

# **Alaska Nonpoint Source Water Pollution Control Strategy**

Fiscal Years 2016-2020



**May 1, 2015**

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## Introduction

### A. Purpose of the Strategy

Alaska's *Nonpoint Source Water Pollution Control Strategy* is a statewide plan for protecting Alaska's natural resources from polluted runoff also known as nonpoint pollution. The actions contained in the strategy are a collaborative effort of a wide range of entities. The strategy identifies existing programs; establishes goals, objectives and timelines for completion of tasks; and outlines methods for determining success.

Alaskans depend on clean water. Clean water is critical to our way of life and our health, whether it is used for subsistence, recreational, commercial, domestic or industrial activities. Alaska's generally pristine waters are a distinguishing characteristic that helps make Alaska unique among the states. Maintaining good water quality can only be achieved when all sources of pollution in a watershed are taken into consideration and resources are focused on the highest priorities so that people work together to prevent pollution and achieve clean water goals. Hence, maintaining healthy watersheds is a key element of Alaska's *Nonpoint Source Water Pollution Control Strategy*.

Nonpoint source water pollution is water pollution that does not come from an end of pipe discharge. It is the leading cause of water pollution in Alaska.

### B. Nonpoint Source Pollution in Alaska

Alaska is a relatively undeveloped state, with most of our watersheds currently in pristine condition. However, extensive development is occurring in some areas, particularly in the five major urban hubs (Anchorage, Fairbanks, Juneau, Kenai/Soldotna, and Palmer/Wasilla), and increasing resource extraction is occurring in some areas. In populated areas, many waterbodies, including important fish streams, have been degraded and are in need of restoration. The emphasis of our nonpoint source pollution strategy is a combination of protecting existing unpolluted, at-risk waters while addressing impacted areas. The strategy seeks to improve the capacity of local governments to manage nonpoint source pollution combined with the following state prevention, restoration, and stewardship efforts. Management plans will be developed and implemented in high priority watersheds where water quality is either impaired or threatened. Restoration strategies for polluted waters will target the sources of pollution and include measures to control that pollution to prevent future degradation. Restoration activities will be designed to achieve a water quality classification appropriate to the specific waterbody.

## 1. Organization of the Strategy

The Strategy is a roadmap for how Alaska will meet the challenge of protecting water resources and public health from nonpoint sources of pollution over the next five years. The document is arranged into nine sections. The first section describes the purpose of the document, funding sources, and federal regulatory requirements. The first section also describes how the state incorporates the Environmental Protection Agency's (EPA) key elements of a dynamic and effective nonpoint source management program and includes

the Nonpoint Source Pollution Action Plan with Objectives and Tasks for the next five years. Sections two through eight delve into the state's strategy to control pollution from primary sources. Identified Management Measures and Indicators for each pollution source are provided to establish measurable outcomes. Applicable regulatory controls for each pollution source are summarized along with key partnerships. Also included in each section is a set of goals for reduction of nonpoint source pollution from each specific pollution source. The Action Plan tables are the basis of the state's strategy to control nonpoint source water pollution from each pollution source.

The strategy also identifies those activities and waters that will be the focus for nonpoint source pollution control in Alaska during the next five years from 2016 to 2020 (Appendix A). The strategy in combination with the Alaska Clean Water Five-Year Strategic Plan, May 2015, provides a focus on specific pollutants (turbidity/sediment, toxics and bacteria) that are prevalent in Alaska. During this period, DEC will place greater emphasis on increasing the amount known about Alaska's waters, standardizing the assessment process, leveraging resources, restoring impaired waters, conducting outreach and highlighting waters that are at risk. The strategy provides information on the reporting mechanisms and measures that are among the tools to gauge success (Appendix B).

## **Pollution Sources with an Action Plan & Objectives**

- Section 2.0 Urban and Community Development
- Section 3.0 Forest Practices
- Section 4.0 Harbors and Marinas
- Section 5.0 Mining
- Section 6.0 Hydromodification
- Section 7.0 Agriculture
- Section 8.0 Roads, Highways and Bridges

The Appendices to the Strategy provide highlights of the most important activities in addition to background/ reference material on a number of subjects. As noted earlier, Appendix A - Identification of High Priority Actions and Waters lists the most important actions and Appendix B - Tasks for Reporting in 2016-2020 outlines the tasks and measures for reporting to EPA on an annual basis. Appendices C, D, E and F provide reference information on Information Management Systems, Agencies and Organizations, the Alaska Clean Water Action (ACWA) Process, and Local Ordinances on Roads, Highways and Bridges.

## **2. Funding Sources**

Communities and local organizations know the problems in their area, but they are often unable to implement such projects because of a lack of knowledge about how to fix problems, and how to provide financial support. With limited funds available and limited discretionary spending, federal, state, and local government programs are rarely able to provide a single primary source of funding. Combined together, these funding sources can result in environmental progress.

## **Federal Funding Sources**

The EPA, Office of Water has developed the Catalog of Federal Funding Sources for Watershed Protection to inform watershed partners of federal monies that might be available to fund a variety of watershed protection projects. This web site searchable database EPA's Catalog of Federal Funding Sources for Watershed Protection of financial assistance sources and can be found at: <http://cfpub.epa.gov/fedfund/>

## **Performance Partnership Grant**

The primary source of state funding for nonpoint source activities and projects is an annual *Performance Partnership Grant (PPG)* administered by EPA that combines funding from a variety of sources authorized in the Clean Water Act (CWA). These include funding from Section 319 Nonpoint Source Control, CWA Section 106 Water Pollution Control, CWA Section 106 Groundwater Protection, and Section 104(b)(3) grants. The Performance Partnership Grant funds require approximately 40% match from non-federal sources, which comes from both state funding and from local sources. The scope of work in the Performance Partnership Grant (PPG) is negotiated annually with EPA and documented in a work plan that describes tasks to be accomplished. Overall goals and high priority actions are documented in the annual *Performance Partnership Agreement (PPA)*.

The Nonpoint Source Program and Grants Guidelines for States and Territories (dated April 12, 2013) requires that 50% of 319 funding be allocated toward directly addressing impaired waters under the guidance of a restoration plan. EPA's grant guidance provides for flexibility to use funds for protection where a state has an updated NPS management program that identifies protection of unimpaired/high quality waters as a priority and describes its process for identifying such waters. The NPS guidelines, clearly provides for the ability for states using PPGs to differ from the national objectives. "In keeping with the goals of PPGs, 40 CFR35.107(a)(1) provides flexibility for states to propose grant workplans that differ...". Alaska's updated NPS Strategy serves to document Alaska's proposed resource distribution, priorities and list of activities for 2016-2020 for Alaska's NPS program (Appendix A). The alternative use of funding activities must also be negotiated with EPA as a part of the annual work plan process.

In Alaska, because so many waters are healthy, this strategy invests in protection measures to maintain healthy waters. The strategy also focuses on targeted monitoring to evaluate waters in developing areas. Funding from the *PPG* used to implement the Nonpoint Source Pollution Control Program is allocated into four categories:

1. DEC water quality programs;
2. Collaborative projects with the Department of Fish and Game (DFG), Department of Natural Resources (DNR), and the University of Alaska;
3. Grants to communities for local watershed protection and restoration projects;

#### 4. Contracts for highly technical projects.

These four categories help to ensure impaired waters are being restored and healthy waters are being protected.

#### **State Revolving Fund (Loan) Programs**

DEC provides loans and engineering support to municipalities for drinking water, wastewater, solid waste, and nonpoint source projects that can enhance/protect water quality. Local match requirements depend on a community's population and can include federal funds.

The Alaska Clean Water Fund and the Alaska Drinking Water Fund provide loans and engineering support for drinking water, wastewater, solid waste and nonpoint source projects that can enhance/protect water quality such as waterbody restoration and recovery. These loan programs are designed for cities, boroughs and qualified private utilities. Primary services include:

- Providing low-interest loans up to 20 years in duration for projects or eligible portions of projects.
- Providing refinancing of eligible projects.
- Assigning a project engineer to assist with plans, designs, construction and regulations.
- Assuring timely reimbursement for construction expenditures.
- Ensuring appropriate and effective use of loan funds.
- Providing principal forgiveness (as funding provides) for eligible projects in disadvantaged communities as defined in the Intended Use Plan.

#### **ACWA Grant Funds**

In Alaska, multiple federal grant funds are administered through the ACWA initiative. Historically, funding sources for ACWA grants has included the CWA Section 319 grant funds, Environmental Health's Source Water Protection funds, Beach Environmental Assessment and Coastal Health (BEACH) Act funds, and DFG's Sustainable Salmon grant funds. Recent ACWA funding has been limited to Section 319 grant, BEACH grant funds and funding from the Clean Vessels Act. Distributing funds through the ACWA process is one of DEC's primary mechanisms for engaging additional resources to the program. The ACWA process is also used to prioritize waters for monitoring, restoration and protection action with state and federal funds.

### **3. Alaska's Implementation of Strategy Elements**

Alaska intends to continue to employ a mix of regulatory and non-regulatory tools to ensure implementation of nonpoint source goals, action plans, objectives and tasks. Because of the lack of water quality data in Alaska, the overall success of this strategy could be measured by the number or extent of waters documented to meet one or more designated uses. An increase in the number or extent of impaired waters resulting from non-point source pollution, particularly in urbanized areas, should result in revisiting



whether additional actions are needed. Other measures of success could include an increase in the number of local ordinances to control non-point source pollution, the number of best management practices (BMPs) implemented for critical pollution sources (e.g., through Alaska Clean Harbors certification), an increase in the number of low impact development projects employed or a measured reduction in pollutant load.

## **C. Statewide Incorporation of EPA's Key Elements**

### **1. The state program contains explicit short and long-term goals, objectives, and strategies to restore and protect surface and ground water, as appropriate.**

Alaska's Strategy to restore watersheds and protect healthy waters from NPS pollution is implemented through short and long term goals, objectives and tasks for each of seven pollution sources. Alaska's process to determine the highest priority activities includes protecting both surface water and groundwater uses. A completion target date and measurement element are included for the highest priority tasks are included in Appendices A and B.

### **2. The state strengthens its working partnerships and linkages with appropriate State, Tribal, regional, and local entities (including conservation districts), private sector groups, citizens groups, and federal agencies.**

Improving the coordination and collaboration of water quality initiatives between agencies and organizations is an important part of the Strategy. Reaching consensus on the priority waters that require prevention and restoration will assure limited resources will be used most effectively. The DEC leads coordination efforts to provide consistency in meeting the goals of the Strategy, but it is ultimately the responsibility of everyone to work together to meet water quality needs in Alaska. A detailed description of state agencies, local organizations and a list of federal agencies that are important for partnerships to control nonpoint source pollution are found in Appendix D.

State resource agencies participate in ACWA, a statewide water quality planning process to unite state efforts to protect and restore the quality of Alaska's water resources. The leads in this process are the DEC, Department of Fish and Game (DFG), and Department of Natural Resources (DNR). Through an interagency forum this process identifies Alaskan waters that are polluted or vulnerable to pollution; identifies, prioritizes and schedules restoration or protection actions; manages and shares information on water quality, water quantity and aquatic habitat; and describes how Alaska will implement best available technology and management practices to prevent pollution.

### **3. The state uses a combination of statewide programs and on-the-ground projects to achieve water quality benefits; efforts are well integrated with other relevant state and federal programs.**

DEC uses a statewide approach to protect and restore watersheds working within DEC and with other partners. Alaska uses the ACWA process, described below, to collaborate with other divisions within DEC and other state agencies. Information on other



significant DEC Water programs, notably conducting probabilistic monitoring, and using permits to address impairments and control pollution is also described below.

DEC also collaborates with federal agencies to protect high priority waters and address impacts to waters on federal lands. As noted above Appendix D provides a list of organizations where NPS program and projects are integrated.

### **ACWA Watershed Protection Approach**

Three departments of the state are involved in assuring Alaska's waters are clean, healthy and available for various uses. The ACWA program brings the State resource agencies, DEC, DFG, and DNR, together to deal with waters in a coordinated, cooperative, and balanced approach assuring state resources are used on the highest priorities. The Department of Fish and Game is concerned about water as fish and wildlife habitat; the Department of Environmental Conservation is responsible for ensuring that state water quality standards are met, to ensure many water uses; and the Department of Natural Resources is in charge of water quantity and administers water rights and withdrawals. ACWA brings these agencies together to assess all aspects of a waterbody, and make joint decisions on assessment, protection and restoration.

ACWA agencies implement a consolidated approach for a complete assessment of the health and status of any particular waterbody. The ACWA process has three major components: 1) stewardship, 2) protection and restoration of waters at risk, and 3) recovery of polluted waters. This process identifies the highest priority water quality and quantity needs to prevent degradation of healthy waters and restore waters that are polluted. This process identifies where citizen, organization and agency efforts should be focused, how best to take action, which agency is responsible for the action, and why water resource protection is important to all Alaskans.

Beginning in March 2003, the ACWA partners pooled funding and resources to create a combined request for proposals. While each agency maintains their own funding, grantees only have to fill out one application to apply for state resource agency grants. Although multiple sources of funding have declined, the agencies remain committed to a joint priority setting process and collaborating on projects where possible.

Additional information on the ACWA process can be found in Appendix E and on DEC's web site at [http://dec.alaska.gov/water/acwa/acwa\\_index.htm](http://dec.alaska.gov/water/acwa/acwa_index.htm). The process includes evaluating information from other programs, such as source water protection, to help determine priorities. DEC also publishes information about the priority setting process, waterbody priorities and the actions needed for protection or restoration on the publically available ACWA web site.

### **Water Quality Monitoring & Assessment Strategy (May 2015)**

The DEC, Division of Water, current *Water Quality Monitoring and Assessment Strategy* can be found at: <http://dec.alaska.gov/water/wqsar/monitoring/AKMAP.htm>.

This monitoring strategy meets the federal expectations for state water quality stewardship activities enumerated in the CWA in a manner influenced by Alaska's

unique needs and challenges. The strategy documents the steps DEC is taking to facilitate the development of information to assess the status and trends of Alaska's water resources and provide water quality information to serve as a basis for environmental and natural resource conditions.

As a part of this Non-Point Strategy, DEC places a high priority on obtaining water quality information on waters potentially impacted. Appendix C describes the water information systems DEC uses to collect, review and store information about Alaska's waters.

## **Abatement of Known Impairments**

### **Waterbody Recovery Plan – Total Maximum Daily Load**

One of the first steps toward the abatement of nonpoint source pollution in an impaired waterbody is the development of the TMDL or Waterbody Recovery Plan. When waterbodies are determined to be impaired (when they exceed state Water Quality Standards for a particular pollutant), they are added to the 303(d) (referring to section 303(d) of the CWA) list of impaired waterbodies which is submitted to the EPA every two years. It is incumbent upon the State and EPA to take the lead in working to restore waterbodies. Restoration is accomplished through the development and implementation of either a TMDL document or an alternative plan. While following different formats, both identify the source of and the means to reduce pollutants and the amount of pollutants that can be introduced to the waterbody while still allowing overall recovery to proceed. With this knowledge, parties who introduce pollutants are given an "allowance," or "total maximum daily load" for that pollutant, and/or prescriptive actions described in BMPs that are implemented through permits and watershed programs or projects. Under an alternative plan, an allowance is not necessarily given but often a range of BMPs are identified to reduce or control the nonpoint source pollution that is impairing the waterbody.

A TMDL or other controls such as an alternative plan are required for a polluted waterbody to be removed from the 303(d) list however; a waterbody can also be removed if there are assurances that pollution controls are in place, or will be in place that result in attainment of Water Quality Standards. These assurances could include other pollution recovery plans such as a Waterbody Recovery Plan, Memorandum of Understanding (MOU), Record of Decision (ROD) or a similar type of hazardous substance clean-up approved by DEC's Contaminated Sites Program. These waters are shown in Category 4b of the Integrated Report

### **Prevention of Nonpoint Source Pollution from Known Discharges**

The Nonpoint Source Program in Alaska implements nonpoint source pollution requirements aimed at preventing and abating pollution from unregulated sources. DEC has programs to regulate pollution from stormwater, wastewater discharge facilities, and dredge and fill projects.

DEC is engaged in three types of stormwater permit activities addressing various industrial sectors and activities common to their business processes and practices to

prevent polluted runoff. Wastewater dischargers required to have a permit fall into two general categories: domestic (municipal and private waste treatment plants) and industrial (including log transfer and storage facilities, mining, oil & gas, seafood processing/hatcheries, utilities, transportation, and other miscellaneous types of industrial discharges). Dredge and fill projects are required to obtain a DEC Clean Water Act Section 401 Certification which provides "reasonable assurance" that a project will meet state water quality standards, and may require the implementation of stipulations such as BMPs concerning the control of fill materials, erosion control, drainage control, and habitat protection.

**4. The state program describes how resources will be allocated between (a) abating known water quality impairments from NPS pollution and (b) protecting threatened high quality waters from significant threats caused by present and future NPS impacts.**

The ACWA process is used to determine which waters are the highest priorities for action. Although the ACWA process categorizes whether water needs restoration, protection or data collection, the waterbody category and priority are independent of the action(s) needed. Impaired waters are given a high priority as restoration projects, but the need to protect or collect data for other waters also can rank high. Specific work plans to allocate resources to restoration, protection, or data collection are done on an annual basis. The negotiated PPA/PPG with the Environmental Protection Agency identifies resources and distribution committed to non-point source pollution. Appendix A identifies the work allocation (2016-2020) and demonstrates DEC's commitment to strike a balance between restoration, protection and data collection.

The proposed workload distribution recognizes the EPA is required, by court order, to complete at least two TMDLs in Alaska, each year until those waters on the Alaska's 303(d) list in 1992 have been addressed. TMDLs developed by DEC, either directly through staff work or indirectly through contract or grant efforts, must be approved by EPA to meet this requirement. EPA may also initiate work on TMDLs directly, with their staff or contracted efforts.

The following waters still need to be addressed under court order<sup>1</sup>: Crooked Creek Watershed; Goldstream Creek and Hood/Spenard lakes. Once the impairments from the waters subject to the court order have been addressed, resources dedicated to addressing TMDLs will be directed toward protecting healthy waters and reducing the extent of impaired waters and monitoring waters identified under Category 3 in the Integrated Report or through the ACWA process to determine impairment and progress towards meeting water quality standards.

In developing TMDL's using 319 funding DEC will include (1) an identification of the total non-point source (NPS) existing loads and total load reductions necessary to meet

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<sup>1</sup> Based on the 2012 Integrated Report

water quality standards by source type; (2) a detailed identification of the causes and sources of NPS pollution by source type to be addressed in order to achieve the load reductions specified; an analysis of NPS management measures by source type expected to be implemented to achieve the necessary load reductions; and (4) a commitment to an adaptive management strategy to evaluate changes may be needed during implementation to achieve water quality goals.

**5. The state program identifies waters and watersheds impaired by NPS pollution as well as high priority unimpaired waters for protection. The state establishes a process to assign priority and to progressively address identified watersheds by conducting more detailed watershed assessments, developing watershed-based plans and implementing the plans.**

Polluted or “impaired” waterbodies are identified in the biennial Integrated Water Quality Monitoring and Assessment Report (Integrated Report) submitted by DEC to the EPA.

Alaska’s Integrated Report is available at:

<http://dec.alaska.gov/water/wqsar/waterbody/integratedreport.htm>. The Integrated Report describes the process by which waterbodies are evaluated to determine if they attain water quality standards or are impaired (polluted). Part of this process includes classifying each waterbody according to four categories, depending on their health. The report also contains information on the schedule for addressing impaired waters, factors considering in developing the schedule, and the criteria used to determine whether a water is healthy or the use has been impaired. The report also lists those waters where additional information is needed to classify the water (i.e., impaired or healthy).

The Alaska Clean Waters Action process annually prioritizes work on impaired and healthy watersheds as described in element #3 above. Appendix A provides the link to list of the current high priority waters and highlights those where DEC will focus resources on the next 5 years. DEC’s ACWA web page

([http://dec.alaska.gov/water/acwa/acwa\\_index.htm](http://dec.alaska.gov/water/acwa/acwa_index.htm)) also provides information on the actions needed for all high priority waters.

**6. The state implements all program components required by section 319(b) of the CWA, and establishes strategic approaches and adaptive management to achieve and maintain water quality standards as expeditiously as practicable. The state reviews and upgrades program components as appropriate. The state program includes a mix of regulatory, non-regulatory, financial and technical assistance, as needed.**

Alaska’s strategy to implement nonpoint source program components required by CWA section 319(b) is identified in the Action Plan Objectives and Tasks at the end of each nonpoint source management measure (pollution source) section as well as Appendix A, which details those protection, monitoring and restoration activities that are the highest priority. These objectives and tasks are a mix of flexible, targeted, iterative approaches

that are implemented throughout the state with financial and technical assistance based on the overall goal to maintain beneficial uses of water. DEC may revise the specific list of waters during annual PPG/PPA negotiations to ensure an adaptive approach is used to focus on emerging or previously unidentified issues.

In addition, Alaska identifies measures that will be used to address or prevent NPS pollution sources in TMDLs, restoration plans, stormwater pollution prevention plans, and activity specific guidelines that have been developed. DEC maintains a website “Best Management Practices to Reduce Pollution” at

[http://dec.alaska.gov/water/wnpspc/protection\\_restoration/bestmgmtpractices/index.htm](http://dec.alaska.gov/water/wnpspc/protection_restoration/bestmgmtpractices/index.htm).

This website provides (or will provide) BMPs using the following categories:

- Homeowners & River Erosion
- Best Management Practices Home
- Clean Boating, Gravel Pits
- Green Infrastructure
- Snow Disposal
- Storm Water

This web site provides useful tools specifically designed to address NPS pollution in Alaska.

### **7. The state manages and implements its NPS management program efficiently and effectively, including necessary financial management.**

Alaska’s Nonpoint Source Water Pollution Program within DEC is the primary program protecting water quality in Alaska's streams and lakes from nonpoint source pollution and restoring polluted waters to a healthier condition by:

- Working with other State agencies to identify water quality needs and priorities for individual waters and statewide stewardship;
- Establishing a schedule and developing TMDLs and recovery plans on polluted waters;
- Implementing TMDLs and Recovery Plans through state staff, contracts and ACWA grants to partner agencies, local communities, and others;
- Managing the ACWA Grant Program that addresses priority stewardship, protection and restoration needs on waters throughout Alaska;
- Providing technical assistance to municipalities, local groups, and other state agencies involved in water quality projects; and
- Responding to public concerns and complaints on nonpoint source pollution in streams and lakes.

DEC uses the above range of actions to appropriately manage state and federal nonpoint source funds. DEC uses a range of financial tracking systems to monitor expenditures to ensure funds are spent as planned. For example, successful ACWA grant proposals are negotiated to ensure reasonable costs are budgeted. Quarterly grantee reports are then

compared to the budgeted grant agreement. Management must approve any deviations in expenditures of more than 10% of the budget. This process ensures that the Section 319 funds and the leveraged funds provided are maximized.

**8. The state reviews and evaluates its NPS management program using environmental and functional measures of success, and revises its NPS management program at least every five years.**

Alaska endorses periodic review and evaluation of the *Alaska's Nonpoint Source Water Pollution Control Strategy*. Every five years the state reviews and upgrades the Strategy. This includes a complete reexamination of the Management Measures and Indicators and Action Plan Objectives & Tasks for each pollution source category that establishes the basis of the state's actions for the upcoming years. The PPG/PPA process helps to guide yearly priorities.

Each Action Plan table represents a mix of regulatory, non-regulatory, financial and technical tasks that support a specific objective. Management Measures and Indicators are used to assess the state's success in achieving the goals for reduction of each pollution source. They are based on either the state water quality or technology programs designed to achieve and maintain beneficial uses of water. As part of Alaska's annual NPS report, DEC will provide a status report on the highest priority actions (Appendix B) as well as update of the actions for those waters identified in Appendix A.



## Alaska Nonpoint Source Water Pollution Control Strategy

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<b>Table 1. Nonpoint Source Pollution Program (NPS) Action Plan</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
<b>NPS-A. Statewide Water Quality Planning</b>		
NPS-A1. Continue using ACWA to identify Alaskan waters that need actions for (1) waterbody recovery, (2) protection, and (3) data collection and monitoring. Use ACWA to prioritize waters; manage and share information on water quality; and describes how Alaska will implement best available technology and management practices to prevent pollution. Use the ACWA database to track and plan actions on all nominated ACWA waters. Provide the general public with information about AK's waters.	DEC, DFG, DNR/, Local Govts, Coastal Districts, Tribal orgs, NGOs, Fed Agencies, public	Annual, 2016, 2018, 2020
NPS-A2. Develop listing methodologies to collect data, assess water quality and determine impairments under Clean Water Act (CWA) section 303(d) for pollutant in the Alaska Clean Water Five Year Plan	DEC	2016 – Turbidity 2017 – Toxics in sediment 2018 – Bacteria 2019 – Biological 2020 – Mapping and remote sensing
NPS A3. Publish a biennial Integrated Water Quality Monitoring and Assessment Report on the status of Alaska's waters under CWA Section 305(b) and identifying polluted (impaired) waters listed under CWA Section 303(d).	DEC	By April 1 of 2016, 2018, 2020
NPS-A4 Continue to educate the public on ways to reduce water pollution	DEC, DFG, UAF/CES, NGOs	On-going
<b>NPS-B. Assess water quality on a statewide basis and in targeted watersheds to support watershed planning and restoration projects to protect water quality and associated uses, including habitat.</b>		
NPS-B1. For each water identified through the ACWA nomination process, within one year of the nomination collect and review available information to determine if existing stewardship is sufficient or if there are needs for data collection, protection or restoration activities. If further needs exist, use the ACWA ranking process to prioritize the water.	DEC	Ongoing



## Alaska Nonpoint Source Water Pollution Control Strategy

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<b>Table 1. Nonpoint Source Pollution Program (NPS) Action Plan</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
NPS-B2. For all ACWA high priority waters, within one year after initial prioritization and annually thereafter, evaluate the nonpoint source water quality concerns and develop or modify appropriate actions that should be taken within the next year to help address those concerns, including data gaps that improve the quality of the ranking determination. Actions should be designed to address the waterbody concerns and could include implementing best management practices, constructing engineering controls, enacting local ordinances and educating the public. For medium and lower priority waters, develop and implement actions as resources permit.	DEC	Ongoing
NPS-B3. Provide adequate field presence and follow up on complaint response, inspections, and enforcement where necessary to correct water quality violations that are reported.	DEC	On-going
<b>NPS-C. Assessment and Planning</b>		
NPS C-1 Complete assessment of fish habitat and passage at culverts on roads and systems, and prioritize sites for protection and restoration	DFG, National Fish Habitat partnerships	On-going
NPS-C2. TMDLs will be developed for identified waterbodies according to the schedules established between DEC and EPA.	DEC, EPA, Local Govts	June 1
<b>NPS-D. Support Water Quality Information Management Systems and Monitoring Efforts</b>		
NPS-D1. Implement a statewide water quality monitoring strategy to assure that waters reach or maintain their beneficial uses. Provide consistent, long term training for entities monitoring water quality, such as agencies, local governments, businesses and volunteers. Prepare AKMAP regional survey reports.	DEC	Ongoing 2017
NPS-D2. Review and incorporate monitoring data provided by the regulated industry into an accessible water quality database such as AWQMS	DEC	Ongoing
NPS-D3 Review and incorporate ambient monitoring data provided by the regulated industry into an accessible water quality database such as AWQMS	DEC	2020
NPS- D4. As part of monitoring strategy, develop and implement approach for measuring flows on	DFG, USGS	On-going

## Alaska Nonpoint Source Water Pollution Control Strategy

May 1, 2015

<b>Table 1. Nonpoint Source Pollution Program (NPS) Action Plan</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
ACWA priority streams and rivers that may be impaired from nonpoint source pollution.		
NPS– D5. Identify, list, assess & map important fish rearing and spawning habitat areas. Make this information available to permitting agencies and other interested parties for use in reviewing permit applications & other development activities near waterbodies. Use this information as baseline or reference data for fish habitat monitoring studies.	DFG	On-going
<b>NPS-E. Strengthen partnerships with government and nongovernmental agencies and organizations to improve coordination and efficiency and reduce duplication of effort.</b>		
NPS-E1. Enhance interagency coordination by including resource agencies, education and research institutions, non-government organizations, and public in using information provided to set priorities which influences funding allocations. Continue to support the development of new regional fish habitat partnerships in Alaska. Support focus areas for National Water Quality Initiative in Alaska.	DEC, National Fish Habitat Partnership, NRCS	On-going
NPS-E2. Identify areas for improved collaboration among agencies and institutions that have expertise in water quality and habitat protection, restoration, education and research. Lead collaborative workgroups where feasible	DEC, DNR, DFG, USGS, UA, NGO, NRCS	On-going

**Key:**

- DEC - Department of Environmental Conservation
- DFG - Department of Fish and Game
- DNR - Department of Natural Resources
- EPA - U.S. Environmental Protection Agency
- NGO - nongovernmental organizations
- NRCS - National Resource Conservation Service
- UA - University of Alaska
- UAF/CES - University of Alaska Cooperative Extension Service
- USGS - U.S. Geological Survey

## Urban & Community Development

**Alaska's Population Distribution:** The 2012 population estimate for Alaska is 731,449 people (US Census, 2012 quickfacts). Major population centers in Alaska are the municipality of Anchorage (pop. 291,610 and surrounding Matanuska-Susitna Borough (pop. 88,895); Fairbanks North Star Borough (pop 97,581); and City and Borough of Juneau (pop. 31,275) (2010 US Census). The Matanuska-Susitna Borough has been the fastest growing area in Alaska since 1990. Other areas of Alaska experiencing population growth include the Municipality of Anchorage and the Fairbanks North Star Borough. In Alaska, the military account for about 5.3% of the total workforce, providing nearly as many jobs as the top ten private sector employers combined.

**Native Alaskans:** There are 227 federally recognized tribes in Alaska (EPA, 2000). The Alaska Native Claims Settlement Act (ANCSA) of 1971 created 12 Alaska Native Regional Corporations (ANRC), which cover the entire state except for the Annette Island Reserve, Alaska's only American Indian reservation. The ANRC's were created to facilitate both the business and nonprofit affairs of Alaska natives. Corporation boundaries were created to include Alaska Natives who share a common heritage and common interests. There are many Native villages facing challenges from growth similar to those in urban areas, including pressure for community expansion along waterways that are critical to subsistence fishing and hunting. The need to manage sewage, solid waste, petroleum products and provide clean, potable drinking water are some of the most important environmental issues facing Alaska's Native villages.

### A. Urban Water Pollution

While most of Alaska's waters are remote and presumed to be in pristine condition, many in or near population centers have been impaired. Approximately half of the waterbodies identified by the state in *Alaska's 2012 Integrated Water Quality Monitoring and Assessment Report* as being impaired are located in urban areas. Historically and for the most recent Integrated Report, in urban settings (cities, towns, and villages) waters are predominantly impaired from sediment, turbidity, and fecal coliform bacteria contamination from urban and stormwater runoff.

#### 1. Stormwater Runoff

As urbanization occurs, previously vegetated and forested spaces are cleared and developed with impervious surfaces such as rooftops, roads, parking lots and sidewalks and to a lesser degree lawns. This in turn decreases the infiltration capacity of the ground and results in greatly increased volumes of runoff and a change in the surface and subsurface hydrology. The major source of water pollution in Alaska's urban areas is polluted runoff. Sources include stormwater runoff from streets, parking lots, and snow disposal (oil and trace metals), erosion from gravel pits and construction activities (sediments), failing or improperly maintained septic systems (fecal bacteria, excess nutrients), and leachate from landfills (petroleum, metals, dissolved organic and inorganic chemicals). Fecal coliform, sedimentation, and petroleum are the most common forms of pollution in Alaska's urban areas.

#### 2. Snow Disposal

Alaska municipalities face challenges disposing of more than 100 inches of snow that falls on many maritime cities. Many of Alaska's larger cities have been developed on narrow strips of land between coastal mountain ranges and marine waters. As these land limited cities continue to grow, vacant land that was once used to store snow has been developed into residential and commercial properties. As a result, many Alaskan cities are currently disposing of snow into the marine environment or have contacted DEC about snow disposal options. In order to help DEC respond to inquiries about snow disposal requirements and to assist communities, municipalities and businesses select, prepare and maintain appropriate snow disposal sites the department developed a Snow Disposal Guidance (2007) policy and site guidance.

[http://dec.alaska.gov/water/wnpspc/protection\\_restoration/bestmgmtpractices/snow.htm](http://dec.alaska.gov/water/wnpspc/protection_restoration/bestmgmtpractices/snow.htm)

Snow collected from city streets can contain salt, sand, gravel, suspended solids, dissolved solids, oil, grease, antifreeze, heavy metals, chemicals from tire and engine wear, miscellaneous trash, debris, animal waste and other trace elements from vehicle traffic and automobile engine emissions. Some pollutants become diluted as the snow melts. Other pollutants can accumulate in the area where the snow is dumped or downstream where melt-water accumulates. In addition, the solid materials such as sand and other soil particles, which accumulate in roadway removed snow, act as contaminants by filling in streams, lakes and navigation channels.

### **3. Gravel Pit Operation**

Gravel pits occur throughout Alaska, and their improper operation can result in water quality impacts and impairment. Several potential pollutants from gravel pits include sediment, turbidity, total metals, and/or petroleum hydrocarbons. An increase in turbidity within a stream environment may result in a potential decrease in available free oxygen necessary to support aquatic life. An increase in the concentration of total suspended solids, such as silt or decaying plant matter, may destroy water supplies for human, animal, and other wildlife consumption, as well as feeding and nesting habitats by reducing oxygen or increasing temperature. Implementation of erosion prevention controls in a gravel pit can minimize the adverse impacts associated with increased sediment yield. Increased sediments in water can potentially damage fish by abrasion to gills and damage to fish redds, which is a nest of fish eggs covered with gravel, by burying or smothering.

One of the most effective ways to control pollution is the use of Best Management Practices (BMPs). BMPs are physical, chemical, structural, and/or managerial techniques to minimize water pollution. The environmental benefits of implementing effective gravel pit BMPs are:

- Reduction of toxic materials that are introduced into the environment by their attachment and transport by sediment particles;
- Less impact on growth and propagation of fish and aquatic life from decreased sediment;
- Protection of receiving waters with designated uses such as recreation and wildlife habitat.

In June 2006, DEC published the “User’s Manual Best Management Practices for Gravel Pits and The Protection of Surface Water Quality of Alaska”. This manual outlines best management practices (BMPs) for gravel pit operations where stormwater runoff may impact water quality in lakes, rivers, streams, and wetlands. The manual was updated in 2012 to include protection of groundwater. The manual is available at the following web address:

[http://dec.alaska.gov/water/wnpspc/protection\\_restoration/bestmgmtpractices/gravel.htm](http://dec.alaska.gov/water/wnpspc/protection_restoration/bestmgmtpractices/gravel.htm)

## **4. On-site sewage disposal systems (OSDS)**

OSDS are common in Alaska’s urban and rural communities and are considered by EPA and a growing number of professionals to be a low-cost, long-term wastewater treatment option. However, improperly installed, improperly operated and maintained, or aging OSDs fail to properly treat domestic wastewater and are a primary source of fecal coliform bacteria, biological oxygen demand (BOD), and nutrients such as ammonia-nitrogen. These poorly functioning onsite septic systems can contribute to the contamination of surface water, groundwater, and drinking water and can result in the spread of viral and bacterial illnesses. This may cause costly public health problems and environmental contamination and degradation.

In addition to being properly designed and installed, onsite systems must be operated and maintained to provide treatment that is as good as, or even better than that provided by centralized wastewater treatment plants.

## **5. Fecal Coliform Bacteria**

Fecal coliform bacteria come from the intestines of all warm-blooded animals, including pets and humans. The presence of fecal coliform indicates a potential pathway for other pathogenic organisms that cause human disease. The most frequent sources from human activities are stormwater runoff that contains pet waste, malfunctioning on-site sewage treatment and disposal systems, inadequate wastewater treatment and disposal on vessels in small boat harbors, publicly owned wastewater treatment plants (POTW’s), and improper waste disposal. Other potential non-human related sources are wildlife and waterfowl.

## **6. Sedimentation**

Soil, particles of plant debris and other particles typically enter waters from natural processes. However, human activities and land uses often tremendously increase the amount of sediment entering waters and cause water quality degradation. Sediments also can carry pollutants and change the characteristics of the stream, lake, or other surface water. The major sources of sediment include runoff from roads, commercial construction projects, housing construction, and commercial developments, gravel pits, snow disposal and stream bank erosion.

## **7. Petroleum**

Petroleum products enter surface and groundwater through the exhaust from boat motors, road and parking lot runoff, accidental spills, leaking fuel storage tanks and pipelines, and inadequately constructed or managed landfills.

## **8. Alteration of Natural Hydrology**

Development often alters streams and other waterbodies. Changes to runoff, diversions, channelization, and destruction of natural drainage systems can result in riparian and tidal wetland degradation or destruction. Appropriate land use planning, permitting, development practices, and enforcement of local ordinances are necessary to protect sensitive ecological areas, minimize land disturbances and retain natural drainage and vegetation whenever possible.

## **9. Temperature**

Exceedances of temperature standards have been observed in several Alaskan streams through recent monitoring efforts conducted DEC grant funded projects. It is not known if temperature exceedances are due solely to natural conditions or to human activities. Potential causes may include climatic changes and the removal of forest cover in urban settings and logged areas that result in temperature increases in groundwater and surface runoff. Other potential causes may be the loss of riparian cover due to urban development and flooding from natural events possibly accentuated by human activities.

## **10. Solid Waste**

Permitted municipal solid waste (MSW) disposal facilities (landfills) are reviewed by the DEC, Solid Waste Program to ensure they are located and designed to safely accommodate MSW and to control pollution from migrating off-site. In addition, many unpermitted small municipal landfills exist in the state. Of the 187 small municipal landfills identified as Class III (low risk) facilities in the state, approximately 66 have current permits. Some of these landfills were permitted at one time that allowed their permit to expire, and others have never been permitted by DEC. DEC inspects both permitted and unpermitted landfills to review design, and potential risks to human health and the environment. Some of the Class III landfills in the state have uncontrolled access and are open 24 hours per day. An unknown number of un-permitted Class III facilities may be located in wetlands or adjacent to waterbodies.

In order to identify the quality of water influenced by Class III landfills, DEC solicits sufficient and credible information to support remedial action, and if necessary to develop a sampling strategy for waters that necessitate attainment requirements. This information is necessary for the Nonpoint Source Pollution Water Pollution Control program to characterize all water bodies within the state, as required by federal law. Waters that may be negatively impacted by Class III landfills should be monitored to establish water quality conditions. Surface water or groundwater pollution is particularly a concern in areas of high precipitation due to leachate formation. Leachate is a solution of dissolved and suspended particles of waste matter that form when water comes into contact with waste.

Residential solid waste consists of materials discarded from single and multi-family dwellings and individuals. It commonly includes paper, plastic, glass, metal, rubber and leather, textiles, food wastes, yard wastes, and household hazardous wastes. Other items commonly discarded in rural Alaska include: animal carcasses and sewage.



Open burning MSW in rural Alaska is widely practiced to reduce waste volume and make the waste less attractive to animals. Open burning means the burning of a material that results in the products of combustion being emitted directly into the air without passing through a smoke stack. Open burning includes burning garbage directly on the ground, in burn cages, and in burn barrels. Open burning is the least effective form of combustion. Unless closely managed, an open burn cannot achieve the temperatures needed to completely burn many components of municipal garbage. This allows the formation of potentially hazardous materials and renders ash that is more attractive to animals and more likely to cause surface and groundwater pollution at landfills. Common materials that pose a threat to the environment when burned are: foam, rubber, plastic, household hazardous waste, which release dioxins and other deleterious compounds when improperly burned.

For more information on open burning the DEC, Division of Environmental Health, Solid Waste Program prepared a publication for small communities considering incineration and energy recovery titled "Burning Garbage and Land Disposal in Rural Alaska"(May 2004) at the following web address:

[http://dec.alaska.gov/eh/docs/sw/Open\\_Burning\\_Rural\\_AK.pdf](http://dec.alaska.gov/eh/docs/sw/Open_Burning_Rural_AK.pdf)

### **11. Contaminated Sites**

The mission of the Contaminated Sites Program is to protect public safety, human health and the environment by identifying, overseeing and conducting the cleanup and management at contaminated sites in Alaska. The program identifies, assesses, ranks, prioritized and monitors clean up and management of over 2,300 contaminated sites in the state. The program conducts insures cleanup is conducted at the highest priority sites, insuring water quality standards will be met as a part of the cleanup process. Some of these sites are in urbanized areas. DEC's Non-Point Source program collaborates with the Contaminated Sites program to identify and address those sites that may be impacting water quality.

#### **B. Regulatory Controls**

Examples of municipal ordinances that address nonpoint source water pollution appear in a table in Appendix F.

The State of Alaska regulates onsite sewage disposal systems through its Wastewater Disposal regulations (18 AAC 72). Conventional systems may be installed by a person who obtains department certification as an installer on a two-year retraining and recertification basis. Engineered plans for non-conventional onsite systems must be submitted to the department for review and approval prior to installation. For engineered systems, the department has a two-step process, first granting approval to construct and secondly granting approval to operate, after the installed system documentation is submitted to the department. For onsite systems installed by certified installers, the approval process is streamlined. In Anchorage and Valdez, the OSDS program is delegated to the local government under a renewable agreement.



For watersheds outside without regulatory controls, the state will strive to reduce non-point source pollution through voluntary measures. This includes supporting local regulatory efforts through the Alaska Clean Water Actions grant program.

### **C. Key Partnerships**

#### State Agencies

DEC Programs: Nonpoint Source Section, Wastewater Discharge, Water Quality Standards, Assessment and Restoration, Village Safe Water, Drinking Water, Solid Waste, Prevention and Emergency Response, Contaminated Sites, Municipal Grants and Loans

DNR Programs: Water Rights, Alaska Hydrologic Survey, Land Use Planning, Forestry

DFG Programs, Sport Fish, Special Areas, Office of Habitat Management and Permitting (OHMP), Office of Project Management and Permitting,

DOTPF, Statewide Planning, Harbors, Storm drain

Soil & Water Conservation Districts

Educational Institutions: University of Alaska Anchorage, University of Alaska Fairbanks, University of Alaska Southeast

Federal Agencies: EPA, U.S. Geological Survey, Army Corps of Engineers, NOAA/Office of Oceans & Coastal Resource Management, National Park Service, Natural Resource Conservation Service, Bureau of Land Management, U.S. Forest Service, and U.S. Fish and Wildlife Service

Local Governments: Alaska municipal governments (organized boroughs, unified home rule municipalities, incorporated cities), coastal districts

Tribal/Native Organizations: Native Regional Corporations, Villages, and Councils, Intertribal Councils

Non-governmental Organizations/Private sector industries: watershed partnerships, real estate industry and home mortgage lending institutions, Soil and Water Conservation Districts. Alaska Associated General Contractors

#### Other:

Professional engineers and contractors, homeowners

### **D. Goals for Reduction of Pollution from Urban and Community Development**

Alaska's nonpoint source pollution goals with respect to Urban and Community Development follow:

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- Promote and encourage local watershed protection and the protection of community water resources.
- Assess statewide water quality protection efforts and offer tools for effective planning and permitting.
- Promote educational opportunities to control and abate nonpoint source pollution that are a result of particular land uses related to urbanization and human activities.
- Promote proper operation and maintenance of onsite sewage disposal systems through clear regulatory requirements on system approvals, homeowner education (Internet-based materials); cooperation and technical assistance to local governments in their building permitting, planning approvals, and ordinance development; cooperation with mortgage lenders on point of sale requirements for Operation and Maintenance, system upgrades, and effective enforcement.

<b>Table 2. Urban and Community Development Action Plan (UR)</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
<b>UR-A. Support local watershed protection efforts and encourage communities and the public to protect their local water resources.</b>		
UR-A1. Support local entities in their actions to develop and implement controls for non-point source pollution resulting from both stormwater and on-site systems. Actions may include, but not be limited to: ordinance development, construction of engineering controls, enforcement of existing controls, and construction of low impact development (LID) facilities, and regulation of on-site sewage.	DEC, Local Govts, NGO, Mortgage lending institutions, Fairbanks Green Infrastructure Working Group	On-going  Annual ACWA grant solicitation
<b>UR-B. Provide educational, technical and financial assistance to communities to ensure good drinking water and basic sanitation and sewage disposal needs are met</b>		
UR-B1. For local communities, work to ensure that practices and/or ordinances exist that maintain predevelopment site hydrology and limit unnecessary increases of impervious areas that create significant changes in the hydrology. In instances where impervious surface is necessary, maintain post development average volume and peak run off rates similar to predevelopment levels.	DEC, Local Govts	On-going
UR-B2. For cities that have done stormwater mapping and identified problem areas, implement water quality enhancement projects and educational efforts to allow adequate and proper treatment of stormwater runoff and minimize adverse impacts to water resources.	DEC, Local Govts	On-going
UR-B3., Support public education and awareness campaigns to minimize stormwater runoff from existing and new construction, including roads, highways and bridges	DEC, Local Govts	On-going
UR-B4. For all activities covered under APDES general construction permits, ensure that prior to land disturbance, prepare and implement an approved erosion and sediment control plan that reduce erosion and, to the extent practicable, retain sediment on-site during and after construction.	DEC, Local Govts	On-going
UR-B5. For at least one community, develop stormwater management programs for their local areas that include at minimum: mapping existing stormwater drain systems, identifying water quality coming out of storm drains, and identifying storm drains that are inadequate or non-functional.	Local Govts, DEC	2018

<b>Table 2. Urban and Community Development Action Plan (UR)</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
<b>UR-C. Provide tools to incorporate effective water quality protection in land use planning and improved permitting and plan review decisions.</b>		
UR-C1. Provide training materials and list of best management practices (BMPs) (or links to other entities providing information) to cities, private sector developers and engineers doing construction activities.	DEC	Ongoing One additional BMP by 2016
UR-C2. Revise actions needed for ACWA high priority waterbodies on an annual basis.	DEC/NPS, DFG EPA, NGOs	On-going
UR-C3. Maintain up-to-date forms on the department’s website for submittal and department approval of onsite sewage disposal systems.	DEC	Ongoing
<b>UR-D. Promote educational opportunities to control and abate nonpoint source pollution. Tasks include:</b>		
UR-D1. Support education programs on the proper operation and maintenance of on-site sewage disposal systems for the system owners (homeowners, small commercial businesses, etc.).	Local governments, NGO	2016
UR-D2. Develop and implement at least one local program that provides education on proper disposal of pet waste or trash to avoid impacts to surface waters. Incorporate information into statewide efforts.	DEC	2016
UR-D3. Develop and implement at least one activity per year that provides education/outreach on reducing the impacts from recreational activities to surface waters.	DEC	Annual 2016
UR-D4. Provide training materials, guidance documents and/or list of BMPs via the DEC web site on ways to reduce NPS pollution from non-point source activities (e.g., green infrastructure, gravel pits, snow storage, harbors and marinas, etc.)	DEC	Ongoing

- Key:
- DEC - Department of Environmental Conservation
  - DEC/NPS - Department of Environmental Conservation/Nonpoint Source
  - DNR - Department of Natural Resources
  - NGO - nongovernmental organization
  - UAF/CES - University of Fairbanks Cooperative Extension Service
  - USEPA -U.S. Environmental Protection Agency

## Forest Practices

Sediment is a major pollutant associated with forest practices activities conducted in Alaska that may adversely affect water quality and beneficial uses. Increased sediment loading to surface waters of Alaska may result from land disturbing activities associated with logging roads and timber harvesting operations. Excessive sediment in surface waters can adversely affect drinking water quality and the growth and propagation of fish and shellfish. Forestry operations conducted in uplands may also lead to changes in stream morphology and habitat due to altered runoff timing and yield which can adversely impact fish spawning and rearing habitat. Log storage and transfer facilities (LTF) in Alaska's coastal zone can potentially contribute tree bark and wood debris to estuaries which can result in the modification of benthic habitats and leach tannic acid, phenols, and oxygen depleting compounds. LTF permits from APDES (Alaska Pollutant Discharge Elimination System) require that Best Management Practices be used to minimize the discharge of bark. Pollution Prevention Plans for LTF's identify specific operational practices for transferring logs and handling logs in and out of water that minimize bark discharges.

### A. Regulatory Controls

#### 1. Regulatory Controls for Forest Activities on State, Private and Other Public Lands

The State of Alaska's forest practices program is organized into two regulatory components: forestry activities that take place on state, private and other public land; and forestry activities that take place on federal lands. "Other public lands" are defined as lands managed by state agencies other than the DNR, land owned by a municipality and land owned by the University of Alaska. Forestry activities on state, private and other public lands are regulated by the Alaska Forest Resources and Practices Act (FRPA) of 2006. Alaska's natural resource agencies (DEC, DNR- Division of Forestry (DOF) & DFG) also utilize the following references to guide their analysis of forestry related projects on state, private and other public lands: Alaska Administrative Code found at 11 Alaska Administrative Code (AAC) 95 (Alaska Forest Resources and Practices Regulations); Alaska's Water Quality Standards (18 AAC 70); and *Alaska's Nonpoint Source Water Pollution Control Strategy*.

Alaska's state forests and other public and private forests are divided into three state management regions:

- FRPA Region I- Coastal Sitka Spruce/Hemlock Forest;
- FRPA Region II- Interior Spruce/Hardwood Forest, South of the Alaska Range;
- FRPA Region III- Interior Spruce Hardwood Forest, North and West of the Alaska Range

DOF develops Forest Land Use Plans and timber sale contracts for the harvest of timber on state lands. DOF also receives Detailed Plans of Operation (DPO) for harvest of timber on private, municipal, and trust lands. These documents are an integral part of Alaska's forest practices regulatory program. The DOF is required to provide these planning documents to DEC and DFG. DEC and DFG review the Forest Land Use Plans

and DPO's to evaluate potential impacts on water quality and habitat. DEC and the DFG provide comments to DOF based on the above statutes and regulations to ensure that the BMPs contained in FRPA are implemented in the field.

## **2. Regulatory Controls for Forest Activities on Federal Lands**

The second regulatory component of Alaska's forestry program pertains to forestry operations on federal lands. Forestry operations on federal lands in Alaska are regulated by the 1990 Tongass Timber Reform Act (TTRA), the 2008 revision of the Tongass Land Management Plan (TLMP) and the CWA.

Currently, almost all forestry operations on federal lands in Alaska occur within the Tongass National Forest which is located in southeast Alaska. The Chugach National Forest Land and Resource Management Plan did not establish an allowable timber sale quantity and, therefore, no significant commercial timber harvest activities are planned for that forest. The Bureau of Land Management (BLM) manages vast forest resources in the interior portion of Alaska but these lands are generally not developed for timber harvest due to poor access and other factors.

Prior to July 1, 2011, federal timber sale activities in Alaska were required to meet or exceed the requirements of the FRPA and its implementing Regulations, which constituted the standards of the Alaska Coastal Management Program (ACMP) for forest practices activities. The ACMP expired on June 30, 2011 and was not extended by the Alaska Legislature. It is unknown whether a new ACMP will be developed in the future. However, the U.S. Forest Service will continue to provide all timber sale planning and National Environmental Policy Act (NEPA) documents to the State and the State will continue to comment on USFS timber sales on the Tongass National Forest under the National Environmental Policy Act (NEPA) and Section 319(k) of the Clean Water Act. The State will also continue to participate in monitoring timber harvest and other activities, and continue to work with the USFS in ongoing efforts to improve the economic viability of the timber sale program, and to adjust the Tongass Forest Plan, if necessary.

### **B. Key Partnerships**

Partnerships between state agencies, federal agencies, and the private sector are essential to successful implementation of the Strategy. Key partnerships already in place include the following:

FRPA implementation- The FRPA depends on collaborative work by the state resource agencies; DNR/DOF is the lead agency. The agencies review notifications of operation and jointly conduct field inspections. The agencies also conduct BMP monitoring and perform road condition surveys. DEC is granted due deference for water quality issues, and DFG is granted due deference for fish habitat issues. DFG also is responsible for resolving questions regarding stream classification on private land in Region I.

- Research- Each year, DOF convenes a meeting to discuss and establish interagency and stakeholder funding priorities for water quality-related research and effectiveness monitoring of the FRPA and Regulations. Partners in this effort include representatives of state and federal agencies, the University of Alaska, native corporations, the timber industry, and environmental groups.
- Board of Forestry- Oversight for implementation of the FRPA is provided by the Board of Forestry with broad representation of affected interests.

## **C. Goals for Reduction of Pollution from Forest Practices**

Responsible agencies will provide the appropriate items to DEC to document the implementation and effectiveness of the management measures contained in the FRPA, forest practices regulations, and the Standards and Guidelines contained within Tongass Land Management Plan. Alaska's nonpoint source water pollution goals with respect to Forest Practices follow:

### **Goals for Private, State, and Other Public Lands**

- Annual State agencies meetings will continue to set priorities and estimate budgets for the upcoming fiscal year. Top priorities should include evaluating and inspecting Forest Practices activities with the most risk of causing adverse impacts to water quality. The top priority for state agencies is continued funding for state agency personnel to conduct FRPA related work.
- Conduct ongoing review and evaluation of selected planning documents prepared under the forest practices program including Forest Land Use Plans and Detailed Plan of Operations to assure that adequate BMPs are in place to protect water quality.
- Conduct ongoing, periodic field inspections of timber harvest operations on state, private and municipal lands to assess compliance with the FRPA. Complete compliance score sheets for each inspection, and annually compile compliance data.
- Provide training for state agency staff, forest land owners, and timber harvest and road construction operators through training workshops and field trips, and prepare and distribute public information materials.

### **Goals for Federal Lands**

- Conduct routine forest practices activities including: 1) state review and evaluation of selected Forest Service planning documents to determine consistency with the National Environmental Policy Act (NEPA) and Section 319(k) of the Clean Water Act, state and federal regulations, Forest Service



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- BMPs, and the *Alaska's Nonpoint Source Water Pollution Control Strategy*; 2) ongoing, periodic field inspections of timber harvest and road construction operations on National Forest lands in cooperation with the Forest Service; and 3) annual BMP implementation monitoring on a sample of national forest Ranger Districts with timber harvest and/or road construction activity.
- Evaluate the effectiveness of Forest Service BMPs in meeting State Water Quality Standards and protecting beneficial uses of waters of the state. Document these evaluations and make needed recommendations to improve future management through the Forest Service's National Core BMPs.

<b>Table 3. Forest Practices (FP) Action Plan</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies</b>	<b>Timeframe for Completion of Action</b>
<b>FP-A. Action Plan Tasks for Forestry Activities on Private, State and other Public Lands.</b>		
FP-A1. Conduct ongoing review and evaluation of selected planning documents prepared under forest practices program including forest land use plans and detailed plans of operation to assure that adequate BMPs are in place to protect water quality.	DNR, DFG, DEC	Ongoing
FP-A2. Conduct ongoing, periodic field inspections and compile compliance score sheets for timber harvest operations on state, private and municipal lands to assess compliance with the FRPA.	DNR, DFG, DEC	Ongoing
FP-A3. Provide training for state agency staff, forest landowners, and timber harvest and road construction operators through workshops and field trips, and prepare and distribute public information materials	DNR, DFG, DEC	Ongoing
<b>FP-B. Action Plan Tasks for Forestry Activities on Federal Lands</b>		
FP-B1. Conduct routine forest practices activities including: 1) state review and evaluation of selected USFS planning documents to determine consistency with the state forest practices regulations and to demonstrate consistency with the Alaska Nonpoint Source Water Pollution Control Strategy, 2) ongoing, periodic field inspections of timber harvest and road construction operations on National Forest lands in cooperation with the USFS, and 3) annual BMP implementation monitoring on all national forest Districts with timber harvest and/or road construction activity.	DEC, DFG, USFS	Ongoing
FP-B2. Monitor the implementation of USFS BMPs developed for protecting water quality during land disturbing activities including timber harvesting and road construction, maintenance, and closure, and report the results in the annual Tongass National Forest Monitoring and Evaluation Report	USFS, DEC, DFG	Ongoing

Key  
 DEC Department of Environmental Conservation  
 DFG Department of Fish and Game  
 DNR Department of Natural Resources  
 USFS US Forest Service

## **Harbors and Marinas**

A variety of challenges face harbormasters, water quality agency staff, and users of the state's harbors and marinas to prevent water pollution in and adjacent to these developed facilities. Water pollution sources from Harbors and Marinas are: harbor dredging, upland hull maintenance areas, fueling stations, construction and maintenance of sewage facilities, solid waste, and solid waste from the use of tidal grids, fish waste, hazardous material, stormwater runoff, and petroleum products.

### **A. Regulatory Controls**

#### **Department of Natural Resources**

##### **Management of Boat Operation**

DNR manages recreational uses and development activities, including boat operation, through Alaska Statutes (AS) 41.21.020 (duties and powers of Natural Resources; limitations), and AS 41.21.500 (Purpose of AS 41.21.500 - 41.21.514) and their pursuant regulations. DNR enforces regulations specific to the issue of boat operation for purposes of protecting fisheries and wildlife and their habitats within the Kenai River Special Management Area, in 11 AAC 20.860 (boat motor use), 11 AAC 20.862 (boating methods), 11 AAC 20.865 (establishment of non-motorized areas), 11 AAC 20.867 (personal water craft), and 11 AAC 20.870 (boating and aircraft speed limits).

DNR regulations applicable to other State recreation areas and other state land include 11 AAC 20.922 (use of power boats at Rocky Lake State Recreation site) and 11 AAC 20.985 (use of motorized boats) in twelve state recreation areas. Additionally, the director of the Division of Parks may impose restrictions on a use or activity in order to protect environmental values and resources. If the restriction is significant, it must be adopted as a regulation.

##### **Municipal Nonpoint Source Pollution Ordinances**

Thirteen local governments in coastal areas enforce ordinances regarding boat operation. The linked table in Appendix F provides information on local ordinances and management practices of various Alaska communities, which manage boating activities to decrease turbidity and physical destruction of shallow water habitat.

##### **Department of Transportation and Public Facilities**

DOTPF negotiates harbor management agreements with communities to maintain and operate state harbor facilities. The management agreements are written in general terms to ensure the operator complies with all existing and future federal, state and local laws, regulations, and ordinances. The agreements may be supplemented to specifically cite new rules or regulations. If nonpoint source pollution controls are adopted under a federal law, state statute or municipal ordinance, they will automatically be included in the agreements. If nonpoint source pollution controls are adopted in the form of guidelines, they may be recommended by the state for implementation. Funding for these changes would come from increased user fees or state grants. DOTPF has the authority to ensure compliance with the harbor management agreements. Failure to comply with terms of the agreement is set out in each individual agreement. In general, the state may cancel the agreement on 60-day notice for failure to comply with its terms. The operator

may also cancel the agreement, in which case the state would be responsible for operation and maintenance of the facility.

The Coastal and Harbors Design Procedures manual was cooperatively written by DOTPF and the U.S. Army Corps of Engineers (COE). The final manual addresses all aspects of siting and design of harbors including flushing, water quality assessment, habitat assessment, shoreline stabilization, stormwater runoff, fueling station design, sewage facilities, grids and solid waste management. Other state and federal agencies review and comment on the manual as it is periodically updated. The manual recommends best design practices for coastal harbor design Best Management Practices. The web address for this manual is:

<http://www.dot.state.ak.us/stwddes/desports/#resources>

The Alaska Sea Grant College Program, University of Alaska Fairbanks published the Northern Harbors and Small Ports Operation and Maintenance manual. This manual includes chapters on best management practices for hazardous and other materials used in harbor construction and maintenance, operation and maintenance of marine structures such as fish cleaning stations and mooring docks, and a thorough discussion of marine construction materials. The web address for this manual is:

[http://www.dot.state.ak.us/stwddes/desports/assets/pdf/northharbors\\_smports\\_ops.pdf](http://www.dot.state.ak.us/stwddes/desports/assets/pdf/northharbors_smports_ops.pdf)

## **B. Key Partnerships**

Key partners for harbors and marinas include the Alaska Association of Harbormasters and Port Administrators; State of Alaska resource agencies (DEC, DNR, and DFG); the Army Corps of Engineers; the United States Coast Guard; the DOTPF; University of Alaska Marine Advisory Program, , municipalities, citizens concerned by harbor and marina activities, and coastal district coordinators.

## **C. Goals for Reduction of Nonpoint Source Pollution from Harbors and Marinas**

Alaska's nonpoint source pollution goals with respect to Harbors and Marinas follow:

- Education of harbor and marina users that their actions can affect water quality and cause pollution.
- Design future harbors and marinas to maximize opportunities for adequate flushing and to incorporate infrastructure to address sewage, used oil, other vessel-generated wastes, and stormwater issues that affect water quality.
- Increase the number of harbors that are Clean Harbor certified.
- Support DOT in any requests to support development of Harbor Management Agreements for communities that need them.
- Expand existing harbor and marinas to include fish waste disposal, hazardous waste collection efforts, construct new and expand existing pump-out stations.

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- Encourage community workshops on spill prevention planning and how to comply with the Marine Oil Pollution (MARPOL) Act and DEC spill regulations.

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<b>Table 4. Harbors and Marinas Action Plan (HM)</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe For Completion of Action</b>
HM-1. Provide Corps of Engineers guidelines to dredging activities to minimize impacts of dredging & disposal of dredged material	DOTPF, Local Govts, Corps of Engineers	On-going
HM-2. Maintain U.S. Coast Guard requirement that fuel spills over five gallons are reported. Maintain DOTPF Harbor Management Agreements that require fuel dock operators to have spill equipment on-scene, and appropriate spill prevention plans. Hold workshops on how to prepare oil spill response plans and how to comply with MARPOL and DEC regulations.	Coast Guard DOTPF Local Govts	On-going
HM-3. Establish procedures to ensure water quality and aquatic habitat concerns are considered in design and siting of new and significantly expanding marinas. Ensure developers who site and construct harbors or marinas are familiar with Alaska Coastal and Harbor Design Procedures manual.	DOTPF Local Govts	On-going updates to existing manuals
HM-4. Continue to participate in the Alaska Clean Harbors (ACH) program. The ACH program is a voluntary program to reduce pollution from harbor and boating activity. Attend ACH technical advisory committee meetings as scheduled, 2-3 times per year.	NGO, Harbormasters	On-going  Two additional harbors certified by ACH by 2018
HM-5. For harbors, marinas and other areas where fish waste or sanitation is an issue, work to improve fish waste disposal or install sewage pump outs.	DOTPF, DEC Local Govts	2018

Key:

DEC - Department of Environmental Conservation

DOTPF - Department of Transportation and Public Facilities

NGO – Non-governmental organization

## **Hydromodification**

Hydromodification refers to activities relating to dams, channelization, channel modifications, water withdrawals and human-caused shoreline and stream bank erosion that can adversely affect water quality.

### **A. Regulatory Controls**

#### **Department of Natural Resources**

##### **Division of Mining, Land and Water**

The Department of Natural Resources has the authority under AS 46.17 to adopt regulations and issue orders necessary for ensuring dam safety. DNR enforces dam safety statutes and regulations through appropriate legal actions, if necessary, including issuing injunctions assuming operational control of the dam, breaching the dam, or other activities necessary to mitigate the risk. DNR permit requirements are enforced with the assistance of the state attorney general. A person is guilty of a Class A misdemeanor if the person “knowingly...violates...an approval, order, regulation, or requirement...” of the Department. If the situation demands, the Department of Natural Resources can seize control of a dam in an emergency and require the owner to comply with the permit conditions or have the work done and charge the owner. Persons giving false reports regarding the condition of a dam can be prosecuted under criminal statutes.

Under AS Sec. 46.15.147. *Termination of permits*, the DNR Commissioner can terminate the appropriation permit if the commissioner believes the permittee is willfully violating or has willfully violated a term, condition, restriction or limitation of his permit. Under AS Sec. 46.15.180. *Crimes*, a person who violates the Water Use Act as specified in this section is guilty of a misdemeanor.

*Article 6. Enforcement of 11 AAC 93.230 Water Management Regulations* specifies that a violation of a provision of the regulations, a lawful order of the commissioner issued under AS 46.15, or a term or condition of a permit or certificate issued under this chapter is subject to corrective action under 11 AAC 93.280-11 AAC 93.290.

##### **Water Resources Section**

The Division of Mining, Land and Water, Water Management Unit is responsible for the following:

- Evaluate in-water related development projects (hydroelectric developments, public water supply, water exports, etc.) that may have the potential to negatively impact fish and wildlife resources and access to those resources through the appropriation and use of water.
- Collect and analyze data to ensure that water-related development projects leave enough flow to support existing permitted uses and the public interest such as recreation, transportation, fish, wildlife and aquatic habitat.
- Facilitate permitting as a multi-agency effort to ensure the maximum use of water resources and still protect holders of prior water rights, as well as water quality, fish and wildlife populations, aquatic habitat, and other public interests.



## **Alaska Hydrologic Survey**

The objective of the Alaska Hydrologic Survey (AHS) is to provide technical hydrologic information to ensure proper and accurate management of the State's water resources for the benefit of the people of the State of Alaska. Hydrologic data are provided to state, federal, and municipal governments, as well as industry and the general public. The statutory basis for the AHS existence and programs are under AS 41.08. Under this statute, AHS is specifically charged with "the systematic collection, recording, evaluation, and distribution of data on the quantity, location, and quality of water of the state in the ground, on the surface of the ground, or along the coasts, are in the public interest and necessary to the orderly domestic industrial development of the state.

More information is available on the DNR, Alaska Hydrologic Survey website at:

<http://dnr.alaska.gov/mlw/water/hydro/index.cfm>

## **Dam Safety Construction Unit**

DNR is the lead agency for implementation of the Alaska Dam Safety Program, administered by the Dam Safety and Construction Unit. The dam safety regulations are articulated under Article 3 of 11 AAC 93. The current dam safety regulations require the applicant to submit an erosion control plan. The Dam Safety and Construction Unit considers the stability of the stream channel immediately above and below the dam, how the stream will be controlled during construction, the dam foundation materials, the method of construction and dam construction materials, and site surface drainage during construction in their review process.

For existing dams, a current periodic safety inspection and a current operations and maintenance manual are required to receive a certificate of approval to operate a dam. A new certificate of approval to operate a dam is required every three years for Class I (high) and Class II (significant) hazard potential dams, and every five years for Class III (low) hazard potential dams. 11 AAC 93.19 requires the periodic safety inspection to be conducted by an Alaska registered, professional engineer under guidance provided by the Department of Natural Resources.

## **Department of Fish and Game (DFG)**

### **Office of Habitat Management and Permitting (OHMP)**

DFG may request that monitoring (pre, during, and post-construction) and mitigation provisions be integrated into the project plan during the early design phase. Pre-project studies are requested when data are insufficient for assessing the environmental impacts of a proposed project.

AS 41.14.840 (formerly AS 16.05.840), mandates that activities within a waterbody provide efficient fish passage, both upstream and downstream. Currently, OHMP applies this standard to all waterbodies known to support fish (resident or anadromous). There is no formal catalog of documented resident fish streams equivalent to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes. OHMP does not apply the fish passage statute where the presence of fish is not documented. If OHMP is

not certain of the absence or presence of fish, they may require developers to conduct field work to identify if fish are present.

AS 41.14.870, requires: a) the Deputy Commissioner of the Department of Fish and Game to specify the waterbodies important for the spawning, rearing, or migration of anadromous fish; b) a person or agency to notify OHMP before beginning any activities using, altering, or polluting a specified anadromous fish waterbody; and c) a person or agency must receive OHMP approval of project plans before beginning the proposed activity.

## **Statewide Aquatic Resources Coordination Unit (SARCU)**

The SARCU provides departmental coordination, scientific expertise, core personnel, data collection and analyses, and other relevant scientific information and actions needed by the DFG to comply with state, federal, and local laws. Fish, wildlife, and aquatic data are obtained, analyzed, and effectively used to make recommendations for sustaining fish and wildlife production, including waterway access.

## **Sport Fish Division**

Chapter 20 of Title 16 provides the DFG and the Boards of Fish and Game permit jurisdiction over all land use activities within the State of Alaska's "Special Area" system of refuges, critical habitat areas, and sanctuaries. The Statewide Instream Flow Coordinator in the Division of Sport Fish also reviews many dam and channel modification proposals and estimates instream flow impacts.

## **Department of Environmental Conservation**

The department regulates solid waste, liquid wastes, hazardous materials, and petroleum transportation and spills. Developers must obtain permits from the department if any of these materials will be used or generated during the construction or operation of dams or channel modifications. DEC is the lead water pollution control agency

## **Division of Water**

The division issues Section 401 Water Quality certifications. DEC must certify, waive certification, or deny that an application for a federal license, such as a Federal Energy Regulatory Commission (FERC) license or CWA Section 404 permit that allows discharges into the navigable waters of the state meets Water Quality Standards. DEC has conditioning authority under the Federal Power Act, and may attach stipulations, including erosion and sediment control and stormwater runoff control measures, to the 401 certification to ensure that the project will not violate water quality standards.

## **Department of Commerce Community and Economic Development**

Borough and city government floodplain management ordinances cover approximately 85% of the State's population that live in a community that regulates floodplain development through National Flood Insurance Program (NFIP) ordinances. The Department of Commerce, Community and Economic Development (DCCED), Division

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of Community and Regional Affairs is the State coordinating office for the NFIP and has developed a 5-year *Plan for Floodplain Management in Alaska*. Through improved mapping of hazard areas, and updating and improved implementation of the Governor's Administrative Order 175 for Floodplain and Erosion management, channel modifications and human-caused changes that result in erosion should be reduced. The DCCED is working with local governments to add "No Adverse Impact" floodplain clauses to ordinances that are updated as flood maps are updated. The majority of communities participating in the NFIP are also coastal districts.

DCCED's 5-Year Plan for Floodplain Management objectives that relate are:

- Cutting the average age of Alaska's flood maps in half (10.5 years) from 20.8 years ;
- Producing digital flood hazard maps with up-to-date flood hazard data for the 15-percent highest priority areas in the state; and
- Developing flood hazard maps for one-half of the unmapped, flood prone communities in Alaska.
- Developing an integrated floodplain and erosion management program. Currently no clear erosion management policies are coordinated at the federal and State level in Alaska. Goal is to integrate floodplain and erosion management.
- Establishing a Federal-State Floodplain and Erosion Mitigation Commission to provide a coordinated management approach to the communities most threatened by flooding and erosion; provide guidance for community relocation. Establishing an erosion assessment program for the most erosion prone communities/areas of the State and integrating, where applicable, with digital flood hazard data layers.
- Helping all of Alaska's Borough governments participating in the NFIP with compliant ordinances.
- Updating the State's Flood Insurance Rate Maps (FIRMs) and produce flood and erosion hazard maps for unmapped NFIP participating communities according to the following goals from Alaska's Map Modernization Plan (dated August 2002).

## **B. Key Partnerships**

Key partners for preventing damage from hydromodification activities include the State of Alaska's resource agencies (DEC, DNR, DFG); the Army Corps of Engineers; the Natural Resources Conservation Service; federal land management agencies if the activity is within their land management jurisdiction (Bureau of Land Management, USFS, U.S. Fish & Wildlife Service and the National Park Service); and municipalities, organizations, private landowners and citizens that are concerned about a proposed hydromodification activity or stream bank erosion impacts.

## **C. Goals for Reducing Nonpoint Source Pollution from Hydromodification**

Alaska's nonpoint source pollution goals with respect to hydromodification follow:

- Maintain water quality and quantity in watersheds.
- Maintain healthy populations of plant and animal species by maintaining the aquatic and riparian habitats necessary to sustain them.

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- Restore degraded water quality and quantity to meet Water Quality Standards and protect designated uses.
- Restore damaged aquatic populations by restoring their habitats.

<b>Table 5. Hydromodification Action Plan (HY)</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
<b>HY-A. Dams:</b>		
HY-A1. Conduct project reviews of hydrologic activities to ensure that an adequate amount of water is reserved in lakes, rivers and streams to support fish populations.	DFG, DEC, DNR	On-going
<b>HY-B. Channel Modifications And Channelization:</b>		
HY-B1. Ensure proposed channel modification and channelization projects are designed and monitored to minimize impacts to streams. Incorporate bioengineering techniques in design of stabilization projects to protect channelized streams.	DFG, DNR, NRCS	On-going
HY-B2. Identify, channel segments that have been significantly modified, or have significant erosion or habitat impacts, and work with landowners to conduct stream banks for restoration activity.	DEC, DFG, DNR, Federal agencies	On-going
<b>HY-C. Shoreline and Stream Bank Erosion:</b>		
HY-C1. Continue development of mechanisms to protect and restore habitats, using standardized data collection and management systems that allow for sharing data.	DFG	On-going
HY-C2. Monitor effectiveness of past habitat protection projects and report results in standardized manner. NOTE: Reports should be updated periodically as new information becomes available.	DFG	On-going
HY-C3. Increase public awareness of the characteristics of intact and damaged aquatic habitats, the need to protect and restore aquatic habitats, and techniques to protect and restore aquatic habitats.	DFG, DEC	On-going

Key:

- DEC                   - Department of Environmental Conservation  
 DFG                   - Department of Fish and Game  
 DNR                   - Department of Natural Resources Office

## **Mining**

Before the large-scale development of oil resources in the 1970's, gold was historically Alaska's most valuable resource commodity. Significant changes have occurred in the Alaskan mining industry, including a major increase in the exploration for hard-rock gold and base metal deposits with the resultant expansion and development of existing and new lode gold mines

### **A. Regulatory Controls**

#### **Hard Rock**

Nonpoint source pollution from hard-rock and coal mining operations are regulated through APDES permits, BLM 3809 regulations, the Alaska Surface Mining Act, and the State of Alaska Reclamation Act. These regulations place requirements not only on discharges but on facility operations.

DNR is the lead agency for coordination of a large project permitting, multi-agency team review of proposed large mine projects. Tailings and waste rock can be covered under DEC Solid Waste permits. Both the application of BMPs and the issuance of APDES permits can address waste rock discharges. BLM and DNR regulations require the assessment of acid rock drainage potential of ore and waste to minimize the potential for offsite drainage, and waters originating from waste dumps must meet DEC Water Quality Standards.

APDES permits do not necessarily preclude nonpoint source or stormwater impacts. Adequate closure plans should be implemented to reduce the post-development nonpoint source impacts; BLM Section 3809 regulations and the State of Alaska Reclamation Act regulate these.

General or individual federal or state permits are another option for handling water permitting. The specific types of issues covered by these permits include: sediment that can drain from roads, wheel washing, concentrate on-and off-loading, waste rock storage, quarries, pit lakes, borrow pits producing fine sediment runoff, fuel and hydraulic fluid leak potential, and fill areas. There is the potential for acid generation or elevated metals in the runoff from these areas. Monitoring at specific sites for specific parameters of concern is considered in determining the APDES reporting requirements.

#### **Placer Mines**

The two significant nonpoint source pollutants related to placer mining is sediment and turbidity. An APDES permit is required if there is any point source wastewater discharged to surface waters. This permit contains effluent limitations, BMPs, and monitoring requirements. The effluent limitations address settleable solids, turbidity, and total arsenic. Seasonal and daily monitoring are required and penalties for a negligent violation are set at maximum of \$25,000 per day for each violation. Most placer operations today use BMPs to achieve zero discharge. These BMPs require:

- Bypassing surface water around the active mine area.
- Constructing berms and other water retention structures so that they prevent the passage of water.

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- Storing pollutant materials (e.g., sediment) so that they are not released to streams using 100 percent process water recycling.
- Maintaining dikes and diversion structures to protect them from failure.
- Stabilizing all mine areas to prevent degradation of the receiving waters.

The State of Alaska Reclamation Act of 1991 requires reclamation of mining activities on all state and private lands. All operations on federal lands, and operations on state and private lands that exceed five acres of unreclaimed area, are required to post reclamation bonds to ensure the disturbed area is reclaimed.

Nonpoint source pollution due to runoff and erosion from mined areas, roads and camps can be controlled by enforcement of Bureau of Land Management 3809 regulations, the State of Alaska Reclamation Act and the use of BMPs referenced in the Placer Mining Reference Manual from DFG. In 2014, DEC anticipates completing an additional BMP booklet.

### **Coal**

The federal Surface Mining Control and Reclamation Act was signed into law in 1977 to regulate surface coal mining and reclamation nationwide. The law provided state's the opportunity to develop state coal programs and assume primacy over the coal program from the federal government. Alaska chose to administer the program and the Alaska Surface Coal Mining Control and Reclamation Act was approved in 1983. The Commissioner of the Department of Natural Resources was granted jurisdiction over surface coal mining and reclamation operations in the state.

### **Abandoned Mines**

Historic abandoned mine sites exist in Alaska and can be potential sources of nonpoint source pollution. Reclamation of abandoned mines is handled primarily through DNR's Abandoned Mine Lands (AML) Program. State and federal laws created the AML Program for the purpose of reclaiming abandoned historic mines.

Land and water eligible for reclamation were those that were mined or affected by mining and abandoned or left in an inadequate reclamation status before August 3, 1977, and for which there is no continuing reclamation responsibility under State or federal law. AML funds could be spent on coal and non-coal abandoned historic mines. State, private, native and federal lands were eligible. Sunset for the collection of AML funds was the year 2004, set by federal law.

Every inventoried site was evaluated to determine if it qualified for AML funding. Federal policy requires that priority one and two coal projects be completed first. Priority three coal projects could be completed in conjunction with priority one and two projects or after all priority one and two projects had been completed. Only priority one non-coal projects can be reclaimed. Priority one non-coal sites can be worked on simultaneously with coal sites if the Governor has requested them. Because of the subjective nature of the criteria, priority two non-coal sites were identified for further evaluation. The three reclamation priorities are:



- Protection of public health, safety, general welfare and property from extreme danger resulting from the adverse effects of past coal mining practices.
- Protection of public health, safety and general welfare from adverse effects of past coal mining practices which do not constitute an extreme danger.
- Restoration of eligible lands and waters and the environment previously degraded by adverse effects of past coal mining practices, including measures for the conservation and development for soil, water (excluding channelization), woodland, fish and wildlife, recreation resources, and agricultural productivity.

## **B. Key Partnerships**

Key partners for preventing nonpoint source pollution from mining activities include the Departments of Environmental Conservation, Fish and Game, and Natural Resources; federal land management agencies if the activity is within their land management jurisdiction (Bureau of Land Management, U.S. Fish & Wildlife Service and the National Park Service); the EPA; tribal entities; and non-governmental organizations that deal with the mining industry. Miners are key participants in accomplishing the site work that would need to be done for long-term reclamation. Other important key partners are Resource Conservation & Development Council and the Alaska Miners Association.

## **C. Goals for Reduction of Nonpoint Source Pollution from Mining**

Alaska's nonpoint source pollution goals with respect to mining follow:

### **Active Mines**

- Reduce erosion and runoff from disturbed upland areas during the active mining process.
- Focus agency efforts on land management for road building; borrow pits, culverts, and other mine features.
- Expand monitoring programs to assess nonpoint source impacts of mine expansions and impacts to creek drainages.
- Increase awareness of permit requirements.

### **Abandoned Mines**

- Protection of public health, safety, general welfare and property from extreme danger resulting from the adverse effects of past coal mining practices.
- Protection of public health, safety and general welfare from adverse effects of past coal mining practices which do not constitute an extreme danger.
- Restoration of eligible lands and waters and the environment previously degraded by adverse effects of past coal mining practices, including measures for the conservation and development for soil, water (excluding channelization), woodland, fish and wildlife, recreation resources, and agricultural productivity.



<b>Table 6. Mining Action Plan (MI)</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
MI-1. Distribute guidelines to help miners, companies, and government land managers reclaim mine sites effectively and economically.	DNR, DEC, DFG, Tribes, NGO	On-going
MI-2. Continue to investigate historic mining operations, conducting sampling where feasible.	DNR, DEC, DFG	On-going
MI-3. Provide technical assistance to miners and landowners in applying and complying with reclamation standards. Conduct turbidity outreach, monitor effectiveness of BMPs designed to reduce or control sedimentation from placer and gravel extraction activities.	DNR, DEC, DFG	2020
MI-4. Continue evaluation of effectiveness of BMPs, and develop improved BMPs where necessary.	DNR, DEC	On-going
MI-5. Work with Federal resource agencies to cleanup selected abandoned mines. Other mines under a reclamation and closure plan should have those plans closely monitored for effectiveness of reclamation and restoration approaches	DNR, DEC, F&G, EPA, BLM, NPS	Ongoing

- Key
- BLM - Bureau of Land Management
  - DEC - Department of Environmental Conservation
  - DFG - Department of Fish & Game
  - DNR - Department of Natural Resources
  - EPA - U.S. Environmental Protection Agency
  - NGO - nongovernmental organization
  - NPS - National Park Service

## **Agriculture**

Agriculture in Alaska is not the extensive source of nonpoint source pollution unlike most areas of the contiguous United States. According to the 2010 US Census, only 1.5% of employed Alaskan's worked in farming, fishing or forestry occupations. In 2002 United States Department of Agriculture (USDA) State Marketing Profiles listed Alaska with total farm marketing of 46 million dollars. This publication also ranked Alaska 50th of the 50 states in order of total farm marketing and ranks greenhouse/nursery, dairy products, hay, and potatoes as the four principal commodities in Alaska by order of marketing.

Alaska's total number of acres in cropland as of 2007 was 86,238 acres out of a total land area of 366 million acres, a small decline since 2002. According to the United States Department of Agriculture 30,000 acres of harvested cropland existed in 2007. In 2007 there were approximately 600 farms in Alaska the majority with less than \$10,000 in sales. These figures are from the United States Department of Agriculture Economic Research Service. The major source of agriculture related income is from nurseries and greenhouses in the Anchorage and Fairbanks areas. These figures do not take into account the much larger acreage of identified agricultural land that is currently rangeland, fallow, in Federal Reserve programs, or still forested. Alaska's agricultural production has been relatively stable for a number of years. Sustainable agriculture will potentially be an important part of the future economy of the State.

DEC's current List of Impaired Water Bodies does not identify any water bodies for which the beneficial uses are impaired solely because of agricultural activities. This is a result of a combination of the relatively small size of the agricultural sector and nature of agricultural operations in the state.

### **A. Regulatory Controls**

There are limited regulatory controls on agricultural operations in Alaska. Voluntary, best management practices are encouraged. The National Resource Conservation Service has a number of programs, such as the Environmental Quality Incentives Program, to help manage agricultural operations in a sustainable fashion.

### **B. Key Partnerships**

The Natural Resources Conservation Service (NRCS), Alaska Department of Natural Resources Division of Agriculture, U.S. Department of Agriculture, Alaska Department of Fish And Game, University of Alaska Cooperative Extension, U.S. Environmental Protection Agency, Alaska Association of Conservation Districts and representatives of the general public interested in preventing and controlling water pollution from Agriculture.

### **C. Goals for reduction of Nonpoint Source Pollution from Agriculture**

DEC's nonpoint source pollution goals with respect to agriculture are as follows:

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- Continue to monitor the size and nature of the agriculture sector for any indications that the long-term trend of low levels of pollution might be changing.
- Maintain contact with stakeholders who are active in the agricultural sector and support identified efforts to prevent or control those sources of pollution that are identified as being of concern.
- Continue to support the main agricultural agencies in the state, DNR and Natural Resource Conservation Service (NRCS), in their efforts to prevent or reduce surface and groundwater pollution from agricultural activities.
- Monitor trends in the growth of feedlots and dog mushing kennels to assure that these animal-feeding operations do not cause serious, localized pollution problems.
- Support monitoring of the atmospheric deposition of pesticides from outside Alaska in arctic Alaska and in the marine food chain.

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<b>Table 7. Agriculture Action Plan (AG)</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Action</b>
AG-1. Continue to work with partners provide funding for priority agricultural nonpoint source projects to the extent that they are identified as serious threats to water quality.	DEC, DNR, NRCS, SWCDs	On-going 1 BMP installed per year BMP effectiveness monitoring by in Cottonwood Creek or Anchorage Bowl by 2018

**Key:**

- DEC - Alaska Department of Environmental Conservation
- DNR - Alaska Department of Natural Resources
- NRCS - Natural Resources Conservation Service
- SWCDs- Soil and Water Conservation Districts

## Roads Highways and Bridges

Most of Alaska is not connected to the highway system. Many communities have limited local road networks that are unconnected to any statewide road network. Residents of these communities depend on a combination of air travel and fresh water or marine vessel transport for supplies and travel outside their communities.

In 2011, Federal and State agencies, municipal governments and local communities reported 16,674 miles of public roads in Alaska. The 2011 Certified Public Road Mileage Report provides detailed summaries

at: <http://www.dot.alaska.gov/stwdplng/transdata/public-road-data.shtml>

The majority of this network is managed by the Alaska Department of Transportation & Public Facilities (5,608), Boroughs (3,672 miles), and tribes (3039 miles).<sup>[1]</sup> In addition, several agencies manage roads in Alaska (e.g., US Forest Service, National Park Service, US Army, US Navy).

### A. Regulatory Controls

Many of the highway projects in rural Alaska involve wetlands. A CWA Section 404 permit from the Corps of Engineers is required when wetlands or waterbodies are filled. This permit requires a 401 certification from the State of Alaska. The 401 certifications are issued by DEC and are the state's statement of reasonable assurance that the discharge will meet WQS. To meet the WQS, DEC may attach stipulations, including erosion and stormwater controls, to this certification.

State regulations require that anyone who constructs, alters, installs, modifies, or operates any part of a stormwater treatment or disposal system submit engineering plans for review.

DOTPF complies with these regulatory controls through its use of the Project Development and Maintenance Environmental Review Procedures; DOTPF's Alaska Highway Drainage Manual; DOTPF's Alaska Storm Water Pollution Prevention Plan Guide; DOTPF's BMPs for Construction Erosion and Sediment Control & Maintenance and Operations Activities, and the Federal Highway Administrations State Planning and Research Program.

### B. Key Partnerships

Local: borough governments, municipal governments

State: DOTPF

Federal: Corps of Engineers, U.S. Department of Interior, U.S. Forest Service

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<sup>[1]</sup> Information provided by DOTPF based on their 2011 survey

### **C. Goals for Reduction of Nonpoint Source Pollution from Roads, Highways and Bridges**

- Protect sensitive ecosystems, including wetlands and estuaries by minimizing road-building mileage in those systems, minimizing the number of water crossings, and establishing protective measures including setbacks during construction.
- Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss.
- Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss.
- Limit disturbance of natural drainage features and vegetation.
- Limit runoff of pollutants through the use and proper maintenance of structural controls.
- Limit generation of pollutants from maintenance operations by minimizing the use of pesticides, of hazardous materials and incorporating measures to prevent spillage in sensitive areas.

#### **Planning, Siting, and Developing Roads and Highways**

Plan, site, and develop roads and highways to:

- Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss.
- Limit land disturbance such as clearing and grading and cut and fill to reduce erosion and sediment loss.
- Limit disturbance of natural drainage features and vegetation.

#### **Site, design and Maintain Bridges**

- Site, design, and maintain bridge structures so that sensitive and valuable aquatic ecosystems and areas providing important water quality benefits are protected from adverse effects.

#### **Construction Projects**

- Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction.
- Prior to land disturbance, prepare and implement an approved erosion control plan or similar administrative document that contains erosion and sediment control provisions.

**Construction Site Chemical Control**

- Limit the application, generation, and migration of toxic substances;
- Ensure the proper storage and disposal of toxic materials; and
- Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

**Operation and Maintenance**

- Incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters.

**Roads, Highway, and Bridge Runoff Systems**

- Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures).

<b>Table 8. Roads, Highways, and Bridges Action Plan (RHB)</b>		
<b>Action Plan Objectives &amp; Tasks</b>	<b>Responsible Agencies &amp; Organizations</b>	<b>Timeframe for Completion of Action</b>
RHB-1. Work with local communities and agencies to incorporate pollution prevention procedures into road operation and maintenance, and design/ construct structures to minimize environmental impact.	DOT&PF, DEC, Local Governments, Federal agencies	On-going One agency or community incorporates pollution prevention procedures by 2018

Key:

DEC - Alaska Department of Environmental Conservation

DOTPF - Alaska Department of Transportation and Public Facilities



## **Appendices**

Appendix A	Identification High Priority Actions and Waters
Appendix B	Tasks for Reporting in 2014-2018
Appendix C	Information Management
Appendix D	Agencies and Organizations
Appendix E	ACWA Decision Tree & Ranking Process
Appendix F	Local Ordinances on Roads, Highways and Bridges

## Appendix A - Identification of High Priority Actions and Waters for 2016- 2020

The Alaska Clean Water Actions (ACWA) process serves to identify those waters that are high priority to address. Alaska's *Nonpoint Source Water Pollution Control Strategy*, Introduction and Appendix E provide more information on the ACWA process;; DEC's biennial Integrated Report describes in detail the analysis used to identify which waters are the highest priority and whether 1) additional information is needed for the water (Data Collection and Monitoring Track); 2) the water is healthy and has adequate protection (Adequately Protected Waters) or is at risk (Protect and Maintain at Risk); or 3) the water is polluted (Waterbody Recovery). DEC's ACWA web page also provides information on the ACWA process and waterbody priorities.

Alaska is unique. Among all other states, Alaska places highest in almost every category related to waters. Alaska has more than 40% of the entire nation's surface water resources including over three million lakes, over 12,000 rivers, thousands of streams and more coastline than the rest of the U.S. put together. Nearly half of Alaska is considered wetlands. The only area where Alaska does not lead the list is in the numbers or percentages of impaired waters.

As a result, Alaska needs to implement statewide programs or stewardship actions that are designed to protect a wide range of waters. Many of these programs require fostering and maintaining partnerships. Table 1 lists these high priority stewardship actions.

In 2013, approximately 135 waters were identified as a high priority by one or more of the resource agencies. Of these, almost one-third is in a protection category, while nearly half are in need of data. The majority of waters identified by any of the resource agencies as in need of restoration have a restoration plan in place. The lack of waterbody specific analytical data coupled with a large number of waters in need of protection, results in Alaska's Non-Point Source Program needing to use our resources differently than national priority requirements.

Alaska needs to place a high priority on data collection and protection activities while still making progress on known impairments. Table 2 lists those waters DEC designates as high priority watershed projects.

Finally, DEC recognizes the need to make progress on a broader spectrum of activities than those listed in Table 1 and Table 2. Appendix B lists all of the objectives and tasks that DEC will track and report on during state fiscal years 2016-2020.

### Alaska Clean Water Five Year Strategic Plan (SFY 2016-2020)

In 2015, DEC developed a five year plan for the Nonpoint Source Program integrating both the CWA sections 303(d) and 319 national program goals. In the Plan, DEC set a 5-year pollutant focus and seven goals which will be implemented through the actions and tasks in the tables as shown below.

#### Pollutant Focus

- Turbidity/sediment
- Toxics (with emphasis on metals and petroleum)
- Bacteria

## Goals

1. Increase the amount known about Alaska's waters.
2. Standardize how DEC evaluates information for the purposes of listing and delisting a waterbody on the impaired waterbody list by developing listing methodologies and policy.
3. Increase or continue collaboration with other programs, agencies and community-based organizations.
4. Restore waters that are impaired and keep them healthy once restored.
5. Conduct outreach on best management practices (BMPs) so that urban and industrial development sustains water quality.
6. Keep our Clean Waters Clean: Highlight and protect healthy waters that are at risk.
7. Keep our Clean Waters Clean: Educate the public on water quality and smart practices to prevent pollution.

## Implementation Schedule

In order to demonstrate progress in meeting goals and measures in Tables 1 and 2 below, DEC has established numeric annual performance targets in Table 3 for each type of action in the ACWA process. The actual number of projects in category may vary from year to year, but the overall number of actions in each year should be maintained. The nonpoint source water action targets shown in Table 3 may be funded from multiple grant sources including but not limited to CWA 319, CWA106, BEACH Act, and Clean Vessels Act. The NPS annual report will indicate which activities were funded by the CWA 319 program.

The number of waters or projects in Table 3 indicates active work during a given year, but not necessarily waters that have completed that step, since any given step may take two or more years of work to complete. For example, a water would need data collection for at least two years before an attainment or impairment decision can be made. The water would be counted for the data collection track for both of the data collection years.

**Table 1. Stewardship Actions for Protection and Restoration**

<b>Stewardship Action</b>	<b>Description</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>2</sup> Pollutant Focus and Goals</b>
Alaska Clean Harbors (ACH) Program	The program encourages environmentally sound management practices at harbors and marinas by offering an official certification and recognition. ACH was originally supported as a pilot program solely funded by DEC. The program has flourished with two harbors certified and three additional harbors working toward certification. DEC will continue to support this voluntary pollution prevention program by participating in a technical advisory committee that reviews and approves applications for ACH certification.	2018	<ul style="list-style-type: none"> <li>-Attend ACH technical advisory committee meetings as scheduled, 2-3 times/year</li> <li>-Attend and/or present to annual Alaska Harbormasters Conference</li> <li>-Conduct outreach to 5 harbors working towards certification</li> <li>-Assist two harbors in completing ACH certification</li> <li>- Post on web and distribute Alaska Clean Harbors Guidebook</li> <li>-Incorporate Clean Vessels outreach and installation of sewage pump outs</li> <li>-Report on this action in Appendix B, Task HM-4</li> </ul>	Toxics and bacteria 3,5,6,7
Clean Boating outreach campaign	DEC will continue to educate Alaska’s boating community about clean fueling practices by distributing materials and conducting demonstrations at community events. This program works toward protection and restoration.	Annual	<ul style="list-style-type: none"> <li>-Conduct one outreach activity per year</li> <li>-Provide clean boating education materials to all registered boat owners on clean boating practices</li> <li>-Report on this action in Appendix B, Task UR-D3</li> </ul>	Toxics 3,4,5,6,7

<sup>2</sup> DEC. 2015. Alaska Clean Water Five-Year Strategic Plan (FY2016-2020).

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<b>Stewardship Action</b>	<b>Description</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>2</sup> Pollutant Focus and Goals</b>
National Fish Habitat Partnership	DEC will continue to work on these multiagency workgroups designed to protect and enhance water quality.	On-going	-Continue to support the development of new regional fish habitat partnerships in Alaska -Report on this action in Appendix B, Task NPS E-1	Turbidity/sediment and toxics 1,3,4,5,6,7
ACWA grants for setback ordinances	DEC will continue to offer grants to support development of local ordinances that restrict activities in riparian zones to protect water quality.	Annual	-Include this stewardship action in the annual ACWA grant solicitation -Report on this action in Appendix B, Task UR-A1	Turbidity/sediment 3,4,5,6,7
Turbidity outreach/ education campaign	DEC will develop a program to teach about the impacts of turbidity and to promote BMPs and individual choices that can reduce turbidity.	Annual	-Include this stewardship action in the annual ACWA grant solicitation -Report on this action in Appendix B Tasks UR-A1 and M-3.	Turbidity/sediment 3,5,6,7
Stormwater management	DEC will continue to offer grants and technical assistance for local efforts to evaluate storm water management systems and design controls that minimize environmental impact. DEC will also support proper stormwater management to address known impairments	Annual;	-Include this stewardship action in the annual ACWA grant solicitation -Assist one community in developing a stormwater management program by 2018 - Post on website and distribute Alaska Storm Water Guide - Highlight good practices in press. -Report on this action in Appendix B, Task UR-A1 and UR-B5.	Turbidity/sediment and toxics 4,5,6,7

## Alaska Nonpoint Source Water Pollution Control Strategy

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<b>Stewardship Action</b>	<b>Description</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>2</sup> Pollutant Focus and Goals</b>
Green Infrastructure development grants and workgroup	<p>DEC will continue to offer grants and technical assistance to implement green infrastructure in projects local areas.</p> <p>DEC will continue to lead in the Fairbanks Green Infrastructure Group, which is a multi-agency working group seeking to increase the number of green infrastructure applications in Fairbanks.</p>	Annual	<p>-Include this stewardship action in the annual ACWA grant solicitation</p> <p>-Complete three projects and two outreach activities by 2018</p> <p>- Post on web and distribute Green Infrastructure Resource Guide</p> <p>- Participate and/or coordinate at least one meeting per year of the Fairbanks Green Infrastructure Group.</p> <p>-Report on this action in Table 2- Chena River Watershed, and Appendix B – Task UR-A1</p>	Turbidity/sediment, and toxics 3,4,5,6,7
Alaska Forest Resource Practices Act (FRPA) Program	DEC works with Departments of Natural Resources (DNR) and Fish and Game (DFG) to implement and enforce Alaska FRPA regulations. The Act is designed to protect fish habitat and water quality, and ensure prompt reforestation of forestland while providing for a healthy timber industry.	Ongoing	<p>- Conduct at least two joint DNR, DFG and DEC inspections of forestry facilities</p> <p>- Participate in at least one Board of Forestry meetings per year to report on forestry related water quality issues.</p> <p>-Report on this action in Appendix B, Task FP-A2</p>	Turbidity/sediment 3,5,6

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<b>Stewardship Action</b>	<b>Description</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>2</sup> Pollutant Focus and Goals</b>
CWA section 303(d) listing methodologies and assessment procedures	<p>Use listing methodologies and listing determination procedures to stream line CWA section 303(d) listing and delisting decision process.</p> <p>Enhance water assessment processes to identify at-risk waters.</p>	Biennial	<ul style="list-style-type: none"> <li>- Develop or revise at least 3 listing methodologies including               <ul style="list-style-type: none"> <li>2015 – Petroleum hydrocarbons</li> <li>2016 – Turbidity revisions</li> <li>2017 – Toxics in sediment, Category 4c invasive species</li> <li>2018 – Bacteria – following adoption of revised criteria in WQS</li> </ul> </li> <li>- Develop guidelines for using biological assessment information to supplement water quality data in CWA section 303(d) listing decisions.</li> <li>- Develop procedures for using map or remote sensing based risk factors (e.g. impervious surfaces/roads, water temperature) to conduct screening level watershed risk assessments.</li> <li>-Report on this action in Appendix B, Task NPS-A2.</li> </ul>	Turbidity, toxics and bacteria 2,4,6
Alaska’s Integrated Water Quality Monitoring and Assessment Report (Integrated Report)	Alaska publishes a biennial report on the status of Alaska’s waters under CWA Section 305(b) and identifying polluted (impaired) waters listed under CWA Section 303(d).	2016, 2018, 2020	<ul style="list-style-type: none"> <li>-Submit Integrated Report to EPA by April 1 of the reporting years (2016, 2018, and 2020).</li> <li>-Report on this action in Appendix B, Task NPS-A3.</li> </ul>	All pollutants 1,2,3,4,6



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Stewardship Action	Description	Timeframe	Measure	Five Year Plan <sup>2</sup> Pollutant Focus and Goals
Long Term TMDL/water recovery strategy	Catchment basin mapping is not available in Alaska, so an alternate strategy for monitoring TMDL restoration progress will have to be developed for Alaska.	2018	-Develop 2 TMDLs per year until completing terms of 1994 Court Order. -Develop an alternative process for measuring water quality improvements on high priority waters. --Report on this action in Appendix B, Task NPS-C2.	Turbidity/sediment, toxics and bacteria 3,4

**Table 2. High Priority Waters to be Addressed in 2016-2020<sup>3</sup>**

Waterbody	Alaska Region	Alaska ID#	Track	Proposed Action	Timeframe	Measure	Five Year Plan <sup>4</sup> Pollutant Focus and Goals
<b>Protection and Data Collection Waters</b>							
Chiniak River (Kodiak)	South Central	Not yet assigned	Protect & Maintain Waterbodies at Risk	Review and inspect proposed forestry activities	Annual	Two reviews and inspections	Turbidity/sediment 3,5,6
Deshka River	South Central	20505-010	Protect & Maintain Waterbodies at Risk	Collect data; educate public	2020; Annual	- Include results of monitoring activities in Integrated Report (2020) -Conduct one outreach activity (Clean Boating)	Turbidity/sediment and toxics 1,6,7

<sup>3</sup> A complete list of high priority waters can be found at: [http://dec.alaska.gov/water/acwa/pdfs/High\\_Priority\\_Waters\\_Region\\_2013.pdf](http://dec.alaska.gov/water/acwa/pdfs/High_Priority_Waters_Region_2013.pdf)

<sup>4</sup> DEC. 2015. Alaska Clean Water Five-Year Strategic Plan (FY2016-2020).

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<b>Waterbody</b>	<b>Alaska Region</b>	<b>Alaska ID#</b>	<b>Track</b>	<b>Proposed Action</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>4</sup> Pollutant Focus and Goals</b>
Kenai River	South Central	20302-005	Protect & Maintain Waterbodies at Risk	Collaborate with the Kenai River Special Management Area Advisory Board (KRSMA), educate public, and assess water quality.	2016; Annual	-Attend six KRSMA meetings --Conduct one outreach activity (Turbidity/Clean Boating) -Upload water quality monitoring data to AWQMS and STORET - Include water quality decision in Integrated Report (2016)	Turbidity/sediment, toxics and bacteria 1,3,6,7
Ketchikan Creeks (Carlanna, Hoadley, Ketchikan)	South East	10102-003 10102-005 10102-006	Protect & Maintain Waterbodies at Risk	Data collection for two years	2018	Include results of monitoring activities in Integrated Report (2018)	Turbidity/sediment, toxics and bacteria 1,6
Little Susitna River	South Central	20505-004	Protect & Maintain Waterbodies at Risk	Educate public; Assess water quality	2016; Annual	-Conduct one outreach activity (Turbidity/Clean Boating) -Upload water quality monitoring data to AWQMS and STORET - Include water quality decision in Integrated Report (2016)	Turbidity/sediment and toxics 1,5,6,7

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Waterbody	Alaska Region	Alaska ID#	Track	Proposed Action	Timeframe	Measure	Five Year Plan <sup>4</sup> Pollutant Focus and Goals
Willow Creek	South Central	20505-003	Data Collection & Monitoring	Collect data	2018	Include results of monitoring activities in Integrated Report (2018)	Turbidity/sediment, toxics and bacteria 1,6
<b>Impaired/Recovery Waters</b>							
Anchorage Bowl Watershed (Campbell Creek, Campbell Lake, Chester Creek, Fish Creek, Furrow Creek, Little Campbell Creek, Little Rabbit Creek, Little Survival Creek, Ship Creek, University Lake, Westchester Lagoon, Hood/Spenard Lake)	South Central	20401-004 20401-402 20401-003 20401-005 20401-006 20401-017 20401-024 20401-018 20401-020 20401-419 20401-421 20401-412	Waterbody Recovery	Collaborate with NRCS; restore impaired waters	2018	-Install one BMP -Conduct monitoring to measure BMP effectiveness	Bacteria 1,4,5,7

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<b>Waterbody</b>	<b>Alaska Region</b>	<b>Alaska ID#</b>	<b>Track</b>	<b>Proposed Action</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>4</sup> Pollutant Focus and Goals</b>
Big Lake	South Central	20505-401	Waterbody Recovery	Collaborate with community council and marinas, and educate public	Annual	-Conduct two outreach activities (Clean Boating) -Support ACH certification of marinas	Toxics 3,4,5,7
Coffman Cove Creeks (4 unnamed creeks, Sweetwater Lake, USFS 3030 Road)	South East	10103-010 10103-012 10103-013 10103-014 10103-015	Waterbody Recovery	Collaborate with U.S. Forest Service; collect data (2013-2014), and assess water quality	2016	Include results of monitoring activities in Integrated Report (2016)	Toxics 1,3,4,5
Chena River Watershed (Chena River, Chena Slough, Noyes Slough)	Interior	40506-007 40506-002 40506-003	Waterbody Recovery, and possibly Protect & Maintain at Risk	Collaborate with local, state and federal agencies, educate public, restore water quality	Annual	-Conduct one outreach activity (Turbidity, green infrastructure) -Implement two green infrastructure projects - Include results of monitoring activities in Integrated Report (2014)	Turbidity/sediment and toxics 3,4,5,6,7

## Alaska Nonpoint Source Water Pollution Control Strategy

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<b>Waterbody</b>	<b>Alaska Region</b>	<b>Alaska ID#</b>	<b>Track</b>	<b>Proposed Action</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>4</sup> Pollutant Focus and Goals</b>
Cottonwood Creek	South Central		Waterbody Recovery	Monitor water quality, collaborate with NRCS; educate public	2016, 2018	<ul style="list-style-type: none"> <li>- Include results of monitoring activities in Integrated Report (2018, 2020)</li> <li>-Contact 10 creek side homeowners (2016)</li> <li>-Install one BMP's</li> <li>-Monitor to measure BMP effectiveness (2018)</li> </ul>	Bacteria 1,3,4,5,7
Crooked Creek Watershed (Crooked Creek, Bonanza Creek, Deadwood Creek, Ketchem Creek, Mammoth Creek, Mastodon Creek, Porcupine Creek)	Interior	40402-010	Waterbody Recovery	Collaborate with mining groups, DEC permit & compliance programs, DNR, DFG and Bureau of Land Management; complete data collection, and develop recovery plan.	2016, 2018	<ul style="list-style-type: none"> <li>-Upload data uploaded to AWQMS and STORET (2016)</li> <li>- Complete TMDLs and/or de-listings</li> <li>- Include results of monitoring activities in Integrated Report (2016 and 2018)</li> </ul>	Turbidity/sediment 1,3,4,5

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<b>Waterbody</b>	<b>Alaska Region</b>	<b>Alaska ID#</b>	<b>Track</b>	<b>Proposed Action</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>4</sup> Pollutant Focus and Goals</b>
Goldstream Creek	Interior	40509-001	Waterbody Recovery	-Collect data; -Collaborate with mining groups, DEC permit & compliance programs, and DNR; -Restore water quality	2015, 2016, annual	-Complete TMDL (2015) - Include water quality decision in Integrated Report (2016) -Conduct one outreach event (Turbidity) -Conduct BMP effectiveness monitoring including permitted sources.	Turbidity/sediment 1,3,4,5
Granite Creek	South East	10203-005	Waterbody Recovery (note: possibly moving portions to Protect & Maintain at Risk)	-Collect data on BMP effectiveness -Collaborate with DEC permit & compliance programs, City of Sitka, and gravel pit operators -Restore & reassess water quality	2016	-Revise TMDL - Include water quality decision in Integrated Report (2016)	Turbidity/sediment 1,3,4,5
Harbors: Dutch Harbor Iliuliuk Harbor, and Skagway Harbor	South West and South East		Waterbody Recovery	-Collaborate with local groups, harbormasters, and ACH; -Restore water quality	2020	- Conduct one outreach activity (Clean Boating, Clean Vessels) -support ACH certification	Turbidity/sediment, toxics and bacteria 3,4,5,7

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<b>Waterbody</b>	<b>Alaska Region</b>	<b>Alaska ID#</b>	<b>Track</b>	<b>Proposed Action</b>	<b>Timeframe</b>	<b>Measure</b>	<b>Five Year Plan<sup>4</sup> Pollutant Focus and Goals</b>
Juneau Watershed (Duck Creek, Jordan Creek, Lemon Creek, Pederson Hill Creek, Vanderbilt Creek)	South East	10301-005 10301-004 10301-001 10301-014 10301-017	Waterbody Recovery	Collaborate with local watershed group and City & Borough of Juneau; Restore to implement watershed recovery efforts	Annual 2016	-Conduct two projects and/or review projects submitted by other agencies - Include results of monitoring activities in Integrated Report (2016)	Turbidity/sediment and bacteria 1,3,4,5,7
Lake Lucille	South Central	20505-409	Waterbody Recovery	-Collaborate with DOT, City of Wasilla and Mat-Su Borough -Develop waterbody recovery plan for metals in sediment, if needed. -Implement TMDL for dissolved oxygen -educate public	2018	-Complete waterbody recovery plan, if needed -Conduct one outreach activity for stormwater and/or green infrastructure	Toxics 3,4,5,7



**Table 3 Five Year Strategy Implementation Schedule**

<b>Actions</b>	<b>FY2016</b>	<b>FY2017</b>	<b>FY2018</b>	<b>FY2019</b>	<b>FY2020</b>
<b>Program development and reporting</b>	2016 Integrated Report		2018 Integrated Report		2020 Integrated Report
	Revised turbidity listing methodology	Toxics in sediment listing methodology	Revised bacteria listing methodology	Guidelines for biological assessment data	Guidelines for use of remote sensing data
		Invasive species Category 4c methodology			
<b>AKMAP Statistical Monitoring</b>	Estuaries and Streams Survey	Arctic Coastal Plain Cumulative Report	Lakes Survey	Rivers/Streams Survey	Rivers/Streams Survey
<b>Protection/Prevention Activity (outreach, planning, mapping)</b>	3 projects	4 projects	3 projects	4 projects	3 projects
<b>Data Collection</b>	2 water	3 waters	3 waters	4 waters	4 waters
<b>Assessment report/ listing determination</b>	3 waters		3 waters		3 waters

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<b>Actions</b>	<b>FY2016</b>	<b>FY2017</b>	<b>FY2018</b>	<b>FY2019</b>	<b>FY2020</b>
<b>TMDL/ Alternate Restoration Plan</b>	2 waters	2 waters	2 waters	2 waters	2 waters
<b>Restoration/BMP installation (including site evals, design, mapping, construction)</b>	3 waters	4 waters	3 waters	5 waters	4 waters
<b>BMP monitoring</b>	0 water	2 water	2 water	3 water	3 waters
<b>Restoration assessment report/ delisting</b>	2 waters		2 waters		2 waters
<b>Total number of actions</b>	<b>15 waters</b>	<b>15 waters</b>	<b>18 waters</b>	<b>18 waters</b>	<b>21 waters</b>

**Appendix B - High Priority Tasks and Reporting for 2014-2018**

An annual report will be submitted to EPA for the following high priority tasks.

Action Plan Objectives & Tasks	Responsible Agencies & Organizations	Timeframe for Completion of Action	Measure/Indicator and Reporting Opportunities
<b>Table 1. Nonpoint Source Pollution Program (NPS) Action Plan</b>			
<b>NPS-A. Statewide Water Quality Planning</b>			
NPS-A1. Continue using Alaska Clean Water Actions (ACWA) to identify Alaskan waters that that need actions for (1) waterbody recovery, (2) protection, and (3) data collection and monitoring. Use ACWA to prioritize waters; manage and share information on water quality; and describes how Alaska will implement best available technology and management practices to prevent pollution. Use the ACWA database to track and plan actions on all nominated ACWA waters. Provide the general public with information about AK’s waters.	DEC, DFG, DNR/, Local Govts, Coastal Districts, Tribal orgs, NGOs, Fed Agencies, public	Annually by December 31	Annual update of ACWA database reports listing high priority waters available on DEC’s web site. Activity on waters of significant public interest also highlighted. Documentation on the status of the highest priority waters (Appendix A) also provided in NPS annual report.
NPS-A2. Develop listing methodologies to collect data, assess water quality and determine impairments under Clean Water Act (CWA) section 303(d) for pollutant in the Alaska Clean Water Five Year Plan	DEC	Annually by June 30	2016 – Turbidity 2017 – Toxics in sediment 2018 – Bacteria 2019 – Biological 2020 – Mapping and remote sensing
NPS A3. Publish a biennial Integrated Water Quality Monitoring and Assessment Report on the status of Alaska’s waters under CWA Section 305(b) and identifying polluted (impaired) waters listed under CWA Section 303(d).	DEC	By April 1 of 2016, 2018, 2020	Alaska Integrated Water Quality Monitoring and Assessment Report
<b>NPS-B. Assess water quality on a statewide basis and in targeted watersheds to support watershed planning and restoration projects to protect water quality and associated uses, including habitat.</b>			
NPS-B1. For each water identified through the ACWA nomination process, within one year of the nomination collect and review available information to determine if existing stewardship is sufficient or if there are needs for data collection, protection or restoration activities. If further needs exist, use the ACWA ranking process to prioritize the water.	DEC	Ongoing	Revised ACWA high priority waters list incorporates newly nominated waters.
<b>NPS-C. Assessment and Planning</b>			
NPS-C2. TMDLs will be developed for identified waterbodies according to the schedules established between DEC and EPA.	DEC, EPA, Local Govts	Annually by June 1	Two final TMDLs submitted to EPA annually.

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Action Plan Objectives & Tasks	Responsible Agencies & Organizations	Timeframe for Completion of Action	Measure/Indicator and Reporting Opportunities
<b>NPS-D. Support Water Quality Information Management Systems and Monitoring Efforts</b>			
NPS-D1. Implement a statewide water quality monitoring strategy to assure that waters reach or maintain their beneficial uses. Provide consistent, long term training for entities monitoring water quality, such as agencies, local governments, businesses and volunteers. Prepare Alaska Monitoring and Assessment Program (AKMAP) regional survey reports.	DEC	Ongoing 2017	PPG reports AKMAP Arctic Coastal Plain Survey Report
<b>NPS-E. Strengthen partnerships with government and nongovernmental agencies and organizations to improve coordination and efficiency and reduce duplication of effort.</b>			
NPS-E1. Enhance interagency coordination using information provided by resource agencies, education and research institutions, non-government organizations, and public to set priorities which influences funding allocation. Continue to support the development of new regional fish habitat partnerships in Alaska. Support focus areas for National Water Quality Initiative in Alaska.	DEC, National Fish Habitat Partnerships, NRCS	On-going	NPS Annual Report provides accounting of participation.
<b>Urban and Community Development Action Plan (UR)</b>			
<b>UR-A. Support local watershed protection efforts and encourage communities and the public to protect their local water resources.</b>			
UR-A1. Support local entities in their actions to develop and implement controls for non-point source pollution resulting from both stormwater and on-site systems. Actions may include, but not be limited to: ordinance development, construction of engineering controls, enforcement of existing controls, and construction of low impact development (LID) facilities, and regulation of on-site sewage.	DEC, Local Govts, NGO, Mortgage lending institutions, Fairbanks Green Infrastructure working group	On-going  Annual	NPS Annual Report lists local groups support and accomplishments.  Include stewardship actions for setback ordinances, stormwater management and green infrastructure in annual ACWA grant solicitation.
<b>UR-B. Provide educational, technical and financial assistance to communities to ensure good drinking water and basic sanitation and sewage disposal needs are met</b>			
UR-B1. For local communities, work to ensure that practices and/or ordinances exist that maintain predevelopment site hydrology and limit unnecessary increases of impervious areas that create significant changes in the hydrology. In instances where impervious surface is necessary, maintain post development average volume and peak run off rates similar to predevelopment levels.	DEC, Local Govts	On-going	NPS Annual Report describes assistance provided.
UR-B5. For at least one community, develop stormwater management programs for their local areas that include at minimum: mapping existing stormwater drain systems, identifying water quality coming out of storm drains, and identifying storm drains that are inadequate or non-functional.	Local Govts, DEC	2018	One community develops a stormwater management program.

## Alaska Nonpoint Source Water Pollution Control Strategy

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Action Plan Objectives & Tasks	Responsible Agencies & Organizations	Timeframe for Completion of Action	Measure/Indicator and Reporting Opportunities
<b>UR-C. Provide tools to incorporate effective water quality protection in land use planning and improved permitting and plan review decisions.</b>			
UR-C1. Provide training materials and list of best management practices (BMPs) (or links to other entities providing information) to cities, private sector developers and engineers doing construction activities.	DEC	Ongoing 2016	NPS Annual Report One additional BMP posted on website <a href="http://www.dec.state.ak.us/water/wnpspc/protection_restoration/BestMgmtPractices">http://www.dec.state.ak.us/water/wnpspc/protection_restoration/BestMgmtPractices</a>
<b>UR-D. Promote educational opportunities to control and abate nonpoint source pollution. Tasks include:</b>			
UR-D3. Develop and implement at least one activity per year that provides education/outreach on reducing the impacts from recreational activities to surface waters.	DEC	Annual  2016	NPS Annual Report One outreach activity per year Provide clean boating educational materials to all registered boat owners
<b>Forest Practices (FP) Action Plan</b>			
<b>FP-A. Action Plan Tasks for Forestry Activities on Private, State and other Public Lands.</b>			
FP-A2. Conduct ongoing, periodic field inspections and compile compliance score sheets for timber harvest operations on state, private and municipal lands to assess compliance with the Forest Resource Practices Act (FRPA).	DNR, DFG, DEC	Ongoing	NPS Annual Report
<b>Harbors and Marinas Action Plan (HM)</b>			
HM-4. Continue to participate in the Alaska Clean Harbors (ACH) program. The ACH program is a voluntary program to reduce pollution from harbor and boating activity. Attend ACH technical advisory committee meetings as scheduled, 2-3 times/year	NGO, Harbormasters	On-going 2018	NPS Annual Report; Two additional harbors certified by ACH
HM-5. For harbors and marinas where fish waste or sanitation is an issue, work to improve fish waste disposal at one (1) harbor or install sewage pump outs.	DOT&PF, DEC Local Govts	2018	NPS Annual Report One harbor with improved waste disposal
<b>Hydromodification Action Plan (HY)</b>			
<b>HY-B. Channel Modifications And Channelization:</b>			
HY-B2. Identify, channel segments that have been significantly modified, or have significant erosion or habitat impacts, and work with landowners to conduct stream banks for restoration activity.	DEC, DFG, DNR, Federal agencies	On-going	NPS Annual Report

## Alaska Nonpoint Source Water Pollution Control Strategy

May 1, 2015

Action Plan Objectives & Tasks	Responsible Agencies & Organizations	Timeframe for Completion of Action	Measure/Indicator and Reporting Opportunities
<b>HY-C. Shoreline and Stream Bank Erosion:</b>			
HY-C3. Increase public awareness of the characteristics of intact and damaged aquatic habitats, the need to protect and restore aquatic habitats, and techniques to protect and restore aquatic habitats.	DFG, DEC	On-going	NPS Annual Report
<b>Mining Action Plan (MI)</b>			
MI-1. Distribute guidelines to help miners, companies, and government land managers reclaim mine sites effectively and economically.	DNR, DEC, DFG, Tribes, NGO	On-going	NPS Annual Report
MI-2. Continue to investigate historic mining operations, conducting sampling where feasible.	DNR, DEC, DFG	On-going	NPS Annual Report
MI-3. Provide technical assistance to miners and landowners in applying and complying with reclamation standards. Conduct turbidity outreach, monitor effectiveness of BMPs designed to reduce or control sedimentation from placer and gravel extraction activities.	DNR, DEC, DFG	2020	NPS Annual Report One or more BMPs posted on DEC web site <a href="http://www.dec.state.ak.us/water/wnpspc/protection_restoration/BestMgmtPractices/">http://www.dec.state.ak.us/water/wnpspc/protection_restoration/BestMgmtPractices/</a>
MI-4. Continue evaluation of effectiveness of BMPs, and develop improved BMPs where necessary.	DNR, DEC	On-going	NPS Annual Report BMPs posted on DEC web site (as applicable) <a href="http://www.dec.state.ak.us/water/wnpspc/protection_restoration/BestMgmtPractices/">http://www.dec.state.ak.us/water/wnpspc/protection_restoration/BestMgmtPractices/</a>
<b>Agriculture Action Plan (AG)</b>			
AG-2. Continue to work with partners provide funding for priority agricultural nonpoint source projects to the extent that they are identified as serious threats to water quality.	DEC, DNR, NRCS, SWCDs	On-going Annual 2018	NPS Report 1 BMP installed Monitoring to measure BMP effectiveness in Cottonwood Creek & Anchorage Bowl
<b>Roads, Highways, and Bridges Action Plan (RHB)</b>			
RHB-1. Work with local communities and agencies to incorporate pollution prevention procedures into road operation and maintenance, and design/ construct structures to minimize environmental impact.	DOT&PF, DEC, Local Governments, Federal agencies	On-going 2018	NPS Report One agency or community which incorporated new or improved NPS pollution prevention procedures

# Alaska Nonpoint Source Water Pollution Control Strategy

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Key:

DEC	Department of Environmental Conservation
DFG	Department of Fish and Game
DNR	Department of Natural Resources
DOT&PF	Department of Transportation & Public Facilities
EPA	U.S. Environmental Protection Agency
NGO	nongovernmental organizations
NRCS	National Resource Conservation Service
SWCD	Soil and Water Conservation District
UA	University of Alaska
UAF/CES	University of Alaska Cooperative Extension Service
USGS	U.S. Geological Survey

## Appendix C - Information Management System

DEC is committed to develop, build and maintain an information management infrastructure that:

- provides for efficient storage and retrieval of water quality assessment information of Alaskan waters;
- improves water quality management decision making and water quality data analysis; Improves the quality and consistency of water quality reporting; and
- reduces the burden of federal Clean Water Act reporting requirements.

Water quality monitoring in Alaska relies upon diverse sources of information and data generated both within DEC and outside the agency. DEC staff network with non-profit and governmental agencies across local, state and federal boundaries, as well as Native entities, volunteer and non-profit organizations. Sources of water quality data and information in Alaska are extensive. The problem is identifying its location, organizing its availability and making it readily accessible, both to the general public, as well as statewide professional resource agency staff in an effort to target limited resources towards the state's highest water resource priorities. The ACWA, Ambient Water Quality Management System (AWQMS), and the Assessment Database (ADB) together include considerable water quality data to coordinate. AWQMS transmits water quality data to EPA STORET (i.e. STOrage and RETrival data warehouse). Expenditure information is provided to EPA via the Grants Reporting and Tracking System (GRTS). A standardized hydrography layer will enhance accuracy and data sharing and DEC supports the National Hydrography Dataset (NHD) improvements needed in Alaska.

The Alaska Clean Water Actions (ACWA) program and the supporting applications were conceived and designed to:

- provide resource agency staff the tools to support an existing, formalized process for targeting limited resources towards the State's highest water resource priorities. The process involves the ranking of waters in Alaska according to their assessed needs for data collection, protection, or recovery actions;
- streamline the process for identifying waters for consideration under ACWA;
- provide the ability to query information about waterbodies and rankings to the public over the internet; and
- provide the ability to produce reports to use in the annual ACWA grant solicitation.

Additional DEC management tools used to locate waterbodies statewide rely upon the availability of the National Hydrography Dataset (NHD) and various geographic information system technologies.

### ACWA Application

The ACWA application consists of a database and a collection of web-based user interfaces physically hosted at DEC within the State of Alaska network. The system will provide direct links to Legacy



STORET and modernized STORET. The ADB database is directly interfaced with ACWA and waterbodies in ADB and ACWA are synchronized as an on-going routine operation. The general public and organizations outside the State network can nominate waters for consideration through a public user interface. Reports from the data base are shared on DEC's web site.

Resource agency staff and managers have access to additional interfaces over the Intranet. Information is compiled and shared to analyze and rank individual waterbodies. Processes for evaluating the credibility and sufficiency of information, stewardship effectiveness and assignment of appropriate actions are incorporated, along with a criteria-based ranking system applied across the three State resource agencies responsible for water resource management in Alaska. The system may eventually include a GIS component to support a web-based map browser to identify nominations status of waterbodies and query information.

### **EPA STORET AND DEC AWQMS**

STORET is a national U.S. EPA water quality data management system that has been in use since the 1960s and modernized in 1999. STORET is a repository for water quality, biological, and physical data. DEC has implemented a locally hosted water quality data system called AWQMS that assists in transmitting information to STORET. Legacy STORET provides access to pre-1999 water quality data for Alaska. ACWA ranking and monitoring staff may query water quality information from AWQMS and STORET to determine if sufficient and credible data exists for ranking and monitoring under ACWA.

The ADB, a federal database developed by the EPA, supports the tracking of water quality assessment data, including causes and sources of impairment and use attainment. ADB automates the production of reports that the DEC submits to the EPA using the process defined by section 305(b) of the Clean Water Act. All waterbodies tracked through ACWA are synchronized with ADB to assure that waterbodies represented in ACWA are also represented in ADB. Synchronization also assures that the ACWA waterbody segments are reflected in the ADB and include the appropriate assessment units.

### **ADB and Section 305(b) and Section 303(d) Tracking/Reporting**

The Assessment Database (version 2.0) is a relational database application for tracking water quality assessment results and generating reports, particularly useful for Clean Water Act Section 305(b) and 303(d) reporting and listing functions. DEC uses this database for individual waterbodies for which there is assessment information, and reports the status of water quality for these waters and the status of water quality in Alaska on a statewide basis. Assessments that show impairments (e.g., non-supporting uses or persistent exceedances of Water Quality Standards, Section 303(d) listed waters), or assessments that report waters are maintaining and attaining Water Quality Standards, are entered into the database. In addition, the causes (pollutants) and sources of pollution may also be entered into the database. Alaska regularly tracks and reports to EPA on this information, and on many other types of assessment data, for hundreds of waterbodies within this database. It allows for custom queries enabling the review of data in a variety of ways. The ADB is designed to make this process accurate and straightforward, yet flexible and user-friendly. It also allows Alaska to meet its water quality reporting requirements to EPA under the Clean Water Act.

## **EPA Grants Reporting and Tracking System (GRTS)**

The Grants Reporting and Tracking System (GRTS) is the primary tool for management and oversight of the EPA's [Nonpoint Source \(NPS\) Pollution Control Program](#). Under [Clean Water Act Section 319\(h\)](#), EPA awards grants for implementation of state NPS management programs. State grant recipients are required to report annually in GRTS their progress in meeting milestones, including reductions of NPS pollutant loadings and on improvements to water quality achieved by implementing NPS pollution control practices. DEC submits data into GRTS on the individual projects or activities funded.

GRTS enables EPA and States to demonstrate the accomplishments achieved with the use of 319h grant funds. The data entered into GRTS is used by the Agency to respond to inquiries received from Congressional committees, the White House, and various constituent groups.

## **NHD**

The NHD is a collection of digital line data representing waters throughout the United States. The Alaska Watershed and Stream Hydrography Enhanced Datasets (AWSHED) project is analyzing and incorporating the data representing Alaska waters into the NHD. Work is on-going although the level of detail available for Alaska lags the rest of the country.

## Appendix D - Agencies and Organizations

### Department of Environmental Conservation (DEC)

DEC is the lead environmental agency in the state, and has several divisions and programs that deal with managing, protecting, and restoring water quality. A full description of DEC programs can be found on the Internet website at <http://www.state.ak.us/dec/>. Specific programs relating to water quality are described below.

#### *Division of Water*

Program Goals: The Division of Water's mission is to improve and protect water quality. In keeping with this mission the division:

- Improve water quality conditions where they are below public health or environmental standards.
- Issue wastewater discharge permits to facilities and operations that release potentially harmful pollutants.
- Ensure facility compliance with permit conditions.
- Provide community assistance with the protection of water quality.
- Develop user friendly public access to water quality data.
- Provide grants, loans and engineering assistance for drinking water, sewerage, stormwater, and solid waste facilities.
- Provide training programs for and certification of water and sewerage system operators.
- Provide over-the-shoulder and emergency assistance to system operators in remote communities.
- Establishes standards for water cleanliness.
- Regulates discharges to waters and wetlands.
- Regulates discharges from Cruise Ships
- Monitors and reports on water quality.

Programs within the Division of Water include:

#### ***Water Quality Standards, Assessment and Restoration Program***

Program Goals: To provide information and technical assistance for Water Quality Standards, water quality monitoring non-point source pollution and data collection in support of environmental and resource management decisions, makers' research of water quality issues.

#### Primary Services (in addition to non-point source activities):

Develop Water Quality Standards that serve as the basis for protecting and improving the quality of the State's waters.

Provide technical assistance and quality assurance oversight in developing monitoring plans for water quality monitoring.

Report on the status and trends of Alaska's marine and freshwaters.

#### ***Nonpoint Source Water Protection and Restoration Section***

Program Goals: To protect water resources and public health from nonpoint sources of pollution

#### Primary Services:

Preventing pollution of water bodies from non-regulated sources.

Reviewing timber harvest plans and performing related field inspections for forestry operations.  
Identifying State water quality priorities and needs.  
Establishing a schedule for developing recovery plans on impaired water bodies.  
Providing pass-through funding and technical assistance to municipalities, local groups and other state agencies involved in water quality projects.  
Responding to public concerns and complaints on local water quality issues.

## ***Alaska Monitoring and Assessment Program***

Program goal: To serve as a framework for Alaska resource agency decisions required for assessing and monitoring Alaska's water resources; to support protection and restoration decisions; and serve as a roadmap for improving state, federal, local, tribal and public capabilities and performance over time for monitoring the status and trends of Alaska's water resources.

### Primary Services:

Monitoring Program Strategy  
Monitoring Objectives  
Monitoring Design  
Core and Supplemental Water Quality Indicators  
Data Analysis/Assessment  
Reporting

## ***Water Quality Standards***

Program Goal: Protect the waters of the state from toxic levels of pollutants.

### Primary Services:

Develop credible and scientifically defensible Water Quality Standards that incorporate state-specific standards.  
Assist the public in using regulations by providing Water Quality Standards guidance and technical assistance to user groups.  
Provide tools to explain and interpret the regulations, such as fact sheets, technical papers, workbooks, and training opportunities.  
Adopt site-specific water quality criteria when federal criteria are stricter than necessary or not strict enough to protect water uses.

## ***Technical Services Program***

Program Goal: Provide technical and regulatory support for other programs in the Division of Water

### Primary Services

Quality Assurance  
Data Management  
Regulation review and revision  
General Support and Infrastructure Analysis

## ***Wastewater Discharge Authorization Program***

Program Goal: To protect water resources and public health by regulating wastewater discharges in lieu of EPA.

## Primary Services:

Issue permits and monitor compliance with permits for wastewater discharges.  
Inspect permitted facilities to verify compliance and help operators comply with their permits.  
Evaluate on-site systems to ensure proper operational design.

## ***Village Safe Water***

Program Goal: Provide grants and engineering assistance to small communities for water, sewer.

## Primary Services:

Provide grants to small communities for water and sewer studies and projects.  
Assign an engineer to each project to assist communities with planning facility design options, address regulatory options, and help manage construction projects.  
Ensure appropriate and effective use of grant funds.

***Municipal Grants and Loans*** Program Goal: Financing Alaska Infrastructure for better Public Health, Water Quality, and Sustainability.

## Primary Services:

Providing grants and loans for facility planning, design, construction and regulations including non-point source projects.  
Assigning a project engineer to assist with projects  
Providing low-interest loans up to 20 years in duration for projects or eligible portions of projects.  
Providing refinancing of eligible projects.  
Assuring timely reimbursement for construction expenditures.  
Ensuring appropriate and effective use of loan funds.

## ***Division of Environmental Health***

The Division of Environmental Health (EH) deals with the basics: safe drinking water, food, and sanitary practices. Our goal is to provide businesses with clear standards so they can protect our environment and provide safe food and drinking water to Alaskans. The Division of Environmental Health includes a Drinking Water Program, Food Safety and Sanitation Program, Solid Waste & Pesticide Program, Laboratory and State Veterinarian. The Non-Point Source program collaborates with many of these groups, in particular the Source Water Protection Section within the Drinking Water Program.

## ***Division of Spill Prevention and Response***

The Division of Spill Prevention and Response (SPAR) prevents spills of oil and hazardous substances, prepares for when a spill occurs and responds rapidly to protect human health and the environment. The Division includes Prevention, Preparedness and Response.

## ***Division of Air***

The Division of Air are designed around three programs: managing non-point and mobile sources of air pollution; managing stationary out-of-stack discharges of air pollution through a permit and compliance program; and field air monitoring to measure progress and understand problems.

## **Department of Natural Resources (DNR)**

DNR is the lead land management agency for the state whose mission is to develop, conserve, and enhance natural resources for present and future Alaskans. DNR's goal is to contribute to Alaska's economic health and quality of life by protecting and maintaining the state's resources, and encouraging wise development of these resources by making them available for public use. The Department of Natural Resources manages all state-owned land, water and natural resources, except for fish and game, on behalf of the people of Alaska. A full description of DNR programs can be found on the Internet website at <http://www.dnr.state.ak.us/>. Specific programs relating to water quality are found in the Division of Forestry, Division of State Parks and the Division of Mining, Land and Water (including water rights, state plan review, permitting and hydrologic survey).

## **Department of Fish and Game (DFG)**

The Alaska Department of Fish and Game's mission is to manage, protect, maintain, and improve the fish, game and aquatic plant resources of Alaska. The primary goals are to ensure that Alaska's renewable fish and wildlife resources and their habitats are conserved and managed on the sustained yield principle, and the use and development of these resources are in the best interest of the economy and well-being of the people of the state. A full description of DFG programs can be found on the Internet website at <http://www.adfg.alaska.gov>. Specific programs relating to water quality include the Division of Sport Fish, Division of Commercial Fish and Division of Habitat.

## **Department of Transportation and Public Facilities (DOTPF)**

The mission of the Department is to improve the quality of life for Alaskans by cost effectively providing, operating, and maintaining safe, environmentally sound and reliable transportation systems and public facilities. Special emphasis will be given to using meaningful public involvement and creating working partnerships with other entities. A full description of DOTPF programs can be found on the Internet website at <http://www.dot.state.ak.us/>. Specific programs relating to water quality include Statewide Design and Engineering Services.

## **Local Governments and Organizations**

Local governments play a vital role in protecting water quality, especially nonpoint source pollution, which is more readily controlled by local land use laws. Four types cover local governing units in Alaska: Alaska municipal governments, coastal districts, soil and water conservation districts, and tribal governments exist.

### ***Alaska Municipal Government***

Alaska municipal governments are legal entities incorporated under Alaska law to perform both regulatory—i.e. police, zoning, etc., and proprietary—i.e. water, sewer, airport, etc. functions.

- 16 Organized Boroughs and Unified Home Rule Municipalities (perform area wide education, planning/platting/zoning, and tax assessment and collection powers)
- 145 Incorporated Cities (general government powers, public facilities and services, and regulatory powers)

### ***Alaska Soil & Water Conservation Program***

Alaska Soil and Water Conservation Districts are a grassroots partnership of local owners, state and federal agencies that work to manage, conserve and develop resources. Districts include:

- Local Soil and Water Conservation Districts (locally designated districts)
- Alaska Conservation District (covers all areas not in a local district)

### ***Interagency Hydrologic Committee of Alaska***

An organization of technical specialists working at the Federal, State, and local levels, who coordinate the collection and implementation of water resources related data throughout the State of Alaska. The IHCA meets twice per year to coordinate multi-agency issues and exchange of information.

### ***Tribal/Native Organizations***

Native organizations are community-based with close ties to local economies. They have the ability to deliver locally and culturally relevant programs. Significant organizations include:

- Metlakatla Indian Reservation
- Indian Reservation Act (IRA) Tribal Councils
- ANILCA Native Corporations

### ***Non-government Organizations***

Non-governmental organizations fill gaps in and complement government agency roles. These groups often represent stakeholders in a watershed process or water quality issue, and are therefore vital for assuring that all of the needs and concerns of a watershed community are addressed.

Public and private nonprofit groups with water quality as a mission take a variety of shapes. Statewide environmental groups, such as Trustees for Alaska or Alaska Conservation Alliance often take on larger, statewide water quality issues. Other groups, such as Cook Inlet Keeper, Southeast Alaska Conservation Council, Northern Alaska Environmental Center, or the Prince William Sound Regional Citizens Advisory Council, take a regional interest in water quality issues most affecting their area. Local groups, such as the Anchorage Waterways Council, Juneau Watershed Partnership, or Tanana Valley Watershed, often spring up as a result of a need or concern in a community that is not being met.

Industry Associations can be found for every major industry in Alaska. Similar to other nonprofit groups, these can be industry-wide in scope, such as the Resource Development Council and Producers Council, or specific to one type of industry, such as the Alaska Oil & Gas Association, Pacific Seafood Processors Association, Alaska Forest Association, Alaska Miners Association, or Alaska Council on Tourism. While these groups typically advocate for their constituents, they have been known to play significant roles in addressing key water quality issues affecting their industry.

### ***Watershed Partnerships***

Watershed partnerships provide a framework that enable citizens and agencies to work together to formulate strategies for protecting watershed resources that address community concerns and that are tailored to the social and cultural context of their area. Agencies recognize that such an approach is necessary in order to achieve the grassroots support and community involvement that are key to successful resource management. Agencies can also better carry out their own regulatory mandates by using the watershed approach and working through watershed partnerships. Several agencies have both separate and overlapping responsibilities under the federal Clean Water Act. For example, coordinating DEC's water



quality efforts with the DFG's fish and shellfish habitat protection programs can lead to shared information, integrated plans, and time and cost savings for both agencies.

## **Federal Agencies**

Federal agencies play a variety of roles in protecting water quality, from implementation of the Clean Water Act, to federal oversight of fisheries, wildlife, wetlands, federal lands and forests, coastal zone management, and offshore leasing. Key agencies in Alaska include:

**U.S. Environmental Protection Agency** (federal manager for air, land, and water quality)

**U.S. Fish and Wildlife Service** (conserve, protect and enhance fish and wildlife, federal land managers on National Wildlife Refuges)

**Army Corps of Engineers** (develops and protects water resources and wetlands)

**NOAA/National Marine Fisheries Service** (fed manager of fisheries and marine habitats)

**NOAA/Office of Oceans & Coastal Resource Management** (federal coastal zone management)

**U.S. Forest Service** (federal land managers on national forests)

**Bureau of Land Management** (federal land managers, oversight on Trans-Alaska Pipeline)

**Bureau of Ocean Energy Management, Regulation and Enforcement** (federal manager of offshore oil and gas leasing)

**Natural Resource Conservation Service** (federal land conservation managers)

**U.S. Geologic Survey** (scientific research including water quality and hydrologic information to manage the nation's waters)

**National Park Service** (federal managers on preserve and park lands)

**Federal Emergency Management Agency** (coordinates and funds cleanup and restoration of impacts from disasters)



## Appendix E- ACWA Decision Tree & Ranking Process

### Introduction & Overview

The Alaska's Clean Water Actions (ACWA) decision tree outlines a process to:

- Determine if waterbodies are adequately protected;
- Identify and prioritize waterbodies-at-risk for additional protection action; and
- Identify and prioritize waterbodies needing recovery for restoration or remediation action.

In the **Nomination Phase** individual waterbodies nominated by the public and agencies are reviewed and entered into the ACWA database (or returned to the nominator for additional information).

In the **Analysis Phase** each waterbody is analyzed to determine:

- Whether existing stewardship programs are adequate to maintain and protect the waterbody; and
- Whether available data is sufficient to determine the existence or extent of a current or potential problem.

The **Analysis Phase** directs waterbodies to three possible actions or outputs:

- Waterbodies that are adequately protected;
- Waterbodies requiring additional data; or
- Waterbodies that require additional protection or recovery.

Waterbodies-at-risk and waterbodies needing recovery, are addressed in the **Action Phase** by:

- Prioritizing individual waterbodies for action;
- Identifying and implementing protection or recovery actions; and
- Evaluating the success of protection/recovery actions and directing the waterbody for additional information, continued monitoring or additional protection/recovery actions.

During all phases, additional data needs may be identified, sending the waterbody to the data collection track.

### ACWA Decision Tree

The ACWA decision tree diagrams the flow of information, pathways and critical decision points for the application of key criteria associated with a decision. The diagram is read left-to-right. Common objects are color-coded to simplify and help organize understanding.

The ACWA Decision Tree diagrams the flow of information, pathways and critical decision points for the application of key criteria associated with a decision. The diagram is read left-to-right. Common objects are color-coded to simplify and help organize understanding.

Each object in the ACWA Decision Tree diagram is identified with an alpha-numeric character(s) near the upper part of the object. The alpha-numeric identifier is keyed to additional narrative description that further characterizes the objects purpose or function. In this document, references to a Decision Tree object will be alpha-numerically referenced in parentheses ( ) following the descriptive reference.

The ACWA Decision Tree is segmented top-to-bottom, using alphabetical-only designators, into three primary tracks:

- Data Collection & Monitoring Track (D.)
- Assessment Track (F.)
- Stewardship Implementation Track (E.)

The Assessment Track (F.) is further segmented horizontally, left-to-right, into three different phases, as:

- Nomination Phase (A.)
- Analysis Phase (B.)
- Action Phase (C.)

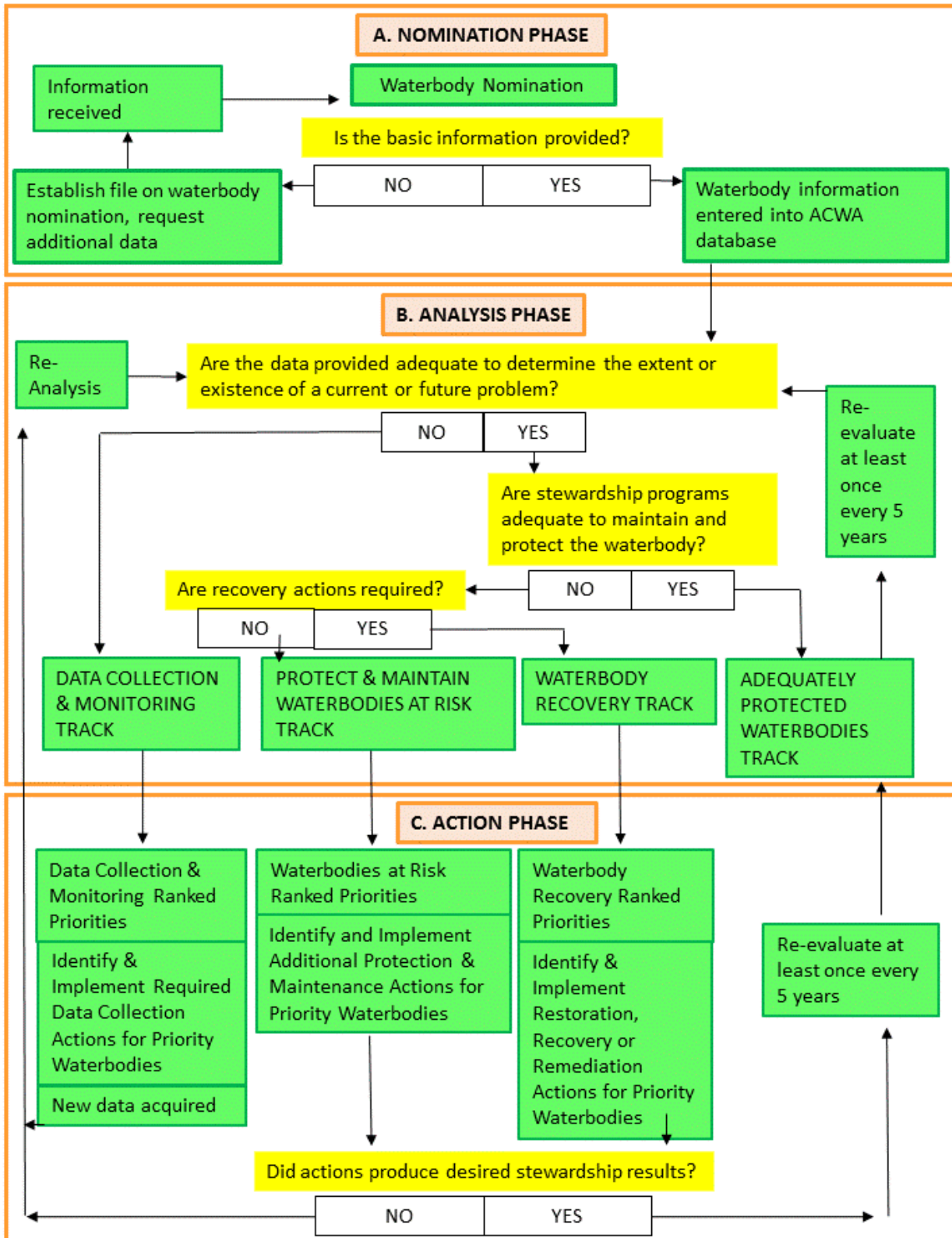
The ACWA Decision Tree process starts in the Assessment Track (F.) and Nomination Phase (A.) with the Waterbody Nomination (1). End results yield three sets of ranked waterbodies and one set of unranked waterbodies, each requiring a unique set of stewardship action(s). The ranked waterbodies are categorized as:

- Data Collection & Monitoring (5A)
- Waterbodies At Risk (8A)
- Waterbody Recovery (9A)

A fourth set of unranked waterbodies residing in the Stewardship Track also results, categorized as:

- Adequately Protected Waterbodies (15A)

Alaska's Clean Water Actions (ACWA) Decision Tree



## Appendix F- Local Ordinances on Urban Nonpoint Source Pollution

### Local Ordinances Relating to Urban Nonpoint Source Pollution

The local ordinances in that address urban nonpoint source pollution may be accessed through the table, below. Each ordinance is identified by municipality, ordinance title and reference number. Many Alaskan municipalities have [codes of ordinances](#) which are available online. Whenever possible, a direct link is provided to the local ordinance online. Otherwise, the ordinance text is available in PDF (Adobe Acrobat) format.

	<b>Management Measures/Pollution Controls Topic</b>
<a href="#">View Ordinances</a>	Manage runoff from new development so that post-development TSS loadings after construction are reduced and post-development peak run-off rate and average volume are close to pre-development levels.
<a href="#">View Ordinances</a>	Protect watersheds, minimize land disturbance, retain natural drainage features and vegetation, and protect sensitive areas.
<a href="#">View Ordinances</a>	Do comprehensive planning on a watershed basis.
<a href="#">View Ordinances</a>	Sediment and erosion from construction sites less than 5 acres.
<a href="#">View Ordinances</a>	Application, generation and mitigation of petrochemicals, pesticides, nutrients, and toxins from construction sites less than 5 acres.
<a href="#">View Ordinances</a>	Reduction of pollution from existing development.
<a href="#">View Ordinances</a>	Disposal or recycling of household hazardous wastes and pet wastes; use of fertilizers and pesticides on lawns and gardens; pollution from gas stations and parking lots.
<a href="#">View Ordinances</a>	Planning and siting roads and highways away from sensitive areas or areas that are susceptible to erosion; limiting land and vegetation disturbing activities during road construction.
<a href="#">View Ordinances</a>	Siting, design and maintenance of roads, highways, and bridges.
<a href="#">View Ordinances</a>	Controlling erosion and sediment during and after road, highway and bridge construction.
<a href="#">View Ordinances</a>	Controlling toxic spills and hazardous waste at equipment and fuel storage sites at road, highway and bridge construction sites.
<a href="#">View Ordinances</a>	Controlling pollutants caused by the operation and maintenance of roads, highways, and bridges.
<a href="#">View Ordinances</a>	Retrofitting roads, highways, and bridges to collect nonpoint source pollutants.