habitat being primary concerns. This water was nominated in 2004 for potential water quality and aquatic habitat concerns associated with the proposed construction of the Cascade Point marine terminal facility located in a known herring and eulachon spawning habitat. To date, no marine terminal facility has been constructed.
Goals & Objectives	(Protect and maintain water quality) Protect and maintain water quality.
Priority Actions Summary	(Collaboration) Collaboration with agencies and stakeholders to protect and maintain water quality.

Big Lake – This action was on the FY17 Grant Solicitation and has been funded

Geographic Location	Lat: 61.5333333 Long: -149.9000000 Matanuska Susitna Borough, Alaska. Big Lake drains an area of 90 square miles; surface area of 2495 acres; 26 miles of shoreline - Big Lake North State Recreation Site; Big Lake Sou
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Big Lake is in the Waterbody Recovery Track with water quality and habitat being primary concerns. In 2006, the Department of Environmental Conservation (DEC) listed the east basin of Big Lake on the Clean Water Act Section 303(d) list as impaired for petroleum hydrocarbons due to the use of motorized watercraft during open water months. Follow-up petroleum hydrocarbon monitoring occurred in the summer of 2009 and the summer of 2013.

	This Best management Practice (BMP) effectiveness monitoring showed that the east basin still exceeds the water quality standard for aquatic life. Key areas in the east basin are near boat launches, marinas, major traffic lanes and areas of concentrated use. Key time periods to focus pollution prevention are high motorized use days especially sunny weekends and the holiday weekends during summer months. A Total Maximum Daily Load (TMDL) was approved by the Environmental Protection Agency (EPA) in 2012. Implementation includes a Community Water Quality Action Plan (Feb. 2012) developed by community members. Copies of the action plan and prior water quality sampling results can be found on DEC's Big Lake web site (http://dec.alaska.gov/water/wnpspc/protection_restoration/biglakewq/index.htm)
Goals & Objectives	(Meet water quality standards and remove impairment status) Develop and implement management measures to reduce petroleum hydrocarbons in the lake. Maintain and improve water quality through implementing stewardship and protection activities including education and outreach.
Priority Actions Summary	(Conduct education and outreach) In coordination with the Department of Natural Resources (DNR) State Parks, continue implementing education and outreach efforts for the "Keep Big Lake Clean" campaign started in 2011. Continue implementing the Launch Host program (see DEC website Clean Boating on Big Lake 2012 - 2014 reports) at the public boat launches in the east basin. Education efforts at the borough public launch in the west basin may be conducted as resources allow. Outreach should be strategically conducted to maximize resources and should be at times throughout the open water months when the launches are busy (weekends/holidays). The project should continue to develop the business partnerships for longer-term implementation of clean boating messages and discounts for participants in the program. The outreach message should include general information on the negative impacts from petroleum on aquatic life and things that people can do to reduce this pollution. Outreach must include strategically timed on-the-ground outreach as well as participating in the spring Mat-Su Outdoorsman Show with a staffed booth. The educational campaign must track easily measureable results such as the number of people reached, number of participating businesses and number of people participating in the business discount program. Proposal should also include tracking less tangible measurements of outreach success by counting behavioral results (ideas include: less motor idling, use of absorbents, decision to purchase a less polluting

	motor, etc.). A final project report is required that describes the outreach activities, public response and an evaluation of success including recommendations is required. The grantee will work to establish longer-term sustainability of the outreach activities including support and funding for the Launch Host program and business partnerships. The final report will contain the steps needed for the program to become self-sustaining and a date when a self-sustaining program could exist. The grantee will work to establish longer-term sustainability of the outreach activities including support and funding for the Launch Host program and business partnerships. Please apply under Stewardship actions and include similar work on Deshka River and Little Susitna River. The DEC has developed outreach materials that may be helpful. Contact Laura Eldred, 376-1855, for more information.

Black Bear Creek

Geographic Location	Lat: 55.5500000 Long: -132.8666666 near Klawock, Prince of Wales Island; Southeast Alaska
Concerns and Sources of Problems	(Residues) Black Bear Creek is in the Protect and Maintain Waterbodies at Risk Track with water quality (residues: debris, foam and scum) being the primary concern.
Goals & Objectives	(Determine the existing condition of the water body) Determine the existing condition of the waterbody.
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Bodenburg Creek	
Geographic Location	Lat: 61.5090610 Long: -149.0309760 Groundwater-sourced stream flowing into Knik R. supports river-type sockeye salmon
Concerns and Sources of Problems	(Instream flow) Bodenburg Creek is in the Protect and Maintain Track with habitat erosion and water quantity being the primary concern. Currently, instream flow protection does not exist. Illegal stream crossings by ATVs, and development on streambank occurring.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Use biological, streamflow and other pertinent information to support an application(s) for a reservation of water for one or more of the purposes allowable under the Alaska Water Use Act.
Priority Actions Summary	(Collect Data) Following USGS protocols, collect streamflow data to meet the requirements for reservation of water application to protect fish and wildlife habitat, migration, and propagation or for sanitary and water quality purposes. Establish appropriate site and permanent elevation reference marks, and use electronic sensors and data loggers to record continuous water levels; measure discharge to accurately adequately capture flow characteristics at the range of flows during all seasons for developing a stage-discharge relationship (rating). Provide data to ADF&G or qualified contractor for analysis. Prior to commencement of field work a project Quality Assurance Project Plan should be developed and approved by ADF&G or DNR. Data collected should be provided in a format that can be easily transferred to AWQMS (consult with DEC). (Reservation of water) In consultation with ADF&G and DNR, apply for a reservation of water to protect fish and wildlife habitat or water quality, or for one or more of any other purposes allowable under the Alaska Water Use Act. The applicant will need to compile, and summarize seasonal fish use information for the selected portion(s) (or points) within stream to be protected (consult with DNR or ADF&G). Five years of streamflow data are also needed and if not available or cannot be estimated using hydrological modeling, will have to be collected, (see above action request). Other information such as public land survey info (PLSS), basic description of watershed or drainage characteristics maybe also be required.

Campbell Creek **This action was on the FY17 Grant Solicitation and not funded**	
Geographic Location	Lat: 61.1379430 Long: -149.9246480 Anchorage, Alaska. The Campbell Creek watershed is approximately 72 square miles and includes drainages for its main tributaries—South Fork Campbell Creek (28.7 sq mi), North Fork Campbell Creek (16.5 sq mi) and Little Campbell Creek (13.3 sq mi).
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Campbell Creek is in the Waterbody Recovery Track with water quality being the primary concern due to fecal coliform bacteria pollution. DEC originally listed the waterbody as impaired in 1990 for fecal coliform bacteria and identified urban runoff as the expected pollutant source. It was unclear at the time if the entire creek or just the urban portion of the creek was impaired. Sampling conducted in 2005 narrowed the impaired portion of the creek to just the urban area. A Total Maximum Daily Load (TMDL) was completed for both Campbell Creek and Campbell Lake in 2006.
Goals & Objectives	(Meet water quality standards and remove impairment status) The goals are to implement best management practices and collect data to determine what additional Best Management Practices (BMP's) are needed.
Priority Actions Summary	(Implement BMPs or erosion control measures) Campbell Creek in the Waterbody Recovery Track with fecal coliform bacteria being the primary concern. The Alaska Department of Natural Resources (DNR) - Division of Forestry (DOF) applied for a grant to restore the Campbell Creek Greenbelt and create low impact, sustainable public access. The DNR Forestry proposal partners are: the Departments of Environmental Conservation (DEC) and Department of Fish and Game (DF&G), the Municipality of Anchorage (MOA), U.S. Fish and Wildlife Service (USF&WS) and Anchorage Parks Foundation (APF). During the grant application process, DEC agreed to support the DNR project proposal by providing funding for construction of green infrastructure (GI) at two sites. In cooperation with the partners, the grantee will select two of the prioritized sites to install GI to manage stormwater. The grantee will then design agreed-upon projects in Year 1 and construct the GI projects in Year 2. Based upon preliminary site review, anticipated activities include removing culverts, and intercepting and treating runoff through use of swales, rain gardens or other green infrastructure techniques. This action is eligible for two-year funding. For a copy of the Department of Natural Resources work plan, contact Jeanne

	Swartz at 269-7523.

Carlanna Creek **This action was on the FY17 Grant Solicitation and not funded**	
Geographic Location	Lat: 55.3586490 Long: -131.6950680 Ketchikan, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Urbanization) Carlanna Creek is in the Data Collection and Monitoring Track with water quality and habitat being primary concerns. The waterbody is currently in the draft 2012 Integrated Report in Category 3 - data or information is insufficient to determine whether the Water Quality Standards (WQS) for any designated uses are attained. The waterbody has numerous outfalls, surface runoff, and stream bank and flow modifications.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to develop a water quality assessment to determine the impacts of urban development and the associated pollution sources in the Ketchikan watersheds.
Priority Actions Summary	(Collect Data) Carlanna Creek is in the Data Collection and Monitoring Track with water quality and habitat being primary concerns. Conduct the second year of water quality monitoring and optional biotic community assessment in Carlanna, Hoadley and Ketchikan Creeks, Ketchikan Alaska. The second year of monitoring must be design to collect sufficient data to determine the health of these waters based on Alaska's Water Quality Standards. The data could also be used to support restoration options, if needed. The baseline assessment (Ketchikan Creeks: Stormwater Quality Assessment dated August 2014) concluded that ammonia and fecal coliform concentrations exist above WQS, suggesting a wastewater source. Metal concentrations of copper, zinc, and lead in water were above WQS, and copper and cadmium in sediment were above the acute and chronic toxicity screening levels in the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Table (SQuiRT). Data show a decreasing trend in stream health. Juvenile Coho salmon were found with atypical parr markings (cause undetermined). Using the first year baseline study results and DEC's "listing methodologies" to revise the Quality Assurance

	Project Plan (QAPP) and develop an updated sampling plan. Applications should propose the following schedule: • Fall 2016/Winter 2017 – revise QAPP and update sampling plan • Spring, Summer, Fall 2017 – sampling • Fall 2017/Winter 2018 – prepare draft and final reports. At minimum, the second year of monitoring must capture all of the components included in the first year baseline study with the following changes: no polyaromatic hydrocarbon sediment analytical tests are required, E.coli water analytical tests must be conducted in addition to fecal coliform testing, and the sediment sample collection must be designed to evaluate sediment concentrations with and without storm drain sediment basins. Sample locations must mirror the locations from the baseline assessment (total of 7-10 creek samples, 3-5 outfall samples and 3 background references) and capture all flow regimes (spring flow, summer base flow and fall storm event). The applicant may propose to include biotic assessments to document stream health and determine if parr marks on Coho salmon fry are abnormal or a normal variation; the applicant should present this budget separately from the water quality monitoring project budget. The applicant must review, compile and enter the sampling data using a DEC-supplied template. DEC will provide guidance on how to use the templates for this project. The applicant must evaluate results against state water quality standards and NOAA sediment screening levels. Prepare a draft and final project report including findings and conclusions, and incorporating DEC comments. Include a task to inform the community and City/Borough of Ketchikan about the project (both initial sampling plans and results) at public forums. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Carlanna, Hoadley and Ketchikan Creeks). This action is eligible for two-year funding. Contact Gretchen Pikul (465-5023) for more information. (Conduct education and outreach) In collaboration with watershed residents, businesses, local community members, local watershed/environmental and/or tribal entities, resource agencies and other stakeholders (City/Borough of Ketchikan, etc.) develop and implement an educational program focused on the application of best management practices (BMPs) to reduce non-point source pollution related to debris, snow removal, and road runoff, and animal waste collection to improve water quality and aquatic habitat within the watershed. Development of web-based educational tools (e.g., short educational videos), signage, and traditional educational materials is required. Existing or new educational material must be distributed to property owners adjacent to the waterbody/riparian area. Material should contain information for agencies and organizations that can assist property owners wishing to implement recommendations

	made in outreach materials. Interactive community gatherings/workshops, such as hosting tours of related low-impact development (LID), reduction of urban influences, and habitat restoration in the Ketchikan area, and stream clean-up activities are required. Use of all available recovery and water quality monitoring plans is necessary. This action must be conducted throughout the urban Ketchikan watersheds, and include Carlanna, Hoadley, and Ketchikan Creeks. Contact Gretchen Pikul (465-5023) in the Southeast office for recent and ongoing watershed studies.

Chena River

Geographic Location	Lat: 64.8403000 Long: -147.4825000 Tributary to the Tanana River that flows through downtown Fairbanks, Alaska
Concerns and Sources of Problems	(Urbanization) Chena River is in the Waterbody Recovery Track, with water quality being the primary concern due to urban run-off pollutants including sediment, petroleum, metals and fecal coliform bacteria.
Goals & Objectives	(Reduce pollutant loading and improve water quality) The goals are to protect, maintain, and/or restore shoreline, substrate, and the natural processes that form and support fish habitat for waterbodies in the Chena Watershed. Previous monitoring projects funded through the ACWA program have collected data that show that the water quality of the Chena River is meeting water quality standards for petroleum products and sediment. Develop and implement best management practices (BMPs) and other actions that foster good stewardship so that these waters continue to be a resource for Alaska residents.
Priority Actions Summary	(Conduct education and outreach) Working with the Department of Environmental Conservation (DEC) and other stakeholders, develop and implement an educational campaign aimed at residents, businesses, and users that addresses green infrastructure applications and actions they can do to reduce run-off pollution in the Chena River watershed. The campaign may include public presentations or seminars, tours of projects in the Chena River watershed area, community workshops, web-based educational tools, and/or traditional educational materials. Additionally, the campaign will focus on the benefits of these actions for fish and wildlife, especially Chinook salmon.

Chena Slough	
Geographic Location	Lat: 64.8403000 Long: -147.9119000 Tributary to Chena River that flows through the North Pole area. This water is also called Badger Slough.
Concerns and Sources of Problems	(Urbanization) Chena Slough is in the Waterbody Recovery Track, with water quality being the primary concern due to urban run-off pollutants including sediment, petroleum, metals and bacteria. There are no setback requirements in the Fairbanks area to protect against loss of riparian area. Riparian areas serve as a buffer that filter sediment and other pollutants from run-off before it enters waterbodies.
Goals & Objectives	(Meet water quality standards and remove impairment status) Provide educational opportunities in the community to targeted user groups that will foster good stewardship and increase the use of best management practices. (Reduce pollutant loading and improve water quality) Protect, maintain, and/or restore shoreline, substrate, and the natural process that form and support fish habitat. Develop and implement BMPs and foster good stewardship.
Priority Actions Summary	(Conduct education and outreach) Develop and implement an education and outreach campaign to address the most common pollutants from urban run-off (i.e., sediment, petroleum, metals, and bacteria). The strategy and subsequent campaign should be designed to support and strengthen activities with the local adopt-a-stream program and volunteer water quality monitoring program. The campaign should include a strategy for how the actions will be communicated and any specific groups that should be targeted (including homeowners, business owners, adult special interest groups and general adult audiences.) The outcome of the campaign should be to increase the number of miles adopted and increase the number of people and organizations participating each year in these 2 programs. Educational materials developed should build on existing available documents and include local agency contact information. (Collect Data) Conduct a preliminary assessment of bio-indicators that address impacts from land use activities that may negatively affect essential fish habitat. Assessment should include documenting physical characteristics, bank condition, biotic communities, and areas of concentrated salmon spawning and rearing. Analyze results; provide conclusions and recommendations for restoration and other management alternatives. Macroinvertebrate assessment must use UAA-ENRI ASCI sampling methods. Information will

	be used to help prioritize restoration and other activities to improve water quality.

Cheney Lake

Geographic Location	Lat: 61.2024160 Long: -149.7597890 Anchorage, former material site. ~22 acres, mean depth 5.8 feet, maximum depth 14 feet
Concerns and Sources of Problems	(Urbanization) Cheney Lake is in the Protect and Maintain Waterbodies at Risk track because of urban location and it was a 303(d) water impaired for fecal coliform bacteria until it was delisted in 2007. This watershed is very small and is located in the urban portion of East Anchorage and contains a high percentage of impervious surfaces.
Goals & Objectives	(Protect and maintain water quality) Continue to reduce impacts form impervious surfaces and pet waste
Priority Actions Summary	(Implement BMPs or erosion control measures) Work with the Municipality of Anchorage, non-governmental organizations, neighborhood groups and other interested stakeholders to maintain existing BMPs to ensure water quality meets state standards and all designated uses.

Chilkat Lake

Geographic Location	Lat: 59.3320000 Long: -135.8960000 6 mi. long, trends NW, 3 mi. SW of Klukwan and 23 mi. SW of Skagway
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Chilkat Lake is located within the Chilkat Bald Eagle Preserve and is the largest sockeye rearing lake in the Haines area with an average historic run of approximately 70,000 fish. The lake has increasing residential development (total 208 lots, 47 developed) with and without septic systems, and float plane traffic which could potentially introduce invasive plant species to the water. The Takshanuk Watershed Council has expressed concern regarding water quality and aquatic habitat for this water, and request water quality data collection and monitoring be conducted.

Goals & Objectives	(Determine the existing condition of the water body) Conduct water quality monitoring to determine the existing condition of the waterbody.
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Colville River / Umiat Lake

Geographic Location	Lat: 69.3847222 Long: -152.1000000 North Slope
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) A landfill was constructed in 1973 during a Navy cleanup of Umiat. Contents include about 85,000 empty 55-gallon drums, two abandoned drilling rigs, abandoned heavy equipment, contents of a surface dump, debris from demolition of unusable buildings, and general debris and trash from around Umiat. The landfill was constructed in what is described in older documents as a “gravel bars” or “dry channel” of the Colville River, and has a high potential for erosion. The Colville River curves around the area with the landfill, and floods across the surface of the landfill annually; a seasonal stream runs through it during high water. A seasonal slough runs from the north end of the landfill to the Colville River. Soil contaminants include petroleum, PCBs, chlorinated pesticides, arsenic, beryllium and lead. Groundwater contaminants include DRO and GRO. PCBs have been detected in slough sediments. Fish tissue studies show somewhat elevated levels of PCBs in burbot caught in the slough and in the Colville River in the vicinity of the slough. Debris is being exposed by erosion of the surface of the landfill, including drums, batteries, and vehicle parts. A small transformer was found in 2001, and was leaking PCB oil. The transformer and affected soil were removed, but additional containerized hazardous substances may be present in the landfill and are threatened by continuing erosion. The landfill is located in an active seasonal streambed of the Colville River, east of the main gravel pad, approximately mid-way between the main gravel pad and the Colville River, on both sides of the gravel road that connects the main gravel pad to the Colville River. The landfill is approximately 3000 feet long from the northern tip to the southern tip and about 1500 feet wide from east to west.
Goals & Objectives	(Determine the existing condition of the water body)
Priority Actions Summary	(Collect Data) Prepare a quality assurance project plan and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality

	Standards for pollutants of concern, including debris, petroleum products, PCBs, chlorinated pesticides, arsenic, beryllium and lead. Sampling should include sediment and the water column. Coordinate with on-going multi-agency efforts, including work by DEC Contaminated Sites program.

Cooper Creek

Geographic Location	Lat: 60.4843950 Long: -149.8798520 Cooper Creek at Cooper Landing on the Kenai Peninsula - Chugach National Forest
Concerns and Sources of Problems	(Turbidity) Cooper Creek is in the Protect and Maintain Waterbodies at Risk Track with water quality being the primary concern due to past land use activities. Historic hydraulic placer mining near the confluence with the Kenai River has left a large soil embankment unstable. Each spring and during heavy rain events sections of the embankment slump and erode into Cooper Creek, causing an increase in the sediment load and turbidity levels.
Goals & Objectives	(Restore habitat or improve fish passage) Stabilize a large sloughing embankment to reduce the amount of sediment entering the creek.
Priority Actions Summary	(Restore habitat) Develop and implement a plan to stabilize the eroding embankment or capture and stabilize slumping soil to prevent sediment from entering Cooper Creek. The plan should include an educational kiosk, to be installed early in the implementation phase of the project, that explains why the work is being performed and the environmental benefits achieved. The plan will need approval by DNR, DEC, and DF&G.

Cottonwood Creek This action was on the FY17 Grant Solicitation and not funded. DEC is funding work in FY17 to support the action.

Geographic Location	Lat: 61.4973930 Long: -149.5936200 Creek flows through Wasilla and empties into Knik Arm. Supports salmon, rainbow trout, and Dolly Varden.
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Cottonwood Creek is in the Waterbody Recovery Track with bacteria being the primary concern. The Department of Environmental Conservation (DEC) has several years of fecal coliform

	bacteria data for Cottonwood Creek. In 2010, DEC listed Cottonwood Creek on the Clean Water Act Section 303(d) list as an impaired water for fecal coliform bacteria. DEC completed a microbial source tracking project, "Fecal Coliform Bacteria Source Assessment in the waters of Cottonwood Creek, Wasilla and Little Campbell Creek, Anchorage, November 2010", which identified some of the bacteria in the creek as human in origin. Bacteria levels tended to increase during periods of stormwater runoff. DEC sampling of the stormwater runoff (2011-2012) also identified increases in other typical urban pollutants such as sediment, specific conductivity, copper, lead and zinc. A Total Maximum Daily Load (TMDL) was approved in 2015 that calculated how much bacteria Cottonwood Creek can receive and still meet state water quality standards, and suggested ways to achieve this goal.
Goals & Objectives	(Meet water quality standards and remove impairment status) The goal is to conduct activities to support the removal of Cottonwood Creek from the State's list of impaired waterbodies and reduce other pollutants that could degrade water quality.
Priority Actions Summary	(Implement BMPs or erosion control measures) This action builds on work started in FY16 by the Matanuska-Susitna Borough. The Borough began mapping areas of stormwater runoff and identifying which best management practices (BMP) could be used to reduce stormwater runoff to Cottonwood Creek. Based on the FY16 stormwater mapping project results, implement next steps by preparing designs for stormwater BMPs and constructing at least one stormwater Green Infrastructure BMP for Cottonwood Creek. The BMP implemented must reduce stormwater runoff entering Cottonwood Creek. Reducing stormwater runoff entering Cottonwood Creek should also potentially reduce fecal coliform bacteria pollution in the creek. This project would start in January 2017 and is eligible to apply for 2 years of funding (through June 30, 2018).

Crooked Creek

Geographic Location	Lat: 65.6279380 Long: -144.4434790 Tributary of Birch Creek, near Central, Alaska.
Concerns and Sources of Problems	(Turbidity) Crooked Creek is in the Data Collection and Monitoring Track with water quality being the primary concern due to turbidity associated with placer mining activities. In 1992 the Department of Environmental Conservation (DEC) listed Crooked Creek watershed on the Clean Water Act

	Section 303(d) list of impaired waters for non-attainment of the turbidity standards. A water quality assessment was completed in August 1995 (Crooked Creek Water Quality Assessment, USGS, 1995). ADEC began a water quality assessment in 2014 to determine the current condition of the watershed.
Goals & Objectives	(Maintain water quality to meet designated uses) Maintain state water quality standards (WQS) for all uses - focus on sediment and turbidity.
Priority Actions Summary	(Conduct education and outreach) The grantee will design and implement an outreach and education campaign. The audience is placer miners operating in the Crooked Creek and nearby watersheds. The primary method of outreach should be "in person" activities, including workshops, face-to-face visits at mine sites and community meetings. Potential venues include the Fairbanks area small miners' meetings and breakfasts. The focus of the campaign is on water quality standards for turbidity and the effects of increased turbidity and sediment on fish. DEC will provide an updated Best Management Practices guide. Education must also include how to measure turbidity, including use of instruments and correct record keeping and quality assurance and build on work already being done by DEC.

Deep Creek

Geographic Location	Lat: 60.0333333 Long: -151.7000000 Lower Kenai Peninsula
Concerns and Sources of Problems	(Urbanization) Deep Creek is in the Protect and Maintain Waterbodies at Risk Track with water quality being the primary concern due to land use activities. Properties located adjacent to or that drain to Deep Creek are being developed by property owners that may not understand the function of riparian habitat and its role in maintaining water quality. (Habitat degradation) Older logging roads in this watershed maybe degrading water quality and impeding fish passage due to off road vehicle use and undersized or damaged culverts
Goals & Objectives	(Protect and maintain water quality) The goal is to educate Deep Creek property owners in ways to minimize their impacts on riparian habitat. (Protect and maintain instream flow and aquatic habitat) Determine if logging roads and undersized or damaged culverts are causing impacts to aquatic habitat.
Priority Actions Summary	(Collect Data) Implement recommendations in the Kenai Peninsula Forest Road Conditions 2011-2014 Survey report for stream crossing structures with low fish passage ranking scores in the Deep Creek watershed.

	DNR and DF&G recently assessed private and tribal owned logging roads and streams crossings structures in this watershed for compliance with the Alaska Forest Resources and Practices Act standards. Stream crossing structures were assessed for their ability to pass fish and other aquatic habitat concerns. Table 3 in the report contains a prioritized list of structures to be replaced, repaired, removed, or require no action based on the placement and condition of the stream crossing structure and status of the logging road. Two culverts, way points KENO1-07 and KENO-08 with a rank value of 2 are located in the Deep Creek watershed. A copy of the report can be found on the DNR, Forestry web page: http://forestry.alaska.gov/pdfs/ROAD_CONDITION_SURVEY_FOR_THE_KENAI_PENINSULA_BOROUGH_20150326.pdf. Page 10 of the report contains a link to the ADF&G culvert inventory map for the state including the Kenai Peninsula and this watershed: http://extra.sf.adfg.state.ak.us/FishResourceMonitor/?mode=culv

Deshka River This action was on the FY17 Grant Solicitation and partially funded; the education action is funded; the data collection action is not funded.

Geographic Location	Lat: 61.6992530 Long: -150.3197050 Western tributary to the Susitna River approximately 9 miles west of Willow -
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Deshka River is in the Protect and Maintain Track with water quality and aquatic habitat being primary concerns. The Deshka River receives intensive motorized boat use (especially the lower 3 miles) during summer fisheries. The river also serves as a transportation corridor for boats traveling to cabins or other nearby rivers. Impacts from these activities to water quality and aquatic habitat are unknown but of concern for maintaining a healthy aquatic system.
Goals & Objectives	(Determine the existing condition of the water body) Determine if the Deshka River meets water quality standards (WQS) for petroleum hydrocarbons (total aromatic hydrocarbons). Initial screening samples were above Alaska's water quality standards. View report at http://dec.alaska.gov/water/wqsar/reports.html. (Reduce pollutant loading and improve water quality) Reducing the amount of petroleum hydrocarbon pollution entering the river is expected to improve water quality and better protect aquatic species.
Priority Actions Summary	(Collect Data) The grantee will develop a Sample Plan and Quality Assurance Project Plan (QAPP) which must be approved by DEC. The DEC has recent examples that may be used with appropriate editing. The sampling plan must be designed so the data objectives and assessment results meet the requirements in DEC's Listing Methodology for Determining Water Quality Impairments from Petroleum

	Hydrocarbons, Oil & Grease. The grantee will then collect water samples monitoring for petroleum hydrocarbons (total aromatic hydrocarbons to be laboratory analyzed using EPA method 624) in the lower 1 mile of the Deshka River. Monitoring sites must be the same as sites previously sampled (contact DEC for more details). The sampling will be comprised of 4-day (96 hour) sampling events in June to early July during the king salmon fishery and during the month of August for the silver salmon fishery. Sampling will be conducted during heavy boat traffic period(s). During each sampling event, a minimum of 20 samples will be collected at each sampling location and the sample results averaged. A minimum of 3 sampling locations should be proposed; sample collection will be temporally spaced to be representative of motorized boat use. Sampling events will include a visual examination for sheen. Sampling must be designed to determine whether water quality standards are being exceeded. Cost savings may be realized if able to partner with ADF&G staff for use of their motorized boat. Sampling events must also include data collection for: number of motorized boats, 2 stroke versus 4 stroke motors, and horsepower in order to determine hydrocarbon loading. The grantee will analyze all samples, evaluate results and prepare a draft and final report of findings and conclusions. Following each sampling event the grantee will submit to DEC a brief sampling event summary report, completed chain of custody forms, and field data sheets within 24 hours of each sampling event. Within thirty-six hours of each sampling event, the grantee will submit to DEC the electronic final laboratory monitoring results and laboratory reports. The grantee is responsible for either directly entering their project data into the Environmental Protection Agency's (EPA) water quality database (STORET) or ensuring data collected is provided in a format that can be easily transferred to DEC's water quality database (AWQMS). DEC will provide the grantee with the data templates and guidance on how to use the templates for this project. The grantee should budget time to become proficient in the use of the reporting data template. This project is eligible to apply under the 2-year option. Applications should propose the following schedule: • Summer 2016 – revise QAPP and update sampling plan • Fall/Winter 2016 – prepare for sampling • Spring/Summer/Fall 2017 – conduct sampling • Fall 2017/Winter 2018 – analyze results and prepare draft and final reports Contact DEC staff Laura Eldred, 376-1855, for more information.

	(Collect Data) Limited turbidity sampling has been conducted on the Deshka River. Turbidity grab samples collected in June 2014 did not determine the natural condition for turbidity in the river. Even though the daily average turbidity values that were collected seemed relatively low, DEC was not able to determine compliance with state water quality standards. This action will collect turbidity values at a reference site and downstream sites impacted by motorized boats by using continuous reading data loggers. Recommended river miles are between river mile 1 and river mile 6. The grantee will develop a Quality Assurance Project Plan for turbidity data collection for DEC review and approval prior to any data collection efforts. The QAPP will be implemented by the grantee during the spring king salmon fishery and summer silver salmon fishery. Downstream values will be compared to the natural condition to determine compliance with Alaska's water quality standards. The grantee will use DEC's Listing Methodology for Determining Water Quality Impairments from Turbidity (2015) for project design and data analysis guidance. This project is eligible to apply under the 2-year option. Applications should propose the following schedule: • Summer 2016 – revise QAPP and update sampling plan • Fall/Winter 2016 – prepare for sampling • Spring/Summer/Fall 2017 – conduct sampling • Fall 2017/Winter 2018 – analyze results and prepare draft and final reports This action is eligible for the 2 year funding option. Contact Laura Eldred, 376-1855, for more information. (Conduct education and outreach) This action models and builds on the educational outreach campaign started by DEC in 2011 for the Little Susitna River. To the extent practicable, the education should focus on users of the Deshka River. The campaign is designed to educate river users on the impacts of petroleum hydrocarbon pollution to aquatic species and on ways to reduce this pollution. The education campaign must target the appropriate user groups for the Deshka River recreational fishery, transportation corridor, and other users accessing the river. Education must include strategically timed on-the-ground outreach as well as participating in the spring Mat-Su Outdoorsman Show with a staffed booth. The educational campaign must demonstrate measureable results such as the number of people reached. The campaign should also provide tools to help reduce petroleum inputs to the river. A final project report is required describing the outreach activities, public response, an evaluation of success and recommendations. Please apply under Stewardship actions and include similar work on Big Lake and Little Susitna River. The DEC has developed outreach materials that may be helpful. Contact Laura Eldred, 376-1855, for more information.

Dry Creek (Nome) **This action was on the FY17 Grant Solicitation and not funded**	
Geographic Location	Lat: 64.5014000 Long: -165.4186000 Creek flows approx. 6 mi. southeast into Nome, Alaska -
Concerns and Sources of Problems	(Turbidity) Dry Creek is in the Data Collection and Monitoring Track with water quality and habitat as the primary concerns. Threats include sedimentation, turbidity, and metals. Other concerns include barriers to fish passage, bank erosion and riparian damage.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to evaluate the current water quality.
Priority Actions Summary	(Collect Data) Research and collect all available background information on water quality for selected waterbodies in the Nome area. This project involves collection of existing data and does not include any new field data collection. The inventory should include a review of published reports and solicitation of information from local organizations, universities, State and Federal agencies and others. The applicant will compile all information and prepare a draft and final report. Based on the data evaluation, the report should include a summary of data, identification of data gaps, and recommendations for future data collection. The report must also include an annotated bibliography with summaries of all data sources (including unpublished information and personal communications). To the extent feasible, electronic and hard copies of the background information used in the report will be copied and compiled for inclusion in the Water Division's files on those waterbodies. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Anvil Creek, Dry Creek, Glacier Creek, Nome River and Snake River).

Duck Creek **This action was on the FY17 Grant Solicitation and partially funded; the data collection is funded; the TMDL implementation is not funded**	
Geographic Location	Lat: 58.3592000 Long: -134.5978000 Juneau, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Urbanization) Duck Creek is in the Waterbody Recovery Track with water quality and aquatic habitat being primary concerns. Duck Creek was placed on the 1994 Clean Water Act Section 303(d) list for dissolved gas (low dissolved oxygen (DO)), residues (debris), metals (iron), fecal coliform

	(FC) bacteria, and turbidity. Total Maximum Daily Loads (TMDLs) were completed for all pollutants (turbidity in 1999, FC bacteria and residues in 2000, and DO and iron in 2001), and Duck Creek moved from Category 5 to Category 4a in the 2002/2003 Integrated Report Priority actions identified for this waterbody include: implementing the Duck Creek Management Plan and actions to address loadings identified in TMDLs; conducting a monitoring program to determine whether recovery actions are improving water quality; maintaining stream flow to provide fish rearing habitat in the stream, dilute pollutants, and prevent salt water intrusion; and working with the City /Borough of Juneau and other stakeholders to ensure adequate stormwater permitting practices and controls are implemented to restore water quality. According to the 2006 final monitoring report (2006 Watershed Protection and Recovery for Duck Creek), Duck Creek continued to suffer from low in-stream flow, except for during large precipitation events; DO levels continued to regularly fall below state standards for aquatic life; pH values were near and at times below acceptable range of pH of 6.5 - 8.5 for aquatic life in the water quality standards; and large amounts of iron floc were noted at all sites. Stream cleanup events are conducted annually to address ongoing residues (debris) issues in high-density corridors. The construction of wetland habitat and stream channel restoration above Nancy Street have resulted in improvements to fish and wildlife habitat, reduced turbidity and iron levels, and raised pH and DO in the downstream reach. However, ongoing land use, ordinance enforcement, and snow disposal on private lands adjacent to Duck Creek continue to be a concern.
Goals & Objectives	(Meet water quality standards and remove impairment status) The Duck Creek watershed has undergone extensive development. While small portions of the original upland forest and muskeg still remain, more than 90% of the watershed is developed with various structures and impermeable surfaces. Duck Creek is primarily groundwater fed and subject to iron floc formation originating from groundwater intrusion. The stream channel has been redirected multiple times. Four large ponds resulting from excavation for fill material in the 1960s have been and continue to be the focus of restoration efforts. One of these fill ponds (Church of the Nazarene) was converted into a wetland in 1998 and a second (Nancy Street Pond) had wetland and stream channel restoration in 2006. A monitoring project has been funded for 2016/17 to evaluate the effectiveness of the Nancy Street wetland restoration will be conducted on Duck Creek. (Meet water quality standards and remove impairment status) The goal is to meet water quality standards and remove

	impairment status. The goal can be reached by implementing the actions outlined in the four TMDLs to address debris, fecal coliform bacteria, turbidity, and dissolved oxygen (DO).
Priority Actions Summary	(Collect Data) Prepare and implement a water quality sampling plan and Quality Assurance Project Plan (QAPP) to evaluate the effectiveness of wetland restoration on the general stream health; DEC's "listing methodologies" must be used. Water quality testing will include DO, specific conductivity, temperature, pH, turbidity, total dissolved solids (TDS), total suspended solids (TSS), FC and E.coli, iron (oxidized and reduced), as well as collecting flow rate. TDS and TSS should be sampled throughout the water column in deeper portions of the wetland areas. Sample locations will include upstream, midstream, and downstream of the wetland restoration. Aquatic invertebrate sampling may also be collected and evaluated for stream health indicators. Applications should propose the following schedule. • Fall 2016/winter 2017 – prepare QAPP and sampling plan • Spring, summer, fall 2017 – sampling • Fall 2017/winter 2018 – prepare draft and final reports The applicant must review, compile and enter the sampling data using a DEC-supplied template. DEC will provide guidance on how to use the templates for this project. The applicant must evaluate results against state water quality standards and the TMDL target values to determine if standards and targets are being met. Prepare a draft and final project report including findings and conclusions, and incorporate DEC comments. Evaluate whether restoration efforts have been effective, and if not, provide recommendations for additional restoration activities needed to meet water quality standards. Inform the community and City/Borough of Juneau about the project (both initial sampling plans and results) at public forums (e.g., Juneau Wetlands Review Board). This action is eligible for two-year funding. Contact Gretchen Pikul (465-5023) for more information. (Implement watershed restoration plan or TMDL) Implement 1999 Duck Creek Watershed Recovery and Management Plan and 1999-2001 TMDL recommendations for the four impairments of debris, fecal coliform bacteria, turbidity, and dissolved oxygen (DO) and iron. To address most of the impairments (fecal coliform bacteria, turbidity, and DO and iron) the following actions can be accomplished: construct wetland, streamflow and streamside restoration projects to reduce the stormwater and urban runoff into the creek, increase creek base flow, and develop riparian greenbelts to serve as streamside buffers; use best management practices (BMPs); and monitor/revise land development policy. Specific achievements can also address: debris - continue community stream cleanup efforts; fecal coliform bacteria -

	support local efforts on pet waste bag receptacles; and DO and iron - install aeration piping in groundwater discharge areas. Detailed action objectives are outlined in the Duck Creek Watershed Management Plan and the Duck Creek TMDLs.

Dutch Harbor **This action was on the FY17 Grant Solicitation and not funded**	
Geographic Location	Lat: 53.8992400 Long: -166.5250200 Unalaska, Alaska in Aleutian chain
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Dutch Harbor is in the Waterbody Recovery Track with water quality and aquatic habitat being the primary concern. In 1994, the Department of Environmental Conservation (DEC) listed Dutch Harbor on the Clean Water Act Section 303(d) list an impaired waterbody for petroleum hydrocarbons. Monitoring conducted by DEC in 2007–2008 found that Dutch Harbor remains impaired for petroleum, specifically polycyclic aromatic hydrocarbons (PAH), due to oil sheens on bottom sediments. Surface water quality in Dutch Harbor currently meets applicable water quality criteria for petroleum hydrocarbon concentrations. In 2010, EPA approved a Total Maximum Daily Load (TMDL) that addresses PAHs in bottom sediments. PAHs may be causing deleterious effects to aquatic life. Sediment contamination is thought to be primarily the result of historic spills and releases on the uplands and on water, which have been spread throughout the area by rain, wind, and tidal and wave action. Current activities at docks and harbors may be adding to the historic pollution.
Goals & Objectives	(Implement actions specified in TMDL) The petroleum hydrocarbon TMDL developed for Dutch Harbor outlined several implementation actions to help reduce additional hydrocarbon pollution to the harbor. This goal applies to Iliuliuk Harbor as well.
Priority Actions Summary	(Collaboration) The grantee will convene a group of stakeholders to develop uniform best management practices for area docks and harbors given that the most elevated concentrations of PAHs in sediments occur at these locations. The group should include private enterprises that would be directly affected, tribal organizations, interested non-government organizations, and local, state, and federal government agencies that have a presence in Iliuliuk and Dutch Harbors. This action must include similar work on Iliuliuk Harbor since the waters are connected. The project

	must provide a final report on the work conducted, participants and outcomes. (Implement watershed restoration plan or TMDL) The grantee will encourage the City of Unalaska to participate in the Alaska Clean Harbors program, through phone calls, brochures, and other outreach avenues. If interest is shown, the grantee will assist the City with the certification process. Work must include Iliuliuk Harbor as well.

Eyak Lake

Geographic Location	Lat: 60.5502320 Long: -145.6727890 near Cordova
Concerns and Sources of Problems	(Invasive species) Elodea present.
Goals & Objectives	(Maintain water quality to meet designated uses) Eradicate elodea to the fullest extent possible.
Priority Actions Summary	(Restore habitat) Work with state and federal invasive species coordinators and local entities to develop elodea eradication plan. http://dnr.alaska.gov/ag/ag_Elodea.htm

Fish Creek (Anchorage) This action was on the FY17 Grant Solicitation and funded

Geographic Location	Lat: 61.2057800 Long: -149.9327160 Anchorage, south of Chester Creek -
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Fish Creek is in the Waterbody Recovery Track with water quality being the primary concern due to fecal coliform bacteria pollution. Fish Creek was listed on the Section 303(d) list since 1990 for non-attainment of the fecal coliform bacteria standard and the turbidity standard. A 1995 waterbody assessment concluded Fish Creek was impaired only for fecal coliform bacteria. A Total Maximum Daily Load (TMDL) for fecal coliform bacteria was developed and approved by EPA in March 2004.
Goals & Objectives	(Meet water quality standards and remove impairment status) The goal is to implement best management practices and collect data. Waterfowl are a significant contributor to the bacteria pollution.
Priority Actions Summary	(Implement BMPs or erosion control measures) DEC is currently funding a working group to develop options that would minimize the amount of human-waterfowl interactions

	at the portion of Fish Creek that exist as the Cuddy Park Ponds. Feeding of the waterfowl in this area has resulted in waterfowl populations that cause excessive fecal coliform levels. This action builds on the recommendations from the working group. To be eligible for this action, a letter from the Municipality of Anchorage (MOA) stating the project will not occur without additional support is required. The project must be designed to supplement MOA efforts. 1. In conjunction with the MOA Parks & Recreation vegetation project (tentatively scheduled for Summer 2016): plant Potentilla, (possibly) along the perimeter of the Cuddy Park Main Pond where it is currently without a hedge border. Other vegetation may be used if MOA and DEC concur. 2. Install Coir logs and willow layering along the south bank of Cuddy Park Ponds. The project should be designed and constructed to stabilize the bank and should be similar to the project recently put in around the new ponds at Muldoon Road and Chester Creek. The project must insure willow shoots are used that have been recently harvested. (Document existing BMPs and assess additional BMP needs) DEC is currently funding efforts to educate the public that feeding waterfowl creates a pollution problem in area streams and lakes and is also detrimental to the health of the waterfowl. Signs are being developed and installed around the ponds; outreach via to media campaigns is occurring. This action will assess the effectiveness of the outreach campaign funded in FY16. The grantee will interview users of Cuddy Park about their level of awareness of the negative aspects of feeding waterfowl including their understanding of the reasons for discouraging waterfowl feeding. If the user is aware of the negative impacts, the grantee will ask to what extent the FY16 outreach has modified their behavior. The grantee will also ask about their attitudes of feeding waterfowl. The grantee will design a draft questionnaire for DEC review and approval. The grantee will then randomly conduct interviews to a representative sample of the public that uses Cuddy Park. At minimum, interviews should be administered on at least three occasions during the summer. The grantee will prepare a report which includes: the questionnaire, numbers of people contacted, tabular results; and based on the results, a recommendation for further outreach actions in number and type.

Fish Creek (Wasilla)	
Geographic Location	Lat: 61.4371060 Long: -149.7696590 Heads at Big Lake, flows SE 12 mi. to Knik Arm, near Wasilla
Concerns and Sources of Problems	(Urbanization) Entire drainage is surrounded by private parcels that most of which are not yet developed.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Stewardship, ordinances, and permitting actions that ensure development does not impair water quality and habitat.
Priority Actions Summary	(Document existing BMPs and assess additional BMP needs) Monitor and track Title 16 habitat permits to help prevent cumulative impacts.

Fox River	
Geographic Location	Lat: 59.7914370 Long: -151.0536430 Homer. 24 Miles NE of Homer. Headwaters start at the terminus of the Chernof Glacier. Confluence with Kachemak Bay. - Fox River Flats Critical Habitat Area
Concerns and Sources of Problems	(Habitat degradation) Fox River is on the Protect and Maintain Waterbodies at Risk Track due to habitat degradation caused by domestic animals and recreational activities.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Protect stream bank habitat from intensive use by livestock and all-terrain vehicle (ATV) crossings.
Priority Actions Summary	(Conduct education and outreach) Work with ranchers and recreation groups to minimize stream bank habitat destruction by livestock trampling and ATV users.

Fritz Creek	
Geographic Location	Lat: 59.6819980 Long: -151.3726330 Homer, 7 Miles NE of Homer. Crosses East End Road. Confluence with Kachemak Bay. - Anchor River & Fritz Creek Critical Habit Area
Concerns and Sources of Problems	(Urbanization) Fritz Creek is in the Protect and Maintain Waterbodies at Risk Track with water quality being a primary concern due to land use activities. Fritz Creek is identified as a potential future public water source for the City of Homer.

	(Instream flow) The City of Homer through its planning process has tentatively selected the Fritz Creek watershed as a location for a future water reservoir to help meet predicted future water needs for the City of Homer and surrounding areas.
Goals & Objectives	(Protect and maintain water quality) Protect existing water quality to ensure water can be used as drinking water for the City of Homer and other communities in the future. (Protect and maintain instream flow and aquatic habitat) Instream flow protection
Priority Actions Summary	(Develop planning documents) Working with City of Homer and local stakeholders develop a Waterbody Action Plan for Fritz Creek. The plan would review existing water quality information, conduct a habitat assessment, and include action steps to educate watershed land owners on the need to protect water quality for use a future public water source for the City of Homer and surrounding communities. (Reservation of water) File a reservation of water using existing USGS data from gage station 15239500

Funny River

Geographic Location	Lat: 60.4920000 Long: -150.8660000 Soldotna, Confluence with the Kenai River, south bank, at river mile 30 - Kenai National Wildlife Refuge
Concerns and Sources of Problems	(Urbanization) Funny River is in the Data Collection and Monitoring Track with habitat degradation, bacterial contamination and increase sediment a concern from increased urbanization and recreation within the watershed.
Goals & Objectives	(Protect and maintain water quality) The goal for Funny River is to protect water quality so that all designated uses are met.
Priority Actions Summary	(Collaboration) Collaboration between State and Federal and Borough agencies to ensure adequate stipulations are placed on permits for permitted activities to protect water quality and stream bank habitat.

Gastineau Channel

Geographic Location	Lat: 58.2947000 Long: -134.4090000 Juneau, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Urbanization) Gastineau Channel is in the Protect and Maintain Waterbodies at Risk Track with water quality (metals, hydrocarbons, fecal coliform, and sedimentation)

	being the primary concern. Sites of concern for non-point pollution sources: Sheep Creek (metals in sediment); Old Cyanide Plant (methylmercury in sediment); Sandy Beach (metals in sediment); Industrial site (metals in sediment); Harris Harbor (fecal coliform, metals in sediment, and hydrocarbons); Aurora Harbor (fecal coliform, metals in sediment, and hydrocarbons); Douglas Harbor (fecal coliform, metals in sediment, and hydrocarbons); and Mendenhall River outlet to Juneau Douglas/Bridge (fecal coliform and hydrocarbons). DEC Cruise Ship program plans WQ sampling project in 2015/2016.
Goals & Objectives	(Protect and maintain water quality) Protect and maintain water quality.
Priority Actions Summary	(Collaboration) Collaborate with agencies, stakeholders, and involved groups on green infrastructure, storm water, construction and monitoring projects to protect and maintain water quality in Gastineau Channel.

Glacier Creek (Nome) This action was on the FY17 Grant Solicitation and not funded

Geographic Location	Lat: 64.5961000 Long: -165.4302000 Creek heads on east side of Mount Brynteson, flows southwest 6 mi. to Snake River, 6 mi. northwest of Nome, Alaska. -
Concerns and Sources of Problems	(Turbidity) Glacier Creek is in the Data Collection and Monitoring Track with water quality and habitat as the primary concerns. Threats include sedimentation, turbidity, and metals. Other concerns include barriers to fish passage, bank erosion and riparian damage.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to evaluate the current water quality.
Priority Actions Summary	(Collect Data) Research and collect all available background information on water quality for selected waterbodies in the Nome area. This project involves collection of existing data and does not include any new field data collection. The inventory should include a review of published reports and solicitation of information from local organizations, universities, State and Federal agencies and others. The applicant will compile all information and prepare a draft and final report. Based on the data evaluation, the report should include a summary of data, identification of data gaps, and recommendations for future data collection. The report must also include an annotated bibliography with summaries of all data sources (including unpublished information and personal communications). To the extent feasible, electronic and hard

	copies of the background information used in the report will be copied and compiled for inclusion in the Water Division's files on those waterbodies. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Anvil Creek, Dry Creek, Glacier Creek, Nome River and Snake River).

Goldstream Creek This action was on the FY17 Grant Solicitation and funded

Geographic Location	Lat: 64.9846770 Long: -148.9005800 North of Fairbanks and flows through the Goldstream Valley.
Concerns and Sources of Problems	(Turbidity) Goldstream Creek is in the Waterbody Recovery Track with water quality being the primary concern due to turbidity associated with placer mining and other land use activities. Goldstream Creek was Section 303(d) listed in 1992 for non-attainment of the turbidity standard. The waterbody assessment at the time determined that existing controls were sufficient to address the turbidity issue and that a formal TMDL was not needed. The assessment contained a section on development of a management plan and a pollution control strategy. However, no further sampling was conducted to confirm that existing controls were sufficient until 2010. From 2010 to 2013 a water quality assessment was conducted. The creek was not meeting water quality standards and a TMDL was prepared and approved in 2015.
Goals & Objectives	(Implement actions specified in TMDL) Implement recommendations in the TMDL to improve water quality.
Priority Actions Summary	(Conduct education and outreach) The grantee will design and implement an outreach and education campaign. The audience is placer miners operating in the Goldstream Creek and nearby watersheds. The primary method of outreach should be "in person" activities, including workshops, face-to-face visits at mine sites and community meetings. Potential venues include the Fairbanks area small miners' meetings and breakfasts. The focus of the campaign is on water quality standards for turbidity, the effects of increased turbidity and sediment on fish, and discussing long term restoration opportunities with the community. Education must also include how to measure turbidity, including use of instruments and correct record keeping and quality assurance and build on work already being done by DEC. Grantee must have a nephelometric turbidimeter compliant with EPA method 180.1 for outreach activities.

Granite Creek	
Geographic Location	Lat: 57.1013370 Long: -135.3998360 3 miles NW Sitka, Alaska; Southeast Alaska - Halibut Point Recreation Center
Concerns and Sources of Problems	(Turbidity) Granite Creek is in the Data Collection and Monitoring Track, with water quality and habitat as primary concerns. Granite Creek was placed on the Section 303(d) list in 1996 for non-attainment of the criteria for turbidity and sediment. Data showed that the lower 1.5-mile section of the creek is impaired from sediment and turbidity. A TMDL was completed in 2002, and Granite Creek was removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2002/2003 Integrated Report. Priority actions for this water include implementing actions identified in the Granite Creek TMDL Watershed Recovery Strategy and Action Plan (March 2002). Granite Creek has been monitored for turbidity and total suspended solids as part of the TMDL Implementation Plan through ACWA grants since 2001. Twelve years of water quality data shows a consistent decrease in turbidity concentrations due to structural Best Management Practice (BMP) and stormwater control implementation. The 2015 TMDL Revision, uses data collected from 2002-2013 to calculate new load capacities and turbidity limits, and develop waste load allocations. Granite Creek is meeting Alaska Water Quality Standards and the revised TMDL load and wasteload allocations. There is no current persistent turbidity impairment in Granite Creek. The turbidity and sediment impairment for Granite Creek is proposed for removal from Category 4a list and placement in Category 2 in the 2016 Integrated Report. (Instream flow) No instream flow protection exists, streamflow data needed.
Goals & Objectives	(Meet water quality standards and remove impairment status) Finalize the revised TMDL, and propose moving Granite Creek into Category 2 in the 2016 Integrated Report. Follow permit sampling results for compliance of wasteload allocations required by the Revised TMDL. (Protect and maintain instream flow and aquatic habitat)
Priority Actions Summary	(Collect Data) In consultation with ADF&G and/or DNR, follow USGS methods to collect streamflow data that will meet the requirements for reservation of water application to protect fish and wildlife habitat. Five years of data are needed. Establish appropriate site(s) and elevation reference marks relative to water surface, and use electronic sensors and data

	loggers to record continuous water stage. Measure discharge accurately at the range of flows during all seasons for developing a stage-discharge relationship (rating) and an annual record of mean daily flows.

Gunnuk Creek

Geographic Location	Lat: 56.9694444 Long: -133.9319444 Kake, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Sediment) Gunnuk Creek is in the Data Collection and Monitoring Track with water quality (siltation/sedimentation) being the primary concern. The water is currently listed in the 2012 Integrated Report in Category 3 - data or information is insufficient to determine whether the Water Quality Standards (WQS) for any designated uses are attained.
Goals & Objectives	(Determine the existing condition of the water body) Determine the existing condition of the waterbody.
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Halibut Cove

Geographic Location	Lat: 59.5990000 Long: -151.1860000 Southcentral - Kachemak State Part and Wilderness Area
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Halibut Cove is in the Data Collection and Monitoring Track because of a concern for pollution from onsite septic systems.
Goals & Objectives	(Protect and maintain water quality) Protect water quality and existing designated uses.
Priority Actions Summary	(Collect Data) Using a DEC approved Quality Assurance Project Plan (QAPP), conduct bacteria monitoring from discrete sampling locations to determine if designated uses are being impacted. Sampling should be done twice a month between May and September.

Hatchery Creek	
Geographic Location	Lat: 55.9411111 Long: -132.9708333 Prince of Wales Island, Southeast Alaska - Tongass National Forest
Concerns and Sources of Problems	(Residues) Hatchery Creek is in the Data Collection and Monitoring Track with water quality (residues: debris, foam and scum) being the primary concern. The water is currently listed in the Draft 2012 Integrated Report in Category 3 - data or information is insufficient to determine whether the Water Quality Standards (WQS) for any designated uses are attained. The Prince of Wales Island Unified Watershed Assessment (dated December 2014, Version 1.0) can be found at G:\Water\WQ\WQAM\WQ Assessment and Reporting\Integrated Report\waterbody info\Southeast\Prince of Wales.
Goals & Objectives	(Determine the existing condition of the water body) Determine the existing condition of the waterbody.
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Hawk Inlet	
Geographic Location	Lat: 58.0963880 Long: -134.7746090 Juneau, Alaska; Southeast Alaska - Admiralty Island National Monument
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Hawk Inlet is in the Data Collection and Monitoring Track with water quality (metals) being the primary concern. Two potential areas of concern currently exist in Hawk Inlet: Greens Creek Mine and Northern end of Hawk Inlet. • Greens Creek Mine is located on the western side of Admiralty Island, 20 miles southwest of Juneau, on the southern end of Hawk Inlet. Operations began in August 1989, were suspended in April 1993, and were re-commissioned in mid-1996. Zinc, lead, silver, and gold are the target recovery metals. The mine has an APDES permit (AK-004320-6) for wastewater and stormwater discharge. Annual monitoring includes: aquatic biomonitoring (2002-2015); fresh water monitoring (2002-2015); tailings and production rock, and inactive production rock and quarries (2001-2015); and Hawk Inlet water, sediment and biota (2005-2015). The Greens Creek Mine Ore Concentrate Loading Area is listed in the 2012 Section 303(d) list for non-

	attainment of toxic and other deleterious organic and inorganic substances (metals of cadmium, copper, lead, mercury, and zinc) for marine water uses. In 1989, an ore concentration spill occurred at the loading dock area. Marine sediment samples exceed NOAA SQuiRT Effect Range Low (ERL) screening benchmarks for cadmium, copper, lead, mercury, and zinc. Marine water samples meet State water quality standards. The total area of concern is approximately 1.12 acres, as determined by establishing a perimeter around the loading dock and the sampling locations. • The northern end of Hawk Inlet (monitoring station S-3) is located on the northwestern side of Admiralty Island, 17 miles southwest of Juneau, on the north end of Hawk Inlet, and about 7 miles from Greens Creek Mine. Exact sources contributing to the metals concentrations at station S-3 are unknown, but potential sources include nonpoint sources such as historic runoff from abandoned mines, natural sources, and internal loading.
Goals & Objectives	(Determine the existing condition of the water body) Conduct an extensive data analyses to identify potential sources to Hawk Inlet and to evaluate spatial or temporal trends.
Priority Actions Summary	(Collaboration) Continue collaboration with Greens Creek mine, agencies and stakeholders regarding water, sediment and biota sampling. The APDES permit requires the mine to monitor water quality, sediment, and biological conditions in receiving waters and marine environments that might be affected by the mine's operations. (Develop planning documents) A TMDL for Hawk Inlet is in progress. DEC will continue work with EPA and its contractor on the TMDL development. TMDL completion is planned for end of 2016.

Herring Bay Creek

Geographic Location	Lat: 55.3278990 Long: -131.5330410 near Ketchikan, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Habitat degradation) Herring Bay Creek is in the Adequately Protected Waterbodies Track. The former Herring Bay Lumber Company site, located on the South Tongass Highway several miles south of Ketchikan, operated from 1954 until 2001. Heavy equipment, lubricants, wood treatment fluids, diesel and gasoline, and used oil have historically been used and stored at the site. Following environmental investigations and remedial actions, a Conditional Closure was approved and Institutional Controls were established and recorded in 2004. The Herring Bay

	Lumber Company\NFRAP Decision letter is attached in the document tab. The site is currently occupied by the Alaska Rainforest Sanctuary and includes an interpretive center; the old lumber mill has been incorporated into the tour. See the Contaminated Site Program database at http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/1993 for current Institutional Control inspection reports.
Goals & Objectives	(Protect and maintain water quality) Protect and maintain water quality.
Priority Actions Summary	(Collaboration) Continue collaboration with agencies and stakeholders on water quality issues.

Hoadley Creek This action was on the FY17 Grant Solicitation and not funded.

Geographic Location	Lat: 55.3535740 Long: -131.6880080 Ketchikan, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Urbanization) Hoadley Creek is in the Data Collection and Monitoring Track with water quality and habitat being primary concerns. The waterbody is currently in the draft 2012 Integrated Report in Category 3 - data or information is insufficient to determine whether the Water Quality Standards (WQS) for any designated uses are attained. The waterbody has numerous outfalls, surface runoff, and stream bank and flow modifications.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to develop a water quality assessment to determine the impacts of urban development and the associated pollution sources in the Ketchikan watersheds.
Priority Actions Summary	(Collect Data) Hoadley Creek is in the Data Collection and Monitoring Track with water quality and habitat being primary concerns. Conduct the second year of water quality monitoring and optional biotic community assessment in Carlanna, Hoadley and Ketchikan Creeks, Ketchikan Alaska. The second year of monitoring must be design to collect sufficient data to determine the health of these waters based on Alaska's Water Quality Standards. The data could also be used to support restoration options, if needed. The baseline assessment (Ketchikan Creeks: Stormwater Quality Assessment dated August 2014) concluded that ammonia and fecal coliform concentrations exist above WQS, suggesting a wastewater source. Metal concentrations of copper, zinc, and lead in water were above WQS, and copper and cadmium in sediment were above the acute and chronic toxicity screening levels in the National Oceanic and

	Atmospheric Administration (NOAA) Screening Quick Reference Table (SQuiRT). Data show a decreasing trend in stream health. Juvenile Coho salmon were found with atypical parr markings (cause undetermined). Using the first year baseline study results and DEC's "listing methodologies" revise the Quality Assurance Project Plan (QAPP) and develop an updated sampling plan. Applications should propose the following schedule: • Fall 2016/Winter 2017 – revise QAPP and update sampling plan • Spring, Summer, Fall 2017 – sampling • Fall 2017/Winter 2018 – prepare draft and final reports. At minimum, the second year of monitoring must capture all of the components included in the first year baseline study with the following changes: no polyaromatic hydrocarbon sediment analytical tests are required, E.coli water analytical tests must be conducted in addition to fecal coliform testing, and the sediment sample collection must be designed to evaluate sediment concentrations with and without storm drain sediment basins. Sample locations must mirror the locations from the baseline assessment (total of 7-10 creek samples, 3-5 outfall samples and 3 background references) and capture all flow regimes (spring flow, summer base flow and fall storm event). The applicant may propose to include biotic assessments to document stream health and determine if parr marks on Coho salmon fry are abnormal or a normal variation; the applicant should present this budget separately from the water quality monitoring project budget. The applicant must review, compile and enter the sampling data using a DEC-supplied template. DEC will provide guidance on how to use the templates for this project. The applicant must evaluate results against state water quality standards and NOAA sediment screening levels. Prepare a draft and final project report including findings and conclusions, and incorporating DEC comments. Include a task to inform the community and City/Borough of Ketchikan about the project (both initial sampling plans and results) at public forums. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Carlanna, Hoadley and Ketchikan Creeks). This action is eligible for two-year funding. Contact Gretchen Pikul (465-5023) for more information. (Conduct education and outreach) In collaboration with watershed residents, businesses, local community members, local watershed/environmental and/or tribal entities, resource agencies and other stakeholders (City/Borough of Ketchikan, etc.) develop and implement an educational program focused on the application of best management practices (BMPs) to reduce non-point source pollution related to debris, snow removal, and road runoff, and animal waste collection to improve water quality and aquatic habitat within the watershed. Development of web-based educational tools (e.g., short educational videos), signage, and traditional

	educational materials is required. Existing or new educational material must be distributed to property owners adjacent to the waterbody/riparian area. Material should contain information for agencies and organizations that can assist property owners wishing to implement recommendations made in outreach materials. Interactive community gatherings/workshops, such as hosting tours of related low-impact development (LID), reduction of urban influences, and habitat restoration in the Ketchikan area, and stream clean-up activities are required. Use of all available recovery and water quality monitoring plans is necessary. This action must be conducted throughout the urban Ketchikan watersheds, and include Carlanna, Hoadley, and Ketchikan Creeks. Contact the Southeast region office (465-5023) for recent and ongoing watershed studies.

Iliamna Lake

Geographic Location	Lat: 59.5176030 Long: -155.2725220 Southcentral: Lake and Peninsula Borough - Lake Clark National Preserve
Concerns and Sources of Problems	(Sediment) Lake Iliamna is in the Data Collection and Monitoring Track with sediment from development a concern. Ongoing development from placer mines and road building and maintenance could increase the amount of sediment entering the lake.
Goals & Objectives	(Protect and maintain water quality) Maintain water quality for all designated uses.
Priority Actions Summary	(Collaboration) Working with other state, federal and local agencies to monitor construction and placer mining permits to make sure proper BMPs are implemented to address sediment in waste water discharges.

Iliuliuk Harbor This action was on the FY17 Grant Solicitation and not funded

Geographic Location	Lat: 53.8773530 Long: -166.5533350 located in Dutch Harbor, Unalaska
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Iliuliuk Harbor is in the Waterbody Recovery Track with water quality and aquatic habitat being the primary concern. Iliuliuk Harbor was listed as an impaired waterbody for petroleum hydrocarbons in 1990. Monitoring conducted by the DEC in 2007–2008 found that Iliuliuk Harbor remains impaired for petroleum, specifically polycyclic aromatic hydrocarbons (PAH), due to oil sheens on bottom sediments.

	Surface water quality in Iliuliuk Harbor currently meets applicable water quality criteria for petroleum hydrocarbon concentrations. A Total Maximum Daily Load (TMDL) was approved in 2010 that addresses PAHs in bottom sediments. PAHs may be causing deleterious effects to aquatic life. Sediment contamination is thought to be primarily the result of historic spills and releases on the uplands and on water, which have been spread throughout the area by rain, wind, and tidal and wave action. Current activities at docks and harbors may be adding to the historic pollution.
Goals & Objectives	(Implement actions specified in TMDL) The petroleum hydrocarbon TMDL developed for Iliuliuk Harbor outlined several implementation actions to help reduce additional hydrocarbon pollution to the harbor.
Priority Actions Summary	(Collaboration) The grantee will convene a group of stakeholders to develop uniform best management practices for area docks and harbors given that the most elevated concentrations of PAHs in sediments occur at these locations. The group should include private enterprises that would be directly affected, tribal organizations, interested non-government organizations, and local, state, and federal government agencies that have a presence in Iliuliuk and Dutch Harbors. This action must include similar work on Dutch Harbor since the waters are connected. The project must provide a final report on the work conducted, participants and outcomes. (Implement watershed restoration plan or TMDL) Encourage City of Unalaska to participate in the Alaska Clean Harbors program. Assist them with the certification process. Work must include waters of Dutch Harbor waters.

Illinois Creek

Geographic Location	Lat: 65.1859120 Long: -153.0734540 Confluence w/ the Yukon River, north bank, approximately 50 km downstream from the confluence of the Tanana River. -
Concerns and Sources of Problems	(Habitat degradation) The Illinois Creek Gold Mine is a remote gold mine located on state land approximately 51 miles south of Galena, Alaska. It is a fly-in mine without road access. USMX of Alaska, Inc. originally permitted the mine in 1996. Construction began in June, 1996. After some corporate changes and mergers, the mining companies responsible for the mine eventually dissolved, the financier abandoned its ownership rights, and the State of Alaska inherited operating responsibility for the mine in July 1999. DNR entered into a contract with American Reclamation Group, LLC to reclaim the mine. ARG was to use a combination of proceeds from further mining and the

	remaining reclamation bond to reclaim the mine. ARG finished reclaiming the site in the Fall of 2005. At this time the company has no further responsibility for the site. Following reclamation by American Reclamation Group, the agencies (AEDC and ADNR) will now assume the responsibility to monitor the site and to manage unexpected post-reclamation problems.
Goals & Objectives	(Determine the existing condition of the water body) A complete and detailed assessment is needed.
Priority Actions Summary	(Collect Data) Agencies need to collaborate to conduct a comprehensive assessment of the current condition of this stream. The assessment should include, water quality samples, fish and riparian habitat survey, fish passage barrier identification.

Indian River

Geographic Location	Lat: 57.0478970 Long: -135.3157280 Sitka, Alaska; Southeast Alaska - Sitka National Historic Park
Concerns and Sources of Problems	(Other) On March 3, 2016, U.S. Army Corps of Engineers approved the modification of Southeast Alaska Land (SEAL) Trust's In Lieu Fee program instrument to add the Indian River site and the site's approved mitigation plan to the instrument. The mitigation project purchased a 10.3-acre parcel owned by Sheldon Jackson College. The parcel is slated to be donated to the Alaska Raptor Center, in exchange for a Conservation Easement on the parcel and an 8-acre portion of the abutting Alaska Raptor Center for preservation.
Goals & Objectives	(Maintain water quality to meet designated uses) Maintain water quality to meet designated uses.
Priority Actions Summary	(Collaboration) Continue collaboration with agencies and stakeholders on maintain water quality to meet designated uses.

Jim Lake

Geographic Location	Lat: 61.5541300 Long: -148.9283470 Palmer
Concerns and Sources of Problems	(Sediment) Jim Lake is in the Data Collection and Monitoring Track with impacts to habitat being the primary concern. Sedimentation from access point could be impacting adjacent spawning grounds for sockeye and coho.

Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Improve access point to minimize or eliminate sedimentation.
Priority Actions Summary	(Develop planning documents) Because this is a designated public use area ADF&G and DNR Parks need to collaborate and develop a plan to improve access to Jim Lake to prevent further sedimentation of spawning grounds.

Jordan Creek

Geographic Location	Lat: 58.3569444 Long: -134.5694444 Juneau, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Urbanization) Jordan Creek is in the Waterbody Recovery Track with water quality and aquatic habitat being primary concerns. Jordan Creek was placed on the Section 303(d) list in 1998 for non-attainment of the residues (debris), dissolved gas (low DO), and sediment criteria. Sampling and restoration efforts include water quality monitoring, stream cleanup events, and stormwater best management practices demonstration sites. Excess sediment in the creek lead to poor survival of salmon eggs and low oxygen readings in the substrate. The creek is largely spring fed and cannot transport large volumes of sediment. The stream corridor is under development, considerable iron flocculate deposits are observed, and the lower section regularly goes dry. TMDLs were complete for residues (2005) and for dissolved gas and sediment (2009) and Jordan Creek was removed from the Section 303(d) list and moved to Category 4a. Past efforts include water quality sampling (DO, conductivity, pH, turbidity, total suspended solids, water temperature) from 2003-2013, yearly community cleanup events, and construction of stormwater best management practices (BMPs) demonstration sites (2009 and 2015). A rain garden, bioswale and snow fence has been constructed adjacent to Jordan Creek, at the Airport Shopping Center south of the Glacier Highway. The green infrastructure project will intercept the urban runoff prior to entering the creek, and deter direct discharge of contaminated snow and snow melt into the creek.
Goals & Objectives	(Implement actions specified in TMDL) The goal is to meet water quality standards and remove impairment status. The goal can be reached by implementing the actions outlined in the Watershed Recovery and Management Plans and the two TMDLs to address sediment and dissolved oxygen (DO). The DO is associated with low interstitial DO concentrations found in the streambed, not within the water column. Studies conclude that low interstitial DO concentrations are caused by an accumulation of fine sediment in stream gravels.

Priority Actions Summary	(Implement watershed restoration plan or TMDL) Implement Watershed Recovery and Management Plans and TMDL recommendations for the impairments of sediment and DO. Three objectives were identified to address these impairments: prevent and reduce erosion; maintain and improve riparian areas; and improve snow removal and storage practices. Each objective has detailed actions and is outlined in the 2009 Jordan Creek TMDL and Watershed Recovery and Management Plans.

Kasilof River

Geographic Location	Lat: 60.3890000 Long: -151.3030000 Kenai Peninsula, drainage from Tustumena Lake to Cook Inlet, 17 miles
Concerns and Sources of Problems	(Habitat degradation) The Kasilof River is in the Adequately Protection Waterbodies Track. The popularity of the Kasilof River personal use fishery is putting increased demands on the lower river and beach resources at the mouth of the river. The recent creation of a DNR/DOML&W "Special Use Area" may help alleviate habitat destruction concerns but no data has been collected to assess past and future damages.
Goals & Objectives	(Reduce pollutant loading and improve water quality) Ensure water quality and shoreline habitat isn't adversely impacted by the personal use fishery.
Priority Actions Summary	(Develop planning documents) Working with DNR-DML&W evaluate fish waste handling practices personal use fishery and off road vehicle use to ensure water quality is maintained and shoreline habitat doesn't degrade further.

Katlian River

Geographic Location	Lat: 57.1708333 Long: -135.2750000 Southeast, North of Sitka
Concerns and Sources of Problems	(Turbidity) Katlian River is in the Waterbody Recovery Track with water quality and aquatic habitat being primary concerns. Katlian River was Section 303(d) listed as impaired in 1998 for non-attainment of the sediment and turbidity standards. Potential threats to the water quality and fish habitat included sedimentation and turbidity associated with past land use. The harvest of riparian timber, and the road system location and lack of maintenance created the following concerns: decreased channel stability, landslides and small slope failures, increased sediment levels, loss of aquatic habitat, siltation of holding pools for migrating salmon, and alteration of watershed hydrology. Watershed effects were believed to

	have resulted in use (aquatic life) impairment. The 2003 Katlian watershed assessment indicates that most sediment sources within this watershed are natural and there is little likelihood for effective mitigation outside of restoring riparian composition and function, minor road repairs and preventing any further management induced disturbances. Latest report is too large to include in ACWA database document tab, find at G:\Water\WQ\WQAM\WQ Assessment and Reporting\Integrated Report\waterbody info\Southeast\Katlian - Nakwasina\Katlian.
Goals & Objectives	(Determine the existing condition of the water body) A teleconference in January 2015 concluded that the US Forest Service (USFS) would: compare the Katlian watershed to the Nakwasina watershed assessment; evaluate Katlian watershed conditions and the potential major sediment sources; and determine any restoration opportunities. Teleconference participants included/invited were EPA, DEC and the landowners USFS and Shee Atika. Due to budgetary/staff constraints, the Forest Service rescheduled the evaluation to the 2016 field season, and plans to re-engage the interagency group in late 2016 to discuss next steps.
Priority Actions Summary	(Collaboration) Collaborate with the agencies and landowners to evaluate the Katlian River watershed condition and future actions.

Kenai River **This action was on the FY17 Grant Solicitation and funded.**

Geographic Location	Lat: 60.5485000 Long: -151.2628000 Kenai Peninsula, Alaska. Drainage from Kenai Lake, ~82 miles long - Kenai National Wildlife Refuge, Kenai River State
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) The Kenai River is in the Data Collection and Monitoring Track with water quality and habitat being the primary concerns. Historically, the river was impaired for petroleum hydrocarbons. In 2010, the State removed the hydrocarbon impairment status after two years of intensive data collection showed the lower river was meeting water quality standards. Periodic monitoring continues to help insure the river continues to meet standards.
Goals & Objectives	(Protect and maintain water quality) Through water quality monitoring and other actions designed to protect waters insure water quality standards are still being met.
Priority Actions Summary	(Collect Data) The Kenai Watershed Forum's baseline water quality survey of data collected between 2000 and 2014

	(http://dec.alaska.gov/water/wqsar/pdfs/Reports/Kenai-River-Report-2000-2014.pdf) identified trends of rising levels of zinc and copper in recent years. Zinc pollution may be associated with degradation of the galvanized coating applied to culverts. Copper pollution may be associated with stormwater runoff from roads and parking lots. The grantee will collect information about the age and relative condition of culverts in the Middle and Lower Kenai River system. The grantee will also collect and analyze records of traffic on the Sterling Highway from Cooper Landing to Soldotna from 2010-2015, focusing on the numbers of vehicles traveling the highway. The grantee will then produce a draft and final report on the data collection and analysis. The grantee will make a short presentation to the Kenai River Special Management Area (KRSMA) Board and the Kenai Borough Planning Commission on the results of the data collection and analyses. As a separate task, the grantee will conduct a literature search on sources of zinc and copper pollution in waterways and produce a final report on the results of the literature search.

Ketchikan Creek This action was on the FY17 Grant Solicitation and not funded.

Geographic Location	Lat: 55.3416666 Long: -131.6388888 Southeast, Ketchikan
Concerns and Sources of Problems	(Urbanization) Ketchikan Creek is in the Data Collection and Monitoring Track with water quality and habitat being primary concerns. The waterbody is currently in the draft 2012 Integrated Report in Category 3 - data or information is insufficient to determine whether the Water Quality Standards (WQS) for any designated uses are attained. The waterbody has numerous outfalls, surface runoff, and stream bank and flow modifications.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to develop a water quality assessment to determine the impacts of urban development and the associated pollution sources in the Ketchikan watersheds.
Priority Actions Summary	(Collect Data) Ketchikan Creek is in the Data Collection and Monitoring Track with water quality and habitat being primary concerns. Conduct the second year of water quality monitoring and optional biotic community assessment in Carlanna, Hoadley and Ketchikan Creeks, Ketchikan Alaska. The second year of monitoring must be design to collect sufficient data to determine the health of these waters based on Alaska's Water Quality Standards. The data could also be used to support restoration options, if needed. The baseline assessment (Ketchikan Creeks: Stormwater Quality

	Assessment dated August 2014) concluded that ammonia and fecal coliform concentrations exist above WQS, suggesting a wastewater source. Metal concentrations of copper, zinc, and lead in water were above WQS, and copper and cadmium in sediment were above the acute and chronic toxicity screening levels in the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Table (SQuiRT). Data show a decreasing trend in stream health. Juvenile Coho salmon were found with atypical parr markings (cause undetermined). Using the first year baseline study results and DEC's "listing methodologies" revise the Quality Assurance Project Plan (QAPP) and develop an updated sampling plan. Applications should propose the following schedule: • Fall 2016/Winter 2017 – revise QAPP and update sampling plan • Spring, Summer, Fall 2017 – sampling • Fall 2017/Winter 2018 – prepare draft and final reports. At minimum, the second year of monitoring must capture all of the components included in the first year baseline study with the following changes: no polyaromatic hydrocarbon sediment analytical tests are required, E.coli water analytical tests must be conducted in addition to fecal coliform testing, and the sediment sample collection must be designed to evaluate sediment concentrations with and without storm drain sediment basins. Sample locations must mirror the locations from the baseline assessment (total of 7-10 creek samples, 3-5 outfall samples and 3 background references) and capture all flow regimes (spring flow, summer base flow and fall storm event). The applicant may propose to include biotic assessments to document stream health and determine if parr marks on Coho salmon fry are abnormal or a normal variation; the applicant should present this budget separately from the water quality monitoring project budget. The applicant must review, compile and enter the sampling data using a DEC-supplied template. DEC will provide guidance on how to use the templates for this project. The applicant must evaluate results against state water quality standards and NOAA sediment screening levels. Prepare a draft and final project report including findings and conclusions, and incorporating DEC comments. Include a task to inform the community and City/Borough of Ketchikan about the project (both initial sampling plans and results) at public forums. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Carlanna, Hoadley and Ketchikan Creeks). This action is eligible for two-year funding. Contact Gretchen Pikul (465-5023) for more information. (Conduct education and outreach) In collaboration with watershed residents, businesses, local community members, local watershed/environmental and/or tribal entities, resource agencies and other stakeholders (City/Borough of Ketchikan, etc.) develop and implement an educational program focused

	on the application of best management practices (BMPs) to reduce non-point source pollution related to debris, snow removal, and road runoff, and animal waste collection to improve water quality and aquatic habitat within the watershed. Development of web-based educational tools (e.g., short educational videos), signage, and traditional educational materials is required. Existing or new educational material must be distributed to property owners adjacent to the waterbody/riparian area. Material should contain information for agencies and organizations that can assist property owners wishing to implement recommendations made in outreach materials. Interactive community gatherings/workshops, such as hosting tours of related low-impact development (LID), reduction of urban influences, and habitat restoration in the Ketchikan area, and stream clean-up activities are required. Use of all available recovery and water quality monitoring plans is necessary. This action must be conducted throughout the urban Ketchikan watersheds, and include Carlanna, Hoadley, and Ketchikan Creeks. Contact the Southeast region office (465-5023) for recent and ongoing watershed studies.

Klag Bay

Geographic Location	Lat: 57.6711100 Long: -136.1000000 75 miles north of Sitka
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Klag Bay is in the Waterbody Recovery Track with water quality being the primary concern due to contaminated sediments from historic mining operations. From 1906-1942 the Chichagof Mining Company operated gold and silver mines, using mercury amalgamation process and cyanide method processing. Studies conducted by the Fish and Wildlife Service (USFWS) and EPA documented high levels of metals (arsenic, cadmium, cobalt, copper, lead, manganese, mercury, silver, and zinc) in the bay's sediments that appear to be causing abnormalities in blue mussels. Klag Bay was subsequently placed on the 1996 303(d) list. Based on the Mercury in Bald Eagle Blood and Marine Invertebrates from Klag Bay, Chichagof Island, Alaska (USFWS, 2001), the State Environmental Public Health Program (EPHP) concluded that eating clams and mussels from Klag Bay does not pose an appreciable health risk. A 2009 TMDL for metals

	impairments moved the water from Category 5 to Category 4a. Based on the WLA, no future discharge of mine waste is permitted in the area until such time as the WQS are met or the TMDL is revised. The TMDL recommended monitored natural attenuation, institutional controls (future development restrictions), and posting warning signs. In August 2014, DEC conducted more sampling of mussels and clams to evaluate whether recreational and subsistence harvesting of seafood in Klag Bay, Alaska poses any health risk. The study reported similar metal concentrations in sediment and shellfish. Arsenic and mercury were detected in sediments exceeding the PEL values. The shellfish metal concentration data confirms that at least some partition of the metals present in the tailings are bioavailable and are bioaccumulating. The EPHP reviewed the 2014 data and concluded that based on existing contaminant data, eating clams and mussels from Klag Bay does not pose an appreciable risk to public health. Warning signs are currently posted at the Klag Bay Mine.
Goals & Objectives	(Implement actions specified in TMDL) Implement actions specified in TMDL.
Priority Actions Summary	(Implement watershed restoration plan or TMDL) Continue to implement TMDL recommendations of monitored natural attenuation, institutional controls (future development restrictions), and repair and maintenance of warning signs, as necessary. (Conduct education and outreach) Create and distribute educational/outreach materials (e.g., short educational videos) in the Sitka community describing the environmental concerns present in Klag Bay and the potential health concerns to sport/commercial/subsistence shellfish consumers. Information will be provided by the DEC/Alaska Department of Fish & Game.

Kobuk River

Geographic Location	Lat: 66.9074480 Long: -160.6544490 from headwaters to Hotham Inlet
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) The City of Ambler has a discharge permit for sewage to the Kobuk River. Spills were reported in 2008 and 2010, and breaches of the lagoon were noted to be an on-going problem.
Goals & Objectives	(Determine the existing condition of the water body)
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Kotzebue Lagoon	
Geographic Location	Lat: 66.8750000 Long: -162.6166666 Northwest tip of the Baldwin Peninsula. Includes Kotzebue Lagoon and the city shoreline along Kotzebue Sound.
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Kotzebue Lagoon is in the Data Collection and Monitoring Track with petroleum hydrocarbons being the primary concern. Petroleum hydrocarbons exceeding contaminated sites clean-up levels have been observed in pore water.
Goals & Objectives	
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards. Coordinate with the DEC's Contaminated Sites Program to evaluate extent of contamination.

Lake Lucille (also spelled Lucile) This action was on the FY17 Grant Solicitation and not funded.	
Geographic Location	Lat: 61.5747490 Long: -149.4735430 Wasilla, Alaska; lake surface acres: 362,shoreline: 4.3 miles
Concerns and Sources of Problems	(Urbanization) Lake Lucille is in the Waterbody Recovery Track with water quality being a primary concern. In 1994 the Department of Environmental Conservation (DEC) listed Lake Lucille on the Clean Water Act Section 303(d) list as impaired for low dissolved oxygen and nutrients. In 2002, a Total Maximum Daily Load (TMDL) was completed. Increased phosphorus loading has led to a reduction in dissolved oxygen. The City of Wasilla will begin using a "weed harvester" in summer of 2016 to reduce aquatic vegetation. In 2004 and 2005 DEC documented seasonal and localized petroleum water quality standard exceedances from motorized watercraft recreational uses of the lake near the public boat launch. Lake Lucille is a receiving water for the Department of Transportation (DOT) and City of Wasilla's stormwater drainage system. There are two active stormwater discharge outfalls into Lake Lucille along the north shore. One is in the east end of the lake and the other in the west end. Stormwater quality studies conducted by DEC in 2011 - 2013 indicate metals (copper, lead and zinc) and polycyclic aromatic hydrocarbons (PAH) pollution in the lake bed sediment above recommended levels for aquatic life

	surrounding both outfall discharge points extending several meters across the lake.
Goals & Objectives	(Maintain water quality to meet designated uses) Meet water quality standard designated uses for copper, lead, zinc and PAH in the lake bed sediments at both stormwater outfall discharge areas. Develop and continue implementing pollution prevention controls within watershed with a focus on reducing the volume and toxicity of stormwater runoff to the lake.
Priority Actions Summary	(Develop planning documents) The grantee will develop a stormwater management plan and cost estimates to reduce the amount of metals and PAH being discharged through the two stormwater outfalls into Lake Lucille. The main source for the metals and hydrocarbons in the stormwater is motorized vehicles and oils and grease washed from the Parks Highway, area parking lots and roads that is collected in the stormwater system during times of runoff. Addressing stormwater discharges to the lake will also assist in addressing the lake's low dissolved oxygen. The grantee will develop an enforceable long-term plan that addresses stormwater management practices to reduce the amount of stormwater discharged to the lake as well as implement management practices to improve the stormwater quality (e.g., fewer pollutants). To be eligible, this action must demonstrate local government (City of Wasilla) and Alaska Department of Transportation (DOT) support. (Conduct education and outreach) Work with the City of Wasilla to post a metal sign that has clean boating tips at the public boat launch. The sign template is available from DEC.

Lemon Creek

Geographic Location	Lat: 58.3511000 Long: -134.5072000 Juneau - Mendenhall Wetlands State Game Refuge
Concerns and Sources of Problems	(Turbidity) Lemon Creek is in the Waterbody Recovery Track, with water quality and aquatic habitat being primary concerns. Lemon Creek was placed on the 1990 Section 303(d) list for turbidity, sediment, and concerns about habitat modification. A waterbody recovery plan, that included a TMDL, was approved in 1995, and Lemon Creek moved to Category 4a in 1996. Waterbody recovery plan implementation began during fall 1995. The University of Alaska Southeast conducted a sediment assessment. This assessment defined concentrations of natural nonpoint source sediment within Lemon Creek, where active glacial processes contribute to sediment problems. A paired watershed study was conducted from May 2002 through June 2003 to determine the roles of glacier processes on watershed sediment discharge. This study concluded that in systems substantially influenced by

	glacier and mass wasting processes, the traditional TSS-Q (total suspended sediment-stream discharge) relationship is not particularly meaningful because some of the most pronounced sediment events are associated with processes that are not well correlated with stream discharge. Priority actions for this water include implementing control actions and monitoring as recommended in the TMDL document.
Goals & Objectives	(Meet water quality standards and remove impairment status) The goal is to meet water quality standards and remove impairment status. The goal can be reached by implementing the actions outlined in the 2007 Watershed Recovery and Management Plan and the 1995 TMDL to address sediment and turbidity with consideration of habitat modification.
Priority Actions Summary	(Implement watershed restoration plan or TMDL) Implement Watershed Recovery and Management Plan and TMDL recommendations for the impairments of sediment and turbidity. Four objectives were identified to address these impairments. 1. Verify that upland best management practices (BMPs) specified in the TMDL are being implemented. 2. Provide sufficient data to monitor the effectiveness of management controls employed on the creek by measuring changes in the turbidity/total suspended solids (TSS) relationship, and determine if WQS are being met. 3. Provide sufficient data to more accurately calculate source load determinations for the creek with specific emphasis on flow and the relationship of turbidity and TSS to account for seasonal variations and event related extremes. 4. Provide sufficient data to more accurately calculate the loading capacity of the creek with specific emphasis on turbidity, TSS and flow. Each objective has detailed actions, and are outlined in the 2007 Lemon Creek Watershed Recovery and Management Plan and the 1995 Lemon Creek TMDL..

Little Campbell Creek

Geographic Location	Lat: 61.1555770 Long: -149.8768780 Anchorage, Alaska tributary to Campbell Creek -
Concerns and Sources of Problems	(Instream flow) Little Campbell Creek is in the Waterbody Recovery Track. Increased development and water withdrawals could further reduce base flows in this watershed. An instream flow reservation is needed to ensure adequate water is available for fish and other aquatic life.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) A reservation of water is needed to ensure adequate water is available for fish and other aquatic life.
Priority Actions Summary	(Reservation of water) In consultation with ADF&G and DNR, compile biological, streamflow and other pertinent information

	to support an application(s) for a reservation of water according to procedures and regulations of the Alaska Water Use Act.

Little Rabbit Creek

Geographic Location	Lat: 61.0779360 Long: -149.8199240 South Anchorage, above Potter's Marsh
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Little Rabbit Creek is in the Waterbody Recovery Track with water quality being the primary concern due to fecal coliform bacteria pollution. The State of Alaska included Little Rabbit Creek on its 1998 303(d) list as water quality-limited due to fecal coliform, identifying urban runoff as the expected pollutant source. A TMDL was completed in 2004.
Goals & Objectives	(Meet water quality standards and remove impairment status) The goal is to initiate activities, implement best management practices and collect data to support removal of Little Rabbit Creek from the State's list of impaired waterbodies.
Priority Actions Summary	(Implement BMPs or erosion control measures) Implement or upgrade BMPs recommended in -2016 BMP assessment report based on the 2010 Aquatic Restoration & Research Institute Fecal Coliform Bacteria Assessment report.

Little Survival Creek

Geographic Location	Lat: 61.0665550 Long: -149.8004190 South Anchorage, small tributary to Potter's Marsh
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Little Survival Creek is in the Waterbody Recovery Track for fecal coliform bacteria pollution being the primary concern. The State of Alaska included Little Survival Creek on its 1998 303(d) list as water quality-limited due to fecal coliform, identifying urban runoff as the expected pollutant source. A TMDL was completed in 2004.
Goals & Objectives	(Meet water quality standards and remove impairment status) The goal is to initiate activities, implement best management practices and collect data to support removal of Little Survival Creek from the State's list of impaired waterbodies.

Priority Actions Summary	(Implement BMPs or erosion control measures) Implement or upgrade BMPs recommended in the 2016 BMP assessment report based on the 2010 Aquatic Restoration & Research Institute Fecal Coliform Bacteria Assessment report.

Little Susitna River This action was on the FY17 Grant Solicitation and funded

Geographic Location	Lat: 61.5147000 Long: -149.4714000 Matanuska Susitna Borough, Alaska; headwaters in Talkeetna mountains, crosses Parks Highway near Houston and empties into Cook Inlet. - Susitna Flats State Game Refuge
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) The Little Susitna River is in the Waterbody Protection Track, with water quality and aquatic habitat being primary concerns. The lower Little Susitna is at risk of water quality impairment from petroleum hydrocarbon pollution specifically total aromatic hydrocarbons (TAH). DEC conducted TAH sampling in 2007 - 2014 in the lower Little Susitna River upstream and downstream from the Public Use Facility (river mile 25). Sampling coincided with the Chinook salmon (May – June) and coho salmon (July – September) fisheries. Data collected has documented concentrations of TAH that exceed the water quality standard of 10 µg/L, especially during the coho fishery. The only known source of the hydrocarbons is motorized boat engines. Known affected river miles are 17 to 26.
Goals & Objectives	(Reduce pollutant loading and improve water quality) Reducing the amounts of petroleum hydrocarbon pollution entering the river is expected to improve water quality and better protect aquatic species.
Priority Actions Summary	(Conduct education and outreach) This action builds on the DEC's educational outreach campaign started in 2011. The campaign is designed to educate river users on the impacts of petroleum hydrocarbons and turbidity pollution to aquatic species and on ways to reduce this pollution. The campaign must target the appropriate user groups for the lower Little Susitna river recreational fishery, and other users accessing the public boat launch, through strategically timed on-the-ground outreach. This should include outreach on weekends or other expected busy times at the Public Use Facility during the height of the coho salmon fishery in August and Chinook fishery in late May - June. The education campaign should

	also include participating in the spring Mat-Su Outdoorsman Show with a staffed booth. The educational campaign must demonstrate measureable results such as the number of people reached. The campaign should also provide tools to help reduce petroleum to the river and alert boaters to the upcoming motor restrictions that become effective January 2017. Outreach should also educate boaters on the effects of excess turbidity on salmon and other aquatic species. A final project report that describes the outreach activities, public response and an evaluation of success including recommendations is required. Please apply under Stewardship actions and include similar work on Big Lake and Deshka River. The DEC has developed outreach materials that may be helpful. Contact Laura Eldred, 376-1855, for more information.

McRoberts Creek

Geographic Location	Lat: 61.5541666 Long: -148.9597222 Drains Matanuska Creek E of Palmer
Concerns and Sources of Problems	(Instream flow) No instream flow protection exists; the stream is subject to additional residential development and hydropower.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) A minimum of 5 years streamflow data are needed to achieve this goal.
Priority Actions Summary	(Reservation of water) Following USGS protocols, collect streamflow data to meet the requirements for reservation of water application to protect fish and wildlife habitat, migration, and propagation or for sanitary and water quality purposes. Establish appropriate site and permanent elevation reference marks, and use electronic sensors and data loggers to record continuous water levels; measure discharge to accurately adequately capture flow characteristics at the range of flows during all seasons for developing a stage-discharge relationship (rating). Provide data to ADF&G, DNR, or qualified contractor for analysis.

Mendenhall River

Geographic Location	Lat: 58.3652770 Long: -134.5988490 glaicial river near Juneau
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Mendenhall River is in the Protect and Maintain Waterbodies at Risk Track with water quality (pathogens and temperature noted in

	nomination, ranking, and scoring categories) being the primary concern. The Mendenhall Valley Sewage Treatment Plant is permitted to discharge to the Mendenhall River.
Goals & Objectives	Maintain water quality to meet designated uses) Adhere to permit requirements
Priority Actions Summary	(Collaboration) Review analytical data from permit requirements to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards

Montana Creek (Talkeetna)

Geographic Location	Lat: 62.1048260 Long: -150.0601960 Talkeetna in South Central. Flows into Susitna River. - Montana Creek State Recreation Site
Concerns and Sources of Problems	(Habitat degradation) Use of ATV's in stream and adjacent riparian area without regard to environmental damage and residential development along riparian corridor are of concern. Few protections or enforcement of existing laws.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Although instream flow protection exists, aquatic habitat remains vulnerable. Goal is to prevent further habitat degradation.
Priority Actions Summary	(Implement BMPs or erosion control measures) Landowner education and outreach program (e.g., short educational videos) to encourage landowners the importance of intact riparian habitats to fish productivity. Also, efforts directed to prevent ATVs riders from using stream as a trail.

Nakwasina River

Geographic Location	Lat: 57.2593080 Long: -135.3421100 Baranof Island, North of Sitka
Concerns and Sources of Problems	(Turbidity) Nakwasina River is in the Adequately Protected Waterbodies Track with water quality (turbidity) and aquatic habitat the primary concerns. Nakwasina River, on Tongass

	National Forest federal lands, was added to the 1998 Section 303(d) list for non-attainment of sediment and turbidity standards based on best professional judgment and visual observations. Historic riparian timber harvest was thought to have altered watershed hydrology, destabilizing the channel and creating excessive turbidity and sediment loads and degrading fish habitat. However, a two year water quality study funded by EPA and conducted by the US Forest Service (USFS), found turbidity levels within the natural range of variation and sediment sources to be predominantly of natural origin. During the USFS sampling, exceedance of state water quality standards for turbidity only occurred during extreme high water events (0.05%), which is consistent with natural occurring conditions. The Nakwasina River was moved from Category 5/Section 303(d) list to Category 2 in the Alaska's 2010 Integrated Report.
Goals & Objectives	(Protect and maintain water quality) Protect and maintain water quality.
Priority Actions Summary	(Collaboration) Maintain water quality and aquatic habitat to continue to meet Alaska Water Quality Standards.

Nancy Lake

Geographic Location	Lat: 61.6880000 Long: -150.0060000 Located at approximately mile 67 off the Parks Highway. Includes State recreation area - Nancy Lake State Recreation Area
Concerns and Sources of Problems	(Invasive species) Northern pike are known to inhabit Nancy Lake
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Ensure that northern pike do not degrade populations of native fish species.
Priority Actions Summary	(Collect Data) Assess the current population of northern pike to determine extent of colonization and level of risk to native species.

Nome River This action was on the FY17 Grant Solicitation and not funded.

Geographic Location	Lat: 64.4833333 Long: -165.3000000 Nome, Alaska
Concerns and Sources of Problems	(Turbidity) The Nome River is in the Data Collection and Monitoring Track with water quality and habitat as the primary

	concerns. Threats include sedimentation, turbidity, and metals. Other concerns include barriers to fish passage, bank erosion and riparian damage.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to evaluate the current water quality.
Priority Actions Summary	(Collect Data) Research and collect all available background information on water quality for selected waterbodies in the Nome area. This project involves collection of existing data and does not include any new field data collection. The inventory should include a review of published reports and solicitation of information from local organizations, universities, State and Federal agencies and others. The applicant will compile all information and prepare a draft and final report. Based on the data evaluation, the report should include a summary of data, identification of data gaps, and recommendations for future data collection. The report must also include an annotated bibliography with summaries of all data sources (including unpublished information and personal communications). To the extent feasible, electronic and hard copies of the background information used in the report will be copied and compiled for inclusion in the Water Division's files on those waterbodies. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Anvil Creek, Dry Creek, Glacier Creek, Nome River and Snake River).

Noyes Slough **This action was on the FY17 Grant Solicitation and funded.**

Geographic Location	Lat: 64.8424830 Long: -147.8089430 Tributary to Chena River and located in the Fairbanks City Limits.
Concerns and Sources of Problems	(Urbanization) Noyes Slough is in the Waterbody Recovery Track with water quality being the primary concern due to urban run-off and debris. There are no setback requirements in the Fairbanks area to protect against loss of riparian area. Riparian areas serve as a buffer that filter sediment and other pollutants from run-off before it enters waterbodies. A Total Maximum Daily Load (TMDL) for residues was completed in 2008 and a TMDL for petroleum hydrocarbons, oils and grease was completed in 2011. (Instream flow) "The present-day channels of the Chena River and Noyes Slough in downtown Fairbanks, Alaska, were formed as sloughs of the Tanana River, and part of the flow of the Tanana River occupied these waterways. Flow in these channels was reduced after the completion of Moose Creek Dike in 1945, and flow in the Chena River was affected by regulation from the Chena River Lakes Flood Control Project,

	which was completed in 1980. In 1981, flow in the Chena River was regulated for the first time by Moose Creek Dam, located about 20 miles upstream from Fairbanks. Constructed as part of the Chena River Lakes Flood Control Project, the dam was designed to reduce maximum flows to 12,000 cubic feet per second in downtown Fairbanks. Cross-section measurements made near the entrance to Noyes Slough show that the channel bed of the Chena River has been downcutting, thereby reducing the magnitude and duration of flow in the slough. Consequently the slough slowly is drying up. The slough provides habitat for wildlife such as ducks, beaver, and muskrat and is a fishery for anadromous and other resident species. Declining flow in the slough may endanger the remaining habitat. Residents of the community wish to restore flow in Noyes Slough to create a clean, flowing waterway during normal summer flows. The desire is to enhance the slough as a fishery and habitat for other wildlife and for recreational boating."
Goals & Objectives	(Implement actions specified in TMDL) Intentional refuse dumping regularly occurs on this waterbody which has led to its impaired status for residues. A Total Maximum Daily Load has been prepared for this water and to meet the TMDL goals, no residues should be present. (Protect and maintain water quality) Provide educational opportunities in the community to targeted user groups that will foster good stewardship and increase the use of best management practices. (Protect and maintain instream flow and aquatic habitat) Working with local community, stakeholders, city, state and federal officials, continue to work towards a feasibility analysis and/or develop a rehabilitation plan to augment flows in Noyes Slough.
Priority Actions Summary	(Implement watershed restoration plan or TMDL) A Total Maximum Daily Load for residues (debris/trash) was completed in 2008. Since 2005, the City of Fairbanks and co-permittees have organized an annual Stream Clean-Up event as one of the requirements of their Municipal Separate Storm Sewer System permit. While progress has been made to remove much of the large historic debris, hundreds of pounds of trash are still collected each year. The applicant will work with the City and co-permittees to conduct an evaluation of the slough and clean-up measures with respect to the residues TMDL. The evaluation must include an analysis of the effectiveness of current clean-up measures and on-the-ground surveys of the type and quantity of debris in the slough and at storm sewer system outfalls. A final report including data on past clean-up efforts, current status and progress, with an analysis of survey results, map of sites, and recommendations for decreasing dumping in the slough is required.

One Mile Creek	
Geographic Location	Lat: 59.2125000 Long: -135.4463888 A.k.a Holgate Creek; near Haines; entire creek
Concerns and Sources of Problems	(Urbanization) The stream is in the Protect and Maintain Waterbody at Risk Track with water quality and aquatic habitat being primary concerns and water quantity being a secondary concern. Threats to the stream include sedimentation and turbidity associated with land use (ATVs); and fecal coliform bacteria associated with failing septic systems and 2 animal operations. The creek forms a pond on the flats that is used for recreation (e.g., swimming, fishing) by local youths. This pond was closed in the early 2000s due to elevated fecal coliform; the levels have decreased in the mid-2000s after failed septic systems were replaced. This stream is in the Anadromous Waters Catalogue for Dolly Varden, cutthroat trout, pink salmon, and coho salmon spawning and rearing, and chinook salmon rearing. Instream flow reservations were filed on 3 reaches in 2011. One Mile Creek is locally known as Holgate Creek.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) Protect and maintain water quality to meet all designated uses.
Priority Actions Summary	(Conduct education and outreach) Working with DEC and other stakeholders, develop and implement an educational program aimed at watershed residents, businesses, and users, which addresses actions they can do to reduce non-point source pollution related to debris, snow removal, and road runoff into One-mile Creek. This includes community workshops, web-based educational tools, short educational videos, signage, and traditional educational materials. Existing or new educational material will be distributed to property owners adjacent to the waterbody/riparian area. Material should contain information for agencies and organizations that can assist property owners wishing to implement recommendations made in outreach materials.

Pederson Hill Creek	
Geographic Location	Lat: 58.3548830 Long: -134.6224190 Juneau,
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Pederson Hill Creek is in the Waterbody Recovery Track with water quality (fecal coliform bacteria) being the primary concern. The water was placed on the 303(d) list of impaired waterbodies in 1990

	for non-attainment of the fecal coliform bacteria water quality standards (WQS). Failing septic systems within the watershed were identified as the probable pollutant source. Fecal coliform bacteria contamination had been documented since 1985. A 2006 assessment and a 2008 TMDL for fecal coliform bacteria followed. The water moved from Category 5 to Category 4a in 2010. In 2011, city sewer was installed in the Pederson Hill Creek watershed; city sewer was not installed on Engineer Cut-off Road. Additional fecal coliform monitoring occurred in 2012, 2013, and 2014 showing fecal coliform bacteria above WQS; Microbial Source Tracking (MST) tests were also conducted on 2013 and 2014 samples. Both human and horse bacteroidetes were detected, however, the horse bacteroidetes were detected below instrument detection levels, and not quantifiable. Fecal coliform bacteria and human bacteroidetes continue to be detected in the surface water even though nearly all of the residential and commercial area buildings are connected to city sewer. Potential sources may be stormwater runoff from an upgradient horse stable, transient persons, camper vehicles discharging holding tanks, and/or break(s) in the city sewer system.
Goals & Objectives	(Meet water quality standards and remove impairment status) To determine what are the continued fecal coliform bacteria source(s) within Pederson Hill Creek. The best management practices of City sewer installation and educational efforts have been a positive effort, however, based on the continued elevated levels of fecal coliform bacteria further study and BMP implementation is necessary.
Priority Actions Summary	(Implement watershed restoration plan or TMDL) Determine fecal coliform bacteria source areas, and implement BMPs outlined in the TMDL.

Peterson Creek

Geographic Location	Lat: 58.2952600 Long: -134.6761180 Southeast, Northwest side of Douglas Island - Tongass National Forest
Concerns and Sources of Problems	(Urbanization) Potential development planned within the Peterson Creek watershed; based on the CBJ Comprehensive Plan.
Goals & Objectives	(Protect and maintain water quality) Protect and maintain water quality.
Priority Actions Summary	(Collaboration) Collaborate with agencies and stakeholders on future developments to maintain water quality in all designated uses.

Pullen Creek	
Geographic Location	Lat: 59.4511180 Long: -135.3189470 Skagway, Alaska
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Pullen Creek is in the Waterbody Recovery Track with water quality and aquatic habitat being primary concerns. Pullen Creek was placed on the Section 303(d) list in 1990 for non-attainment of the toxic and other deleterious organic and inorganic substances standard for metals, specifically cadmium, copper, lead, and zinc. The lower mile of Pullen Creek was previously listed with the Skagway Harbor Section 303(d) listing, but was segmented out into its own listing in the 2006 Integrated Report. Baseline water quality monitoring and a waterbody recovery plan for Pullen Creek was completed in 2006. Assessment results found no elevated levels of toxics in the water column. Elevated levels of lead, zinc, and barium were found in stream bottom sediments and adjoining banks. Elevated levels of metals were also found near railroad transport areas where ore was transported in the past. Several restoration projects which were completed in 2009. A TMDL was developed in 2010 and Pullen Creek was removed from the Section 303(d)/Category 5 list and moved to Category 4a in the 2010 Integrated Report. In 2012, the Taiya Inlet Watershed Council completed the Stormwater Best Management Practices: Protecting Pullen Creek, an Urban Stream; several BMPs noted in this report were completed in 2013. A rain garden at 11th and Broadway was completed in 2014/2015.
Goals & Objectives	(Meet water quality standards and remove impairment status) Protect and maintain water quality to meet all designated uses and remove impairment status. All new and existing development in the watershed should be managed according to the TMDL, waterbody assessment, the best management practices.
Priority Actions Summary	(Implement watershed restoration plan or TMDL) Continue to manage and implement the TMDL, waterbody assessment, and best management practices along Pullen Creek to meet all designated uses and remove the impairment status.

Salmon Creek	
Geographic Location	Lat: 58.3301790 Long: -134.4743300 Juneau; Southeast Alaska. - Tongass National Forest
Concerns and Sources of Problems	(Urbanization) Salmon Creek is in the Adequately Protected

	Track with water quality and aquatic habitat being impacted by urbanization are the primary concerns.
Goals & Objectives	(Protect and maintain water quality) Protect and maintain water quality.
Priority Actions Summary	(Collaboration) Collaborate with agencies and stakeholders to protect and maintain water quality. In May 2015 Juneau Wetland Review Board approved DOT project to widen the bridge and roadway at the Salmon Creek intersection; project slated for 2016.

Sarah Creek

Geographic Location	Lat: 59.4300000 Long: -136.3300000 a tributary to the Klehini River, approximately 38 mi. NW of Haines [Sarah Creek: local name]
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Sarah Creek is in the Data Collection and Monitoring Track with water quality being the primary concern due to potential future mining operations. The creek is an anadromous water (Stream code 115-32-10250-2077-3159) listed as Coho present; Takshanuk Watershed Council (TWC) has also found juvenile Coho salmon and cutthroat trout rearing in these waters and adult cutthroat trout present in the spring. The creek discharges into the Chilkat River. TWC began collecting in-stream flow information in anticipation of mine development in Sarah Creek headwaters. TWC gathered one of the five years of data needed to create a rating curve to obtain a water rights for this creek. TWC also performed 1 year (November 2011, and February, June and August 2012) of water quality monitoring targeting total and dissolved metals, and seasonal fish distribution assessment within the Porcupine mining district watershed. The results were below WQS. The Palmer Property (potential mine) is located in the Porcupine Mining area, 55 km northwest of Haines, Alaska, on the eastern margin of the Saint Elias mountain range. Based on a June 3, 2015 news release, field crews have mobilized for the 2015 drill program; other work includes borehole geophysical surveys, and environmental and

	geotechnical studies. The Palmer mineral deposits are mainly chalcopyrite (copper), pyrite (iron), and sphalerite (zinc). The Palmer Project is considered to be a mid-stage project (Stage 2) which includes further exploration to enlarge and better define the existing inferred resource. Stage 3 would include engineering evaluations, economic assessments, and environmental studies that are necessary to determine the feasibility of mine development. If a project is both economically and environmentally feasible to develop, then it enters Stage 4 with permitting, finance and ultimately construction. http://www.constantinemetals.com/projects/palmer/
Goals & Objectives	(Determine the existing condition of the water body) Determine the existing condition of the waterbody.
Priority Actions Summary	(Collect Data) Conduct 2nd year of water quality monitoring to confirm the initial baseline water quality study conducted in November 2011, and February, June and August 2012.

Sawmill Creek (Haines) This action was on the FY17 Grant Solicitation and funded

Geographic Location	Lat: 59.2342700 Long: -135.4853300 near Haines; entire creek
Concerns and Sources of Problems	(Urbanization) Sawmill Creek (Haines) is in the Protect and Maintain Waterbodies at Risk Track with water quality and aquatic habitat being primary concerns. In 1996, Sawmill Creek was placed in Category 4b for residue (debris) but not placed on the Section 303(d) list. Limited debris removal was conducted in 1997, as well as culvert replacement and reseeding. An extensive debris cleanup was undertaken in 2006 and 2007. The bulk of the debris removed in 2007 was from legacy activities, including abandoned vehicles used for stream bank stabilization. Control measures are in place to prevent similar activities from occurring in the future, and the public knows that using abandoned vehicles for stream bank stabilization is no longer an acceptable practice. Enforcement by the City and Borough of Haines police department also has reduced illegal disposal practices. Spring cleanup events occur annually in the City of Haines. The 2007 Sawmill Creek Water Quality Monitoring Strategy reported the following concerns: sedimentation and turbidity associated with land use, snow disposal practices, and other road maintenance activities; fecal coliform contamination from nearby horse stabling disposal areas and on-site septic systems; and water quantity to support resident fish populations. In 2008, the waterbody was moved from Category 4b to Category 2. In 2015 the Haines Snow Removal Management Plan was completed (funded by FY15 ACWA grant). In 2015/16, two

	low impact development (LID) projects (funded by FY16 ACWA grant) are planned to help treat stormwater runoff discharging into Sawmill Creek. These projects include a rain garden along the newly-constructed Chilkoot Indian Association facility and a bioswale at the Haines Borough right-of-way snow storage area (6th and Dalton Streets). The bioswale was recommended in the 2015 Haines Snow Removal Management Plan. The project included educational outreach about LID options and benefits, an interpretive sign and a video produced by an after-school film education program.
Goals & Objectives	(Protect and maintain water quality) The goal is to implement BMPs to protect water quality.
Priority Actions Summary	(Implement BMPs or erosion control measures) Stormwater best management practices (BMPs) to protect the water quality of Sawmill Creek will be installed in 2016/17 at two locations, and public outreach on the advantages of low impact development (LID) and green infrastructure will be conducted. A stormwater retention wetland at the corner of 6th and Dalton will be constructed to collect sediment-laden stormwater runoff from the ditches draining Dalton Street. Two green infrastructure bioswales will be installed at the corners of the Fort Seward Parade Grounds to treat snow removal/storage and stormwater runoff, and demonstrate the value of green infrastructure BMPs to manage contaminated runoff.

Sawmill Creek (Sitka)

Geographic Location	Lat: 57.0482940 Long: -135.2285240 SE of Sitka, flows into Sawmill Cove -
Concerns and Sources of Problems	(Sediment) Sawmill Creek (Sitka) is in the Data Collection and Monitoring Track with water quality (flow alterations, siltation/sedimentation, and temperature) being the primary concern. The water is currently listed in the 2012 Integrated Report in Category 3 - data or information is insufficient to determine whether the Water Quality Standards (WQS) for any designated uses are attained. This 2008 nomination was based on the City and Borough of Sitka Blue Lake hydroelectric project, located approximately 5 miles southeast of Sitka and impounds the waters of Sawmill Creek, formerly the Medvetche River.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to determine the existing condition of the waterbody.
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to

	evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Seldovia Bay

Geographic Location	Lat: 59.4240000 Long: -151.7250000 5 mi. long and 0.7 mi. wide, on SW shore of Kachemak Bay, Kenai Peninsula.
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Seldovia Bay is on the Protect and Maintain Waterbodies at Risk Track with water quality being the primary concern.
Goals & Objectives	(Reduce pollutant loading and improve water quality) Alaska E-Map monitoring of Seldovia Bay found high levels of polycyclic aromatic hydrocarbons (PAHs) in the sediment. Past fuel spills and poor boat maintenance operation are likely sources of the high levels of PAHs. The goal is to reduce future inputs of PAHs and promote clean boating best management practices (BMPs) in the bay and Seldovia Harbor.
Priority Actions Summary	(Conduct education and outreach) Reduce petroleum spills and promote clean boating practices in Seldovia Bay and Seldovia Harbor and encourage participation in the Clean Harbors program.

Sitka Harbor

Geographic Location	Lat: 57.0539000 Long: -135.3500000 Sitka, Alaska; Southeast Alaska
Concerns and Sources of Problems	(Urbanization) Sitka Harbor is in the Protect and Maintain Waterbodies at Risk Track with water quality being the primary concern.
Goals & Objectives	(Protect and maintain water quality) The goal is to protect and maintain water quality.
Priority Actions Summary	(Collaboration) Coordinate with City of Sitka to ensure new

	and existing development in the watershed is managed with best management practices. Sitka Harbor is a likely candidate for the Alaska Clean Harbors program.

Situk River

Geographic Location	Lat: 59.4416666 Long: -139.5665790 Yakutat, Alaska; Southeast Alaska - Tongass National Forest
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Situk River is in the Data Collection and Monitoring Track with water quality (metals, low dissolved oxygen, and temperature) being the primary concern. The water is currently listed in the 2012 Draft Integrated Report in Category 3 - data or information is insufficient to determine whether the Water Quality Standards (WQS) for any designated uses are attained.
Goals & Objectives	(Determine the existing condition of the water body) The goal is to determine the existing condition of the waterbody.
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Skagway Harbor

Geographic Location	Lat: 59.4486750 Long: -135.3257700 City of Skagway, Alaska; Southeast Alaska -
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Skagway Harbor is in the Waterbody Recovery Track with water quality the primary concern due to metal contamination from an ore loading facility. Skagway Harbor was placed on Section 303(d) impaired waterbody list in 1990 due to sediment toxicity from metals. Studies concluded that a decrease in infauna diversity in the harbor was present. Additional data in 2007/2008 concluded that petroleum hydrocarbons, not metals, are the primary cause for the decrease in fauna diversity in the harbor. A 2001 TMDL for petroleum moved the harbor to Category 4a in the 2012 Integrated Report. The Skagway Ore Dock and Small Boat Harbor Dredging, Gateway Intermodal Dock Reconstruction Project, and Legacy Harbor Contaminant Mitigation Program Dredging at the Ore Dock Sampling and Analysis Plan (SAP)

	dated October 2014, proposed dredging at the Ore Dock and the Small Boat Harbor (SBH). The purpose of the Ore Dock dredging is to support construction of the new Gateway Intermodal Dock, generate fill material for the Project, and remove legacy contamination in Ore Dock area sediments. The purpose of SBH dredging is to provide expanded access for vessels, meet moorage needs, and for potential reuse of SBH sediments as Gateway Intermodal Dock fill material. Open-water disposal is not proposed. Pre-dredge sampling occurred in January 2015, with a Sediment Characterization Report completed in June 2015; dredging is planned for late 2015. The Ore Dock sediment exceed regulatory benchmarks for lead. In their current state, the sediment are unsuitable for direct placement as fill in upland or marine environments. The Ore Dock TCLP results exceed federal threshold for lead and would be characterized as hazardous waste. Based on the designation as hazardous waste, untreated dredged materials from the Ore Dock area would require disposal at a Subtitle C landfill. Treatment of dredge materials has the potential to reduce the leachability of the lead; a Treatability Study is planned. Agencies involved in the project include: DEC, EPA and USACE.
Goals & Objectives	(Implement actions specified in TMDL) Support implementation of BMP's outlined in the 2011 TMDL, the Stormwater Best Management Practices: Protecting Pullen Creek, an Urban Stream (dated Spring/Summer 2012), and the 2006 Skagway Stormwater mapping project (G:\Water\WQ\WQAM\WQ Assessment and Reporting\Integrated Report\waterbody info\Southeast\Skagway Harbor\Skagway Stormwater) which is too large to attach in the documents tab.
Priority Actions Summary	(Implement watershed restoration plan or TMDL) Continue collaboration efforts with the Municipality of Skagway, EPA, and USACE on the dredging project. Skagway Harbor is a likely candidate for Alaska Clean Harbors program.

Skagway River

Geographic Location	Lat: 59.4523000 Long: -135.3328000 heads at glacier terminus in British Columbia, Canada, flows SW across Alaska Canada boundary, 18 mi. to Taiya Inlet, 0.4 mi. W of Skagway
Concerns and Sources of Problems	(Urbanization) This waterbody was nominated by ADF&G, DEC, and the Taiya Watershed Council in 2005 due to concerns regarding flood control projects and gravel mining operations. The town site of Skagway was established in the Skagway River flood plain and the river has been subject to flood control actions dating back to the late 1800s. Since then, and especially since 1940s, numerous projects have channelized the river, extracted gravel and built dikes along

	the floodplain. Floodplain, aquatic habitat, and flow dynamics have been significantly altered in perpetuity by river bed extraction, riparian filling, gravel revetment and dike structures. More recent projects have been permitted (although there have been violations) and have had consistency determinations made through the (now repealed) Coastal Zone Management review process. The lower Skagway River was designated by the City of Skagway as an Area Which Merits Special Attention and had covenants covered by the Skagway Coastal Management Program. The Skagway Harbor, at the mouth of the Skagway River is highly used by cruise ships, industrial freight, and commercial fishing vessels. Economics of industrialism wins the day regarding habitat and water quality on the lower Skagway River. There is very little, if any, opportunity for restoration. Any future actions will require multi-agency permitting, and therefore, theoretically adequately protected; however, whether any previous enforceable protective policies promulgated under the Coastal Zone Management Act will be pertinent or adhered to is unknown.
Goals & Objectives	(Protect and maintain instream flow and aquatic habitat) (Protect and maintain water quality) Continue collaboration with agencies and stakeholders on water quality protection and maintenance.
Priority Actions Summary	(Collaboration) Continue collaboration with agencies and stakeholders to protect and maintain water quality. Recent projects include the Municipality of Skagway port dredging and DOT ferry terminal upgrades.

Snake River (Nome) This action was on the FY17 Grant Solicitation and not funded.

Geographic Location	Lat: 64.5000000 Long: -165.4166666 Nome, Alaska
Concerns and Sources of Problems	(Turbidity) The Snake River is in the Data Collection and Monitoring Track with water quality and habitat as the primary concerns. Threats include sedimentation, turbidity, and metals. Other concerns include barriers to fish passage, bank erosion and riparian damage.
Goals & Objectives	(Determine the existing condition of the water body) Evaluate the current water quality.
Priority Actions Summary	(Collect Data) Research and collect all available background information on water quality for selected waterbodies in the Nome area. This project involves collection of existing data

	and does not include any new field data collection. The inventory should include a review of published reports and solicitation of information from local organizations, universities, State and Federal agencies and others. The applicant will compile all information and prepare a draft and final report. Based on the data evaluation, the report should include a summary of data, identification of data gaps, and recommendations for future data collection. The report must also include an annotated bibliography with summaries of all data sources (including unpublished information and personal communications). To the extent feasible, electronic and hard copies of the background information used in the report will be copied and compiled for inclusion in the Water Division's files on those waterbodies. Several waterbodies are included on this solicitation and the applicant should submit one proposal to address this action for all of the waterbodies (Anvil Creek, Dry Creek, Glacier Creek, Nome River and Snake River).

Stampede Creek

Geographic Location	Lat: 63.7591500 Long: -150.3267100 in Kantishna Hills, flows NE 2.5 mi. to Clearwater Fork 4 mi. S of that stream's junction with Toklat River, Alaska Range
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) Stampede Creek was included on the 2012 Section 303(d) list for non-attainment of the toxic and other deleterious organic and inorganic substances standard for antimony exceedances resulting from past mining activity within Denali National Park and Preserve. The largest antimony producer in Alaska, Stampede Mine, was located near the headwaters of the creek. Mining ceased in 1970 and the National Park Service policy will not permit future mining. Historical and more recent data show exceedances of antimony. There are currently fine tailings in the banks of Stampede Creek and adjacent to the creek.
Goals & Objectives	
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.

Taku River	
Geographic Location	Lat: 58.4260000 Long: -133.9770000 South of Juneau, Alaska; Southeast Alaska - Tongass National Forest
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) A trans-boundary water in Southeast Alaska with impact concerns from upstream Canadian mines.
Goals & Objectives	(Determine the existing condition of the water body) Through the Southeast Alaska Fish Habitat Partnership (SEAKFHP) Steering Committee (DEC representative) support Southeast Alaska Conservation Council (SEACC) and other efforts for grant proposals to conduct baseline water quality monitoring. As of May 7, 2015, SEACC received grant funding for baseline monitoring on the Unuk River, and potential funding for Taku and Stikine Rivers.
Priority Actions Summary	(Collaboration) Collaborate with agencies and stakeholders on the baseline water quality monitoring, and the effective use of the data to protect water quality. Review and comment on the sampling work plan and Quality Assurance Project Plan (QAPP), and monitoring report.

Willow Creek **This action was on the FY17 Grant Solicitation and not funded. DEC is completing this project.**	
Geographic Location	Lat: 61.7781220 Long: -150.1652550 Willow, Alaska. Matanuska-Susitna Borough. Headwaters in Talkeetna Mountains and empties into Susitna River. - Willow Creek State Recreation Area; Willow Mountain
Concerns and Sources of Problems	(Enterococci and/or fecal coliform bacteria) Willow Creek is in Data Collection and Monitoring Track with aquatic habitat and water quality as related to recreational impacts being primary concerns. Water quality sampling conducted in state fiscal year 2015 documented fecal coliform bacteria 30 day geometric means greater than 20 cfu/100 mL at two sampling sites downstream of the Parks Highway. This bacteria level is in exceedance of Alaska's Water Quality Standards. All other water quality parameters tested met Alaska's Water Quality Standards.
Goals & Objectives	(Determine the existing condition of the water body) Confirm the bacteria levels in Willow Creek exceed water quality. Determine if fecal coliform bacteria in Willow Creek are from human sources by using microbial source tracking techniques. Confirm all other water quality parameters tested in year 1 (FY15) continue to meet water quality standards.
Priority Actions Summary	(Collect Data) This action will complete the second year of water quality monitoring on Willow Creek to have sufficient data to determine the health of the creek based on Alaska's Water Quality Standards. Data collected must be of sufficient quality/quantity to enable DEC to reach a water body health determination. DEC guidance, including the Guidance for Determining Water Quality Attainment or Impairments from Pathogens, must be used in the design of the sampling program. The grantee will develop a Quality Assurance Project Plan (QAPP) and Sampling Plan which must be approved by DEC prior to field work. The DEC has recent examples that may be used for editing. The sampling program conducted in year 1 (FY15) must be used as guidance since the second year of sampling will largely mirror the FY15 program. The bacteria sampling must be expanded and include identifying the source of the bacteria using microbial source tracking. Habitat measurements and/or measurements of the biotic community is not requested. Applications should incorporate the following: • Locations: Sampling will be conducted at the sites described in http://dec.alaska.gov/water/wqsar/pdfs/Reports/Willow-

	Creek-2015-ADEC.pdf with the addition of at least one additional bacteria sampling site upstream of the Parks Highway. • Parameters (Water Column): Fecal Coliform Bacteria: Bacteria samples will be collected throughout the project period. Sampling should occur early in the week due to laboratory analysis limitations later in the week. A minimum of five bacteria samples must be collected within a 30 day period to calculate the geometric mean of bacteria results. Fecal coliform bacteria samples will be laboratory analyzed using Standard Method 9222D and meet the required six-hour holding time. Two sample jars will be collected at each sample site and time. One jar will be sent to a local laboratory for analysis using Standard Method 9222D and must meet the required six-hour holding time. The second sample jar will be standard overnight shipped to the approved Microbial Source Tracking (MST) laboratory for potential analysis based on the fecal coliform bacteria results from the local laboratory. The grantee will contact the MST laboratory immediately after receiving bacteria count results from the local lab to either 1) request MST analysis for samples exceeding criteria or, 2) to toss the shipped samples if bacteria counts did not exceed. For budget purposes, DEC estimates MST analysis will occur 7 times on samples where water quality criteria have been exceeded. The MST laboratory will analyze for the presence/absence of human, bird (waterfowl), and dog hosts and the relative amount (quantification) of bacteria each host is contributing if present through Bacteroidetes ID. Communication between the grantee, the local lab, and the MST lab is essential before and after sampling, shipping and receiving bacteria count results. Contact Laura Eldred (376-1855) for additional detail. Other laboratory parameters to sample: Nitrate+nitrite-N, ammonia-N, total-phosphorous, dissolved organic carbon, alkalinity and hardness, and dissolved metals (using ICP/MS analysis for the following metals: silver, aluminum, arsenic, barium, beryllium, cadmium, cobalt, chromium, copper, manganese, molybdenum, nickel, lead, antimony, selenium, thallium, vanadium, and zinc). Field measurements to collect: pH, specific conductivity, dissolved oxygen, temperature, and turbidity. Discharge will be collected once during each sample event. • Parameters (Sediment) Sediment samples for laboratory analysis: Mercury, methyl-mercury, copper, lead, arsenic, zinc and cadmium. Sediment samples will collected immediately downstream of the Parks Highway will also be laboratory analyzed for polycyclic aromatic hydrocarbons (PAHs).

	• Timing Sampling will occur during base flow, median flow and during high flow events including spring snowmelt and fall rain events. As noted earlier, bacteria sampling must be of sufficient quantity to calculate a monthly geometric mean. Following each sampling event the grantee will submit to DEC a brief sampling event summary report, completed chain of custody forms, and field data sheets within 24 hours of each sampling event. Within thirty-six hours of each bacteria sampling event, the grantee will submit to DEC the electronic final laboratory monitoring results and laboratory reports. The grantee will analyze all samples, evaluate results and prepare a draft and final report of findings and conclusions. The draft report will be submitted to DEC for review and comment allowing time for the grantee to incorporate requested changes and finalize the report. If human bacteria is discovered, the grantee will include in the report a discussion of potential bacteria sources found along the creek such as outhouses, camps, and on-site septic systems. The grantee will use DEC files (online at http://dec.alaska.gov/Applications/Water/Septs/ and/or by hard copy file in the DEC Wasilla office) to collect information for on-site septic system age and design. The grantee is responsible for either directly entering their project data into the Environmental Protection Agency's (EPA) water quality database (STORET) or ensuring data collected is provided in a format that can be easily transferred to DEC's water quality database (AWQMS). DEC will provide the grantee with the data templates and guidance on how to use the templates for this project. The grantee should budget time to become proficient in the use of the reporting data template. This project is eligible to apply under the 2-year option. Applications should propose the following schedule: Summer 2016 – revise QAPP and update sampling plan Fall/Winter 2016 – prepare for sampling Spring/Summer/Fall 2017 – conduct sampling Fall 2017/Winter 2018 – analyze results and prepare draft and final reports Contact Laura Eldred (376-1855) for more information including information on the microbial source tracking requirements.

Wulik River	
Geographic Location	Lat: 67.7320000 Long: -164.5170000 Kivalina
Concerns and Sources of Problems	(Toxic and Other Deleterious Organic and Inorganic Substances) The Red Dog Mine is located in the headwaters of the Wulik River, an anadromous water, and discharges to the tributary Red Dog Creek. It is a large open pit, truck-and-loader operation using grinding and flotation processes to recover zinc and lead. The mine is in the De Long Mountains of the Western Brooks Range, approximately 82 miles north of Kotzebue and 46 miles inland from the coast of the Chukchi Sea, on land owned by NANA Regional Corporation, Inc. (NANA).
Goals & Objectives	(Determine the existing condition of the water body)
Priority Actions Summary	(Collect Data) Prepare and implement a sampling plan to evaluate the current condition of the waterbody with respect to Alaska Water Quality Standards.