
**State of Alaska
2014/2016
FINAL
Integrated Water Quality Monitoring and Assessment
Report**

November 2, 2018

Alaska

Department of Environmental Conservation



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List of Acronyms and Abbreviations

%.....	percent
18 AAC 70.....	Title 18, Chapter 70, of the <i>Alaska Administrative Code</i>
µg/L.....	micrograms per liter
AAC.....	Alaska Administrative Code
ACWA.....	Alaska Clean Water Actions
ADF&G.....	Alaska Department of Fish and Game
AKMAP.....	Alaska Monitoring and Assessment Program
APDES.....	Alaska Pollutant Discharge Elimination System
ARRC.....	Alaska Railroad Corporation
ATTF.....	Alaska Timber Task Force
BEACH.....	Beaches Environmental Assessment and Coastal Health
BMP.....	best management practice
BTEX.....	benzene, toluene, ethylbenzene, and xylene
CBS.....	City and Borough of Sitka
CERCLA.....	Comprehensive Environmental Response, Compensation and Liability Act
cm.....	centimeter
CWA.....	Clean Water Act
DEC.....	Alaska Department of Environmental Conservation
DNR.....	Alaska Department of Natural Resources
DO.....	dissolved oxygen
DRO.....	diesel-range organics
EE/CA.....	Engineering Evaluation/Cost Evaluation
e.g.....	exempli gratia, which is Latin for “for example”
ERF.....	Eagle River Flats
FC.....	fecal coliform
GIS.....	Geographic Information System
GP.....	General Permit
GPS.....	global positioning system
GRO.....	gasoline-range organics
HVE.....	high vacuum extraction
i.e.....	id est, which is Latin for “that is”
LC50.....	lethal concentration, 50%
LTF.....	log transfer facility
LSA.....	log storage area
mi ²	square miles
MCL.....	maximum contaminant level
mgd.....	million gallons per day
mg/L.....	milligrams per liter
ml.....	milliliter
MST.....	Microbial Source Tracking

NOAA.....National Oceanic and Atmospheric Administration
NPDES.....National Pollutant Discharge Elimination System
NPL.....National Priorities List
NTCRAnon-time critical removal action
PAHpolynuclear or polycyclic aromatic hydrocarbons
PA/SI.....preliminary assessment/site investigation
PCBpolychlorinated biphenyl
PELprobable effects levels
pH.....hydrogen ion concentration
PWS.....public water system
QAPP.....quality assurance project plan
RI/FS.....Remedial Investigation/Feasibility Study
ROD.....record of decision
SDWA.....Safe Drinking Water Act
SPAR.....DEC's Division of Spill Prevention and Response
SQuiRTsNOAA Screening Quick Reference Tables
SVEsoil vapor extraction
TAHtotal aromatic hydrocarbon
TAqH.....total aqueous hydrocarbons
TCE.....trichloroethylene
TCRA.....time-critical removal actions
TDStotal dissolved solids
TELthreshold effects levels
THtotal hydrocarbon
TMDL.....total maximum daily load
TNCWSTransient Non-community Water System
TOCtotal organic carbon
TSAIA.....Ted Stevens Anchorage International Airport
UIC.....underground injection control
USACEUnited States Army Corps of Engineers
USBLM;BLM..United States Bureau of Land Management
USEPA; EPA .United States Environmental Protection Agency
USFWS;FWS...United States Fish and Wildlife Service
USFSUnited States Forest Service
USGSUnited States Geological Survey
USNPS;NPS....United States Park Service
WFLHDWestern Federal Lands and Highway Division
WQS.....water quality standards
ZODZone of Deposit

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1. INTRODUCTION

1.1. PURPOSE OF THE 2014-2016 INTEGRATED WATER QUALITY ASSESSMENT REPORT

The Clean Water Act (CWA) mandates that each state develop a program to monitor and report on the quality of its surface waters, and prepare a report describing the status of its water quality. The United States Environmental Protection Agency (EPA) then compiles and summarizes the information and sends this information in a report to Congress. The process for developing information on the quality of the nation's water resources is contained in several sections of the CWA. Section 305(b), requires that the quality of all waterbodies be characterized, and Section 303(d), requires that states list any waterbodies that do not meet applicable water quality standards (WQS) (known as the Section 303(d) list). Waterbodies where WQS are not met (impaired waterbodies) are then further assessed for the need for calculation of total maximum daily loads (TMDL) for the unattained criteria. A TMDL is a calculation of the maximum amount of a pollutant that the waterbody can receive and still meet WQS, along with an allocation of that load among the identified sources of that pollutant.

The EPA has recommended that the Section 305(d) reports and the Section 303(b) list of impaired waters be integrated into a single, comprehensive monitoring and assessment report, the Integrated Water Quality Monitoring and Assessment Report (Integrated Report).

This integrated approach allows each state to identify water quality problems, develop remediation plans, and ultimately, achieve WQS in its waters. In Alaska, the Department of Environmental Conservation (DEC) is the primary state agency responsible for the stewardship of water quality. The DEC considers the Integrated Report to be an important tool for understanding the health of Alaska's waters and identifying actions that can be taken to improve water quality in Alaska. Water quality information is one component that contributes to the efforts and priorities under the Alaska Clean Water Actions (ACWA) initiative, a much broader and more comprehensive assessment, which includes water quality, water quantity, and aquatic habitat. More detailed descriptions of the ACWA initiative and its process for assessing information and establishing waterbody priorities are provided in **Section 2.3.3.1**.

The 2014-2016 Integrated Report provides a detailed summary of the statewide water quality assessment. It describes whether or not the existing condition of each waterbody is sufficient to maintain the designated uses of that waterbody. The Alaska WQS are established in Title 18, Chapter 70, of the *Alaska Administrative Code* (AAC) (18 AAC 70). Alaska WQS specifically designate up to seven uses for fresh waters (1. drinking water, 2. agriculture, 3. aquaculture, 4. industrial, 5. contact recreation, 6. non-contact recreation, and 7. growth and propagation of fish, shellfish, other aquatic life, and wildlife), and up to seven uses for marine waters (1. aquaculture, 2. seafood processing, 3. industrial, 4. contact recreation, 5. non-contact recreation, 6. growth and propagation of fish, shellfish, other aquatic life, and wildlife, and 7. harvesting raw mollusks or other raw aquatic life for human consumption).

Sources of information used by the DEC to develop the biannual water quality assessment include monitoring data (e.g., water testing and land use activities), professional knowledge, and evaluations such as those provided by water resource managers, fish and wildlife biologists, and aquatic biologists.

This Integrated Report fulfills the CWA Section 305(b) requirement that each state provide a comprehensive report of water quality to the EPA. The report documents a comprehensive evaluation of the status and health of each waterbody in the State.

In addition, this report describes the process for evaluating whether or not waterbodies attain WQS or are impaired. This process includes classifying each waterbody according to five categories, depending on their health; determining which waterbodies need further action; scheduling when each impaired waterbody will be addressed; involving the public in determining how water quality will be addressed; and determining how waterbodies are removed from the impaired waterbody list.

1.2. OVERVIEW OF WATER RESOURCES AND QUALITY

Alaska is rich in water quantity, water quality, and aquatic resources (Table 1). Nearly half of the total surface waters of the United States are located within the state. Because of the geographic size, sparse population, and remote character of Alaska, the vast majority of its water resources are in pristine condition. More than 99.9 percent (%) of Alaska's waters are considered unimpaired. While Alaska's probabilistic survey assessments conducted by the Alaska Monitoring and Assessment Program (AKMAP) has surveyed approximately 4.3% of Alaska's freshwater resources including wetlands, streams, rivers and lakes. In addition, AKMAP has surveyed 8 of Alaska's 11 nearshore marine ecoregions, the exceptions being the Eastern Bering Sea – Alaska Coastal Ecoregion, the Beaufort-Chukchi Sea-Barrier Island-Lagoon System, and Beaufort-Chukchi Coastal-Shelf.

<http://dec.alaska.gov/water/wqsar/monitoring/AKMAP.htm>) Historically, individual assessments of water quality in Alaska have been focused on areas with known or suspected water quality impairments. Appendix A provides detailed information about the individual assessments.

Information on DEC's water quality protection and restoration programs and priorities for Alaska can be found in:

1. Alaska Nonpoint Source (NPS) Water Pollution Control Strategy
<http://dec.alaska.gov/water/wqsar/Docs/AlaskaNonpointSourceWaterPollutionControlStrategy.pdf>) and
2. Alaska's Clean Water Five-Year Strategic Plan
<http://dec.alaska.gov/water/wqsar/Docs/AlaskaCleanWaterFive-YearPlan.pdf>)

Table 1: Alaska Water Resources

Atlas - Topic	Value	Value
State population		741,894 ^a
State surface area (square miles [mi ²])		656,425
Total miles of rivers and streams		714,004
Number of lakes/reservoirs/ponds		3,000,000+
Acres of lakes/reservoirs/ponds		12,787,200
Miles of coastal shoreline		44,000
Wetland Acreages^b		
Palustrine –non-tidal: muskegs, bogs, forested wetlands, tundra, open water	172,503,400	
Estuarine—bays, salt marshes, beaches	2,131,900	
Marine intertidal—ocean shoreline	48,600	
Total Wetland Acres		174,683,900
Notes:		
^a United States Census Bureau National and State Population Estimates, 2016 estimate http://quickfacts.census.gov/qfd/states/02000.html		
^b U.S. Fish and Wildlife Service, Cowardin Classification of Wetlands and Deepwater Habitat, 1979		

In Alaska, surface water sources supply fresh water for three-fourths of the water needed for industry, agriculture, mining, fish processing and public water use. Surface water is also the source for about half of the domestic water supply. Alaska surface waters include more than 15,000 salmon streams, which are an important resource for Alaskans and the world. Alaska also has the largest number of groundwater resources of any state in the United States.

Alaska is relatively sparsely populated, having approximately one resident per square mile. Urban development is concentrated in a few main population centers, and the majority of people live in the south central area of Alaska. The 2010 United States Census showed a 13% population increase in most areas of the state since the previous census. Almost 50% of the state's population lives in the Municipality of Anchorage in south central Alaska. The other major population centers are Juneau, the state capital located in the south east area of Alaska, and Fairbanks, located in the interior areas of Alaska. Communities outside these major population centers tend to be small and are generally not connected by roads.

As the population grows and the natural resource-based economy expands in Alaska, an increasing number of state waters, especially in urban areas, face the threat of degradation. In localized parts of Alaska, surface water quality has been impaired by specific sources. Waters in urban settings (i.e., cities, towns, and villages) are predominantly impaired from elevated levels of sediment, turbidity, and fecal coliform (FC) bacteria caused by urban storm water runoff. Metals in sediment have also been found. Other sources of impairment by sediment and turbidity are mining activities in interior areas of Alaska. In the coastal zones, the sources of impairment by residues are seafood processing facilities, and specifically in the

coastal southeast area, impairment by bark and wood residues from timber processing and transfer facilities. Military sites are sources of impairment in the south central and southwest areas of Alaska. Oil spills, fuel leaks, and the use of motorized watercraft are sources of petroleum product impairment within the state that are not localized.

1.3. WATERBODY CATEGORIES

The DEC assigns waterbodies to categories by the degree to which water quality goals are attained for its designated uses. The five categories and three subcategories of waterbodies are:

- **Category 1:** Waterbodies where all WQS criteria are attained.
- **Category 2:** Waterbodies where WQS for some criteria are attained, but there is insufficient data and information to determine if the WQS for the remaining criteria are attained.
- **Category 3:** Waterbodies where data or information is insufficient to determine if the WQS for any criteria are attained.
- **Category 4:** Waterbodies determined to be impaired, but do not need the development of TMDLs.
 - **Category 4a:** Impaired waterbodies for which an EPA-approved TMDL has been established.
 - **Category 4b:** Impaired waterbodies where WQS can be attained through other pollution control measures.
 - **Category 4c:** Failure to meet WQS criteria for the impaired water is not caused by a pollutant; instead, waterbodies with impairments that are not directly caused by a source of pollution nuisance aquatic plants, degraded habitat, or a dam that affects flow are example causes of impairments for waterbodies in this category.
- **Category 5:** Impaired waterbodies where WQS for one or more criteria are not attained requiring TMDL or recovery plan development. Category 5 waterbodies are those identified on the CWA Section 303(d) list of impaired waters.

Table 2 summarizes the number of waterbodies in Alaska that are assigned to each category as determined by the evaluation of existing and readily available water quality data and information.

Table 2: Waterbodies by Category

Category	Number of Waterbodies
1	Remaining Majority of Alaskan waters
2	62
3	325
4a	38
4b	4
4c	0
5	14

1.4. ALASKA'S APPROACH TO IMPAIRED WATERBODIES

In Alaska, the process for identifying waterbodies that do not meet WQS, as required in the CWA Section 303(d), begins with an internal review of existing and new information to determine (1) the presence of pollutants, (2) the occurrence of persistent exceedances of WQS, (3) whether or not impacts on the designated uses are occurring, and (4) the degree to which WQS and the other criteria are attained.

When a waterbody is placed on the CWA Section 303(d) list, a TMDL or recovery plan is developed, unless data obtained after the listing indicate that the waterbody is no longer impaired or other measures are undertaken to restore the quality of the waterbody. State of Alaska waterbodies on the CWA Section 303(d) list are scheduled for development of a TMDL (Appendix C) or waterbody recovery plan between 2016 and 2022. The process for delisting of impaired waterbodies is described in **Section 2.3.4**.

When a TMDL or waterbody recovery plan is developed, a public participation process is initiated. As part of the process, the public is notified of the document, and it becomes available for public comment. Details regarding the public participation process can be found in **Section 1.6** of this report.

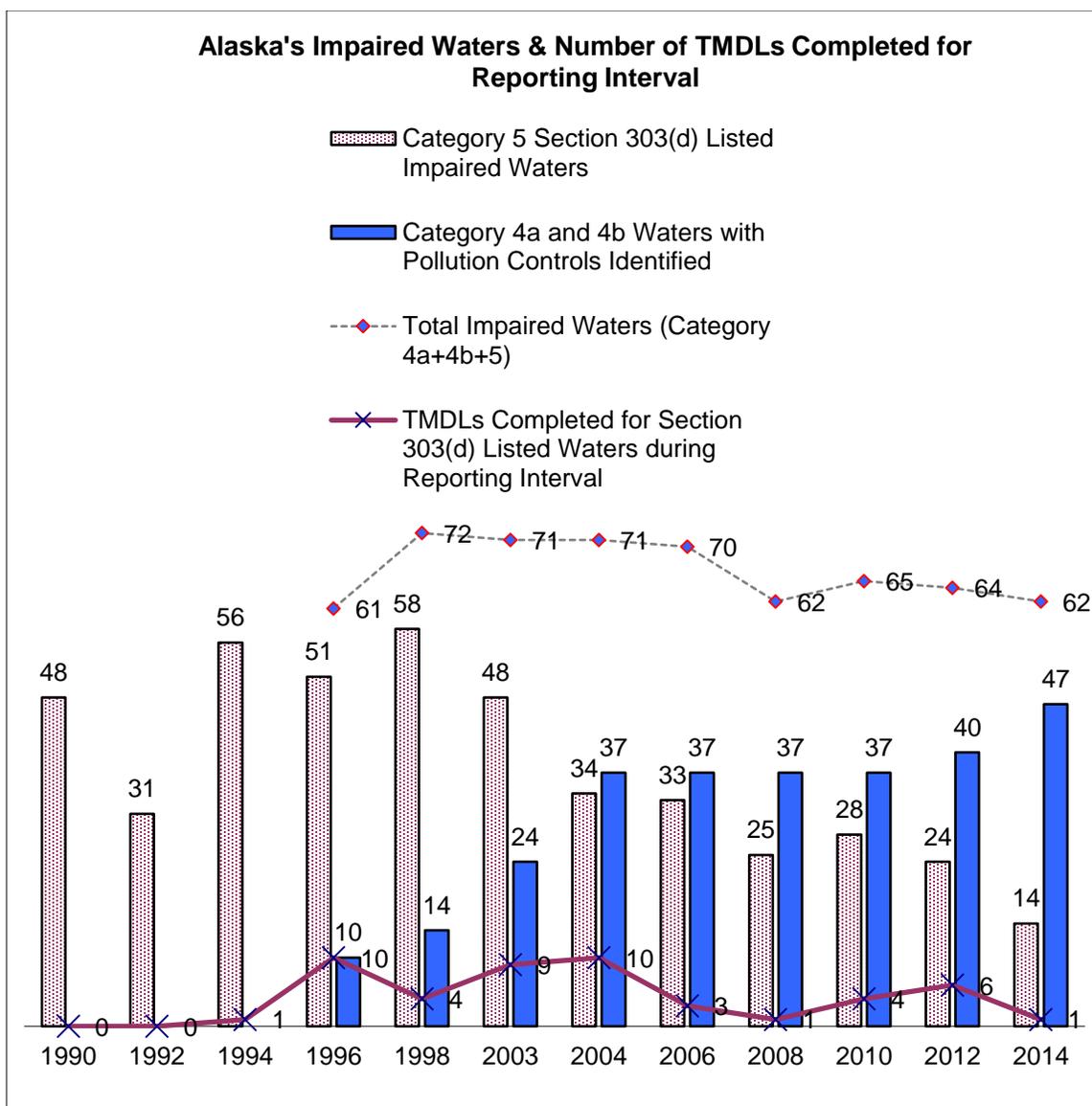


Figure 1: Alaska's Impaired Waters & Number of TMDLs Completed for Reporting Interval

1.5. SIGNIFICANT CHANGES FROM ALASKA'S 2012 INTEGRATED WATER QUALITY ASSESSMENT REPORT

Figure 1 is a graphical depiction of the number of Alaska's impaired waterbodies and the number of TMDLs completed for each reporting period. Since the preparation of the 2012 Integrated Report, seventeen waters are now attaining standards in Category 2:

- Five Unnamed Creeks, Sweetwater Lake, United States Forest Service (USFS) 3030 Road, where the waterbodies are meeting the individual criteria for a variety of metals.

- Chatanika River, north of Fairbanks, where the water is meeting criteria for turbidity, toxic and other deleterious organic and inorganic substances (specifically arsenic), and dissolved gas (specifically dissolved oxygen [DO]).
- Chena River, Fairbanks, where the water is meeting the sediment criteria.
- Chena Slough, Fairbanks, where the water is meeting the sediment criteria.
- Granite Creek, Sitka, where the water is meeting the turbidity and sediment criteria.
- Kenai River, Kenai Peninsula, where the water is meeting the criteria for arsenic, cadmium, chromium, lead, and pH.
- Lake Hood and Spenard Lake (Hood/Spenard Lake), Anchorage, where the water is meeting the dissolved gas (specifically DO) criteria.
- Little Meadow Creek, Matanuska-Susitna Valley, where the water is meeting the criteria for fresh water uses: dissolved gas (specifically DO); petroleum hydrocarbons, oils and grease; hydrogen ion concentration (pH); sediment; toxic and other deleterious organic and inorganic substances; and turbidity.
- Meadow Creek, Matanuska-Susitna Valley, where the water is meeting the criteria for fresh water uses: dissolved gas; petroleum hydrocarbons, oils and grease; pH; sediment; toxic and other deleterious organic and inorganic substances; and turbidity.
- Mosquito Lake, Haines Highway, is now meeting the dissolved gas, fecal coliform bacteria, temperature, and pH criterion.
- Noyes Slough, Fairbanks, where the water is meeting the sediment criteria, but remains impaired from residues and petroleum hydrocarbons, oils and grease.
- Udagak Bay, Unalaska Island, where the water is meeting the water quality criteria for residues.
- Wasilla Creek, Matanuska-Susitna Valley, where the water is meeting the water quality criteria for dissolved gas; petroleum hydrocarbons, oils and grease; pH; sediment (settleable solids); and turbidity.

Two new waters are placed in Category 5, the Section 303(d) impaired list:

- Lake Lucille, Matanuska Valley, where two areas of freshwater lake sediment have elevated levels of lead and zinc. Lake Lucille is now impaired for toxic and other deleterious organic and inorganic substances. The water has been impaired for dissolved gas (specifically DO) with a recovery plan.
- Little Susitna River, Matanuska-Susitna Borough, where 8.5 river miles are impaired for turbidity from 1 river mile upstream of the Little Susitna River Public Use Facility boat launch to 7.5 river miles downstream of the boat launch.

One new water is placed in Category 4b, as impaired and under a plan:

- Little Susitna River, Matanuska-Susitna Borough, where 8.5 river miles is threatened for petroleum hydrocarbons from 1 mile upstream of the Little Susitna River Public Use Facility boat launch to 7.5 river miles downstream of the boat launch during the month of August. Action by the Alaska Board of Fisheries (effective January 2017) to limit fishing from a motorized boat only if the motor is a 4-stroke or direct fuel injected 2-stroke is expected to improve water quality.

Three waters are now under a plan:

- Cottonwood Creek, Wasilla, a TMDL was developed and approved for Cottonwood Creek for fecal coliform bacteria.
- Slate Creek, Denali National Park, a TMDL was developed and approved for Slate Creek for antimony, arsenic, and iron.
- Goldstream Creek, Fairbanks, a TMDL was developed and approved for Goldstream Creek for turbidity.

Other broader changes reflected in the 2014/16 Integrated Report include the following:

- Narratives were updated based on existing and readily available information. Updates to Category 4a waterbody narratives were completed to describe development of TMDLs.
- The locations that remain impacted by the Exxon Valdez oil spill (EVOS beaches) has been revised to coincide with the scientific studies conducted for the EVOS Trustee Council.
- The ACWA waterbody priority rankings are included on the DEC ACWA home page at http://dec.alaska.gov/water/acwa/acwa_index.htm.
- The appendix describing various DEC water programs was removed.
- Listing methodologies outlining the process for determining water quality impairments have been removed and can now be found at <http://dec.alaska.gov/water/wqsar/waterbody/integratedreport.htm>

1.6. PUBLIC PARTICIPATION PROCESS OVERVIEW

The DEC has an open, ongoing solicitation for water quality data and information. To solicit the ACWA waterbody nominations, the DEC coordinates a continuous effort among state resource agencies. During the preparation and development of Alaska's 2014-2016 Integrated Report, the DEC actively solicited readily available and existing water quality data and information for use in preparing the report.

The DEC also posted a public notice solicitation for existing and readily available water quality data and information in the summer of 2013 and again from August 1 to September 14, 2015.

The DEC will posted a public notice on the availability of the draft 2014/16 Integrated Report and for consideration of public review and comment. A 45-day public review and

comment period was conducted from December 2017 to January 2018. Additionally, a public meeting was conducted on the draft report on January 4, 2018.

Changes to the draft report, based on public comments, were incorporated in the final report, where appropriate. The DEC will prepared a responsiveness summary of the draft report public comments and information received during the solicitation and made it available to the public via web posting. The DEC will then forward the proposed final report to the EPA, which has approval authority over the Section 303(d) list of impaired waters.

2. CATEGORIZATION PROCESS AND ASSESSMENT METHODOLOGY WITH RESULTS

This section of the Integrated Report describes the process used by the State of Alaska to evaluate the waterbodies. This evaluation process includes assigning waterbodies into five categories, depending on attainment of WQS and whether further action is needed. For those waterbodies in Category 5, which are listed as impaired under CWA Section 303(d) needing further action, the process continues with scheduling when further action will be initiated; and involving the public in determining how the impairments to the waterbodies will be addressed. Figure D-1, Logic Flow Diagram for Making Category Determinations, found in Appendix D, portrays the logic of assigning waterbodies to categories.

Potential impairment of waterbodies may be brought to the attention of the DEC by its staff, other state and federal agencies, municipalities, Native organizations and tribes, industry, and the concerned public. When an impairment to the beneficial use of a waterbody is elevated to the DEC's attention, the potential sources of impairment are identified to determine if suspected water quality violations or persistent exceedances of WQS have been thoroughly investigated and documented. DEC does not place waterbodies into Category 5 based on inconclusive or circumstantial data or solely on the basis of observation.

Section 303(d) of the CWA requires the listing of impaired waterbodies that are not expected to meet WQS without additional controls (Category 5). Section 303(d) of the CWA requires that a TMDL must be conducted and implemented for Category 5 waterbodies. Alternatively, a waterbody recovery plan can be developed and the waterbody would then be placed in Category 4b. There are several Section 303(d) listed waters that have not undergone comprehensive water quality assessments to determine the extent of water quality impairment or if existing controls are adequate to achieve the standards.

2.1. GENERAL ASSESSMENT METHODS

The DEC actively solicits existing and readily available water quality data and information in accordance with EPA guidance found at <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/guidance.cfm>.

The information gathered is not limited to waterbodies for which water quality problems have already been reported by local, state, or federal agencies; members of the public; or academic institutions. Various organizations and groups are contacted for data from research they may be conducting or reporting. University researchers, the United States Department of Agriculture, the National Oceanic and Atmospheric Administration (NOAA), the United States Geological Survey (USGS), and the United States Fish and Wildlife Service (USF&WS) are examples of such additional sources of water quality data.

The DEC actively accepts and solicits water quality data and information on a continual basis. Additionally, a formal public notice seeking such information is made every 2 years as part of developing the Integrated Report.

The DEC considers and evaluates data and information from a wide range of sources, such as those listed below:

- Previous reports prepared to satisfy CWA Sections 305(b), 303(d), and 314, along with related updates.
- Reports of ambient water quality data, including those prepared as part of state ambient water quality monitoring programs, complaint investigations, information generated by the public and other sources that provide readily available data (e.g., STORage and RETrieval, an EPA environmental database), and data and information provided in public comments.
- Reports of dilution calculations or predictive models.
- Water quality management plans.
- Records of decision (ROD) for Superfund (contaminated) sites.
- Safe Drinking Water Act (SDWA) source water assessments.
- DEC Contaminated Sites Database.

In addition to these conventional sources of data, the DEC also considers water quality data and information from citizen volunteer monitoring networks.

2.2. GENERAL CONSIDERATIONS FOR ALL WATERBODY CATEGORIES

The following subsections describe data quality and quantity considerations addressed by the DEC when evaluating a waterbody for inclusion in, or removal from, the impaired waters categories (Category 4a, Category 4b, Category 4c, and Category 5), or in making an attainment determination.

2.2.1. DATA QUALITY CONSIDERATIONS

The DEC considers whether or not typical elements of a quality assurance project plan (QAPP) are submitted for water quality data and information. A QAPP checklist for sampling, a QAPP review checklist, and a description of elements that characterize a good QAPP are available on the DEC's website at <http://dec.alaska.gov/water/water-quality>.

Water quality data and information that are collected and submitted without a QAPP or are collected under a QAPP for which the level of confidence is low, will not be relied upon to make an impairment determination. Such data and information may only be considered as ancillary information to support an attainment or impairment determination.

The DEC makes impairment determinations based on credible data. The term "credible data" refers to scientifically valid chemical, physical, or biological monitoring data collected under a scientifically accepted sampling and analysis plan, including quality control and quality assurance procedures consistent with the Alaska WQS in 18 AAC 70. Water quality data supportive of an impairment determination must be specific to the waterbody. Water quality data and information less than five years old are preferred. In certain instances, data

and information more than five years old may be considered in an impairment determination. For those instances, the data and information are carefully scrutinized and reviewed before they are validated as credible and useable.

2.2.2. DATA QUANTITY CONSIDERATIONS

Adequate data quantity is necessary to make well-grounded attainment and impairment decisions. Assessments based on larger sample sets are preferred because they are more likely to yield accurate conclusions than those based on smaller sample sets.

Enough data or information should be available to indicate that WQS are or are not exceeded, or that designated uses are or are not impaired, and that such measurements are representative of the waterbody.

2.3. CATEGORIES AND ASSESSMENTS

2.3.1. CATEGORY 1 – WQS ATTAINED FOR ALL CRITERIA

Waterbodies are placed in this category if sufficient data are available to support a determination that all WQS criteria are attained.

The majority of waterbodies in Alaska are not subject to human-caused stressors and are considered unimpaired. The DEC estimates that 99.9% of Alaska's waters can be classified as Category 1; however, no specific waters are identified in this category.

2.3.2. CATEGORY 2 – WQS ATTAINED FOR DESIGNATED USES

Waterbodies are placed in this category if some of the WQS criteria are attained.

Waterbodies are placed in Category 2 if sufficient credible data and information are available to support a determination that some, but not all, designated uses are attained, and if the attainment status for the remaining uses is unknown because there is insufficient or no data or information. These waters are presumed to be attaining WQS criteria for all designated uses. Additional monitoring of these waters is scheduled when new information becomes available that would indicate a change in the status or significant cause for concern. The 62 waterbodies assigned to Category 2 are identified in Appendix A of this report.

Waterbodies that have been previously identified as impaired, but are now attaining water quality criteria are also placed in this category. An example of this would be a waterbody for which recent monitoring data support a determination that the water quality criteria are attained.

Waterbodies with residue discharges are also placed in Category 2 if recent dive survey reports show that water quality criteria are attained and have continued to be attained.

Waterbodies that were determined to be impaired from Residues and listed as Category 5, but have a documented continuous coverage of residues of less than 1.0 acre, are also placed in Category 2 and are identified in Appendix A of this report.

2.3.3. CATEGORY 3 – DATA OR INFORMATION INSUFFICIENT

Waterbodies are placed in Category 3 if data or information are insufficient to determine if the WQS criteria are attained for any of the designated uses.

The 325 Category 3 waterbodies are identified in Appendix A of this report.

2.3.3.1. CONDITIONS USED TO CLASSIFY WATERBODIES AS CATEGORY 3

Alaska's water resources include more than 3 million lakes, which are larger than 5 acres in size, 714,004 miles of rivers and streams, more than 175 million acres of fresh water wetlands, and approximately 44,000 miles of coastal shoreline. Because of the size of its water resources, Alaska has insufficient, inadequate or little to no data or information to support attainment or impairment determinations for many waterbodies. The presumption is that these waterbodies attain WQS criteria for all designated uses unless there is a reason to suspect an impairment.

Category 3 includes waterbodies that the DEC formerly called "open files" and waterbodies nominated for assessment through the ACWA process of Alaska's three resource agencies: the DEC, the Alaska Department of Fish and Game (ADF&G), and the Alaska Department of Natural Resources (DNR). Actions that trigger opening a file can include nomination from the public, a public complaint, a newspaper report, or more rigorous information such as water quality reports or assessments. For many of these waterbodies, definitive water quality data or information to determine if the designated uses are being attained or impaired are limited, inconsistent, or outdated. Several of these waterbodies have been brought to the attention of Alaska's state resource agencies for suspected pollution or for impairment of water quantity or fish habitat. The DEC maintains files on some of these waterbodies, and the information is available upon request.

Some circumstances under which a waterbody may be assigned to Category 3 are identified below:

- The data and information were collected using unacceptable quality assurance/quality controls and could not be used to provide an accurate assessment.
- The quantity of the existing and readily available data and information is inadequate to provide an accurate assessment.
- The existing and readily available data and information are not representative of current conditions of the waterbody. Examples of circumstances that might have altered conditions are: (1) significant land use changes that occurred in the watershed, affecting the hydrology and loading of nonpoint sources of pollutants, (2) point source discharges that were removed or new discharges have been added, (3) significant changes in applicable data collection methodologies made by the State of Alaska, or (4) sampling station locations that do not reflect the character of the waterbody segment.

2.3.3.1.1. THE ACWA PROCESS

Through the ACWA process, the DEC, the DNR, and the ADF&G work together to focus state and federal resources on addressing issues of water quality, water quantity, and aquatic habitat for the waters with the greatest need. These cooperating state agencies have developed a waterbody nomination and ranking process based on established criteria to identify priorities for assessment, stewardship, and corrective action needs. The process addresses waterbodies affected by these and other problems: presence or risk of pollution, habitat degradation, and quantity problems. The entire ACWA process (consisting of the integrated components) is conducted in three phases: nomination, analysis, and action. Several components of the ACWA process are interwoven and occur simultaneously.

2.3.3.1.2. NOMINATION PHASE

During the nomination phase, each waterbody nominated by the public, agencies, or both is reviewed. Information identifying the waterbody is entered into the ACWA database. The nominator may be asked for additional information during this phase.

The ACWA database uses four tracks to classify the nominated waterbodies: (1) Data Collection and Monitoring, (2) Adequately Protected Waterbodies, (3) Waterbody Recovery, and (4) Protect and Maintain Waterbodies at Risk. Identification of the applicable track for a nominated waterbody is an ongoing process and is affected by evaluations, analysis, and ranking, as well as by the receipt of additional data and information. Therefore, new knowledge or decisions may lead to placement of the waterbody in a different track. For example, during the analysis and action phases, the identification of additional data needs may result in the waterbody being reassigned to the Data Collection and Monitoring track.

Waterbodies for which data are not sufficient to suggest a current or anticipated problem are placed in the Data Collection and Monitoring track. The waterbodies for which sufficient and credible data are available, and those data suggest the existence of a current water quality, water quantity, or aquatic habitat problem, or the likelihood of future problems, are subject to additional evaluation. Those further evaluations assess the effectiveness of agency stewardship and determine the persistence of water quality criteria exceedances or of regulation violations. Many of these waterbodies are entered in the Protect and Maintain Waterbodies at Risk track or the Waterbody Recovery track.

Waterbodies that are at risk or needing recovery are addressed as follows during the action phase of the ACWA process:

- Priorities for action on individual waterbodies are established.
- Protection or recovery actions are identified and implemented.
- The success of protection/recovery actions and directing the waterbody for additional information, continued monitoring, or additional protection/recovery actions are evaluated.

Finally, waterbodies that are determined to be adequately protected are placed in the Adequately Protected Waterbodies track.

2.3.3.1.3. ANALYSIS OF DATA

During the analysis phase of the ACWA process, a successfully nominated waterbody undergoes a series of determinations using established criteria to assess the adequacy and credibility of the associated data available for the waterbody. This step is called a “sufficient and credible data review.” Tables used to review the rigor of the data and information associated with each waterbody and to score each waterbody are available at <http://www.dec.state.ak.us/water/acwa/pdfs/su.pdf>.

In scoring waterbodies for sufficient and credible data, three topics are considered: (1) Data Content, (2) Data Coverage, and (3) Data Quality. Parameters addressed under Data Content evaluate how sufficiently and completely the information contained in the nomination describes the nature and extent of the identified issue. Parameters addressed under Data Coverage and Data Quality evaluate the quality of the information provided and its thoroughness.

Data Content scoring considers the basis for the assessment of (1) use attainment, (2) the land use information available for the waterbody, (3) information on the expected reference condition, (4) information on the source or sources of pollution, and (5) the availability of photographs showing the condition of the water. The objective of Data Content scoring is to identify whether or not the available data are sufficient to identify the existence and/or extent of a current or potential problem.

Data Coverage scoring considers the number of locations and seasonal information available. Data Quality scoring considers (1) the adequacy of the quality assurance and quality control for the information, (2) whether or not sampling protocols were documented, and (3) how relevant and current the information is.

Nearly all of the Category 3 waterbodies identified in this Integrated Report have gone through the Analysis phase of the ACWA process to determine if the available data are sufficient and credible. A small number of waterbodies at any given time are placed in a “pending” status until the water quality information and data associated with the waterbody undergo a sufficient and credible data review.

2.3.3.1.4. THE ACWA ACTION PHASE

In addition to the analysis of data and overall determination of future actions for the watershed, the waterbodies are ranked to establish priorities for future actions. The waterbody ranking enables agencies to focus resources on the most important priorities. Criteria were developed to assign a numeric value that identifies relative priority to each successfully nominated waterbody, resulting in the ACWA Priority Ranking.

Six factors are used to score each of three components: water quantity, water quality, and aquatic habitat. The six factors are as follows:

- Allocation, or the extent to which the water has been obligated for various uses
- Condition

- Protection
- Future use
- Present use
- Value

Evaluation for each of the six factors results in relevant scoring for each component. The possible scores are high (5), medium (3) or low (1).

Staff from each of the three resource agencies reviews readily available information and data related to a given waterbody and uses their best professional judgment to assign a factor rating. The following considerations guide the ranking decisions: (1) the statutory criteria, (2) severity of pollution, and (3) expected uses of the waterbody, according to the CWA Section 303(d)(1)(A).

The agency with statutory or regulatory authority over the water resource component is responsible for assessing that component. The DNR hydrologists provide factor ratings for water quantity; the ADF&G biologists provide aquatic habitat factor ratings; and the DEC provides water quality ratings. More detailed information on the ranking process is available online at http://www.dec.state.ak.us/water/acwa/acwa_ranking.htm.

2.3.3.1.5. DISTINCTIONS BETWEEN THE ACWA PROCESS AND LISTING OF WATERS BY CATEGORY

For the ACWA process and the categorization or listing of waters in the Integrated Report, two important points should be noted:

- The process for the Integrated Report listing decisions is different from the process used for ACWA ranking and priorities. An impairment listing is considered in the ACWA process, and most waterbodies that are listed as impaired under Categories 4 and 5 are ranked as “high priority” by the ACWA process. While the categorization of waters for the Integrated Report plays a role in the ACWA prioritization process, the ACWA process does **not** drive the categorization; instead it provides information management and helps to identify and implement actions that will remove impairments.
- One component of the ACWA process is an analysis of whether or not sufficient and credible data and information exist. This analysis is **only** used for ACWA prioritization for further action; it does not determine if data are sufficient for a use in an attainment decision. The criteria used for attainment and listing decisions are discussed in **Section 2.3.5.1. Conditions Used to Classify a Waterbody as Category 5.**

2.3.4. CATEGORY 4 – IMPAIRED WATERBODY

Category 4 waterbodies have been determined to be impaired, but do not need a TMDL.

Impaired waterbodies (Category 4 and 5 waters) are surface waters with documentation of actual or imminent persistent exceedances of water quality criteria, adverse impacts to designated uses, or both, as defined in 18 AAC 70.

When considering listing an individual waterbody as impaired, the DEC staff start by evaluating available information about the waterbody to determine the presence of pollutants and/or persistent exceedances of WQS criteria or impacts to the designated uses, and the degree to which WQS are attained. This process consists of a DEC desk audit and may involve a preliminary field review and the collection of water quality monitoring data. The DEC closely scrutinizes the available data on waterbodies to determine if suspected water quality violations were thoroughly investigated and documented. This approach is designed to prevent the listing of waterbodies as impaired based on or circumstantial data or solely on unsubstantiated observations.

Designation of a waterbody as impaired does not necessarily indicate that the entire waterbody is affected. In most cases, only a segment of the waterbody is affected. When possible, the assessment process identifies the specific segment that is impaired and the corresponding pollutant parameters of concern.

The term “persistent” is fundamental in determining if a surface waterbody is impaired. The presence of persistent exceedances of WQS criteria is a waterbody-specific determination that requires the application of best professional judgment. This approach includes discussion and analysis of a variety of factors such as pollutant characteristics (e.g., consideration of the magnitude, frequency, and duration of the pollution event or events), pollutant sources, size of the waterbody, the stringency of the requirements or assurances, and the degree of recovery response required.

Impairment determinations must be substantiated with empirical water quality chemistry, unless the water quality criterion is a qualitative standard such as the absence of a visible sheen or presence of a residue such as a sludge. Site specific information, including biological assessment information (e.g., sediment profiling imaging), can be used to help determine if an impairment exists and may be used to justify variance from listing methodologies as long as the information provides a clear demonstration as to whether or not the waterbody is meeting the applicable water quality criteria.

The DEC uses the following guidelines to determine if a waterbody is impaired:

- EPA guidelines and guidance documents.
- DEC has developed several guidance documents to guide the determination of the health of a waterbody. Guidance has been developed for the following water quality criteria:
 - Residues
 - Turbidity
 - Pathogens

- Petroleum Hydrocarbons, Oils and Grease

These guidance documents can be found at

<http://dec.alaska.gov/water/wqsar/waterbody/integratedreport.htm>

The DEC uses the following credible data sources to determine if a waterbody is impaired:

- Water quality monitoring data that documents persistent exceedances of a standard, criterion or criteria established in Alaska WQS (18 AAC 70).
- Photographs or videos with appropriate documentation definitively linked to persistent exceedances of WQS criteria. Documented persistent presence of residues (floating solids, debris, sludge, deposits, foam, or scum) on or in the water, on the bottom, or on adjoining shorelines.
- Documentation or water quality data, such as a report or study within the last 5 years, which demonstrates that designated uses are adversely affected by pollutant condition data. Data or documentation older than 5 years old is only considered if it is determined to reflect the current condition of the waterbody.
- Documentation from a resource agency or other credible source that applies the use of best professional judgment to provide credible data. Best professional judgment is used to determine if a waterbody persistently exceeds WQS criteria or has designated uses that are adversely affected by pollutant sources.

Best professional judgment determinations should be made by more than one professional and at the agency level; must be made by a professional knowledgeable in the relevant field of expertise and should generally be based on that person's experience and the information reasonably available at the time; should be based on the best available scientific data and information; and must be subject to management level review. Best professional judgment recommendations from outside the DEC must be affirmed by the DEC, and available data and basis for the decision should be documented.

The three subcategories of Category 4 waters are discussed in the subsections that follow.

2.3.4.1. CATEGORY 4A – TMDL HAS BEEN COMPLETED

An impaired waterbody that was previously listed in Category 5, but for which a TMDL has been completed and approved by the EPA, is assigned to this category.

For waterbodies that have been placed in this category, a TMDL addressing a specific impairment has been developed and approved by the EPA. It is expected that implementation of that TMDL will result in full attainment of the WQS criteria applicable for that specific impairment. If the waterbody has another impairment, the waterbody will *also* be assigned to Category 5 until a TMDL has been developed and approved for that impairment.

Monitoring is performed for Category 4a waters as dictated by the specific TMDL to verify that the WQS have been met after implementation of the water quality management actions needed to achieve one or more TMDLs.

The key condition for Category 4a classification is a completed and approved TMDL. Approved TMDLs can be found at the following website <http://dec.alaska.gov/water/tmdl/approvedtmdls.htm>.

The 38 waterbodies placed in Category 4a are described in Appendix A of this report. 45 TMDLs have been developed on these 37 waters.

2.3.4.2. CATEGORY 4B – OTHER POLLUTION CONTROL REQUIREMENTS ARE REASONABLY EXPECTED TO RESULT IN ATTAINMENT OF THE WATER QUALITY STANDARD IN A REASONABLE PERIOD OF TIME

Waterbodies are placed in this category when other pollution control requirements of local, state, or federal authority are stringent enough to achieve any WQS criteria applicable to such waterbodies within a reasonable time period. These pollution control requirements must specifically apply to the impairment. The following are examples of applicable pollution controls:

- An approved state or federal ROD associated with a state or federally approved cleanup action for a contaminated site.
- An approved remediation plan for a permitted facility, such as a log transfer facility (LTF), reporting more than 1.5 acres of continuous residue coverage.
- An Alaska Pollutant Discharge Elimination System (APDES) permit that incorporates TMDL-type controls for the permitted facility.
- A water-quality based permit with controls or assurances that water quality goals will be met.
- Restoration, remediation or recovery measures, or plans with controls and assurances that are sufficiently stringent to assure that water quality goals will be attained within a reasonable time period.

Key factors that must be considered before placing a waterbody in Category 4b include:

- The need for pollution controls or measures.
- Requirements and controls sufficiently stringent that WQS criteria can be expected to be met in a reasonable time period; incremental progress should be reported.
- Assurances that the requirements and controls will be implemented in a reasonable time period.

Placing a waterbody in Category 4b requires EPA approval, and the development of a Category 4b rationale must address the following six elements:

1. Identification of impaired segment and statement of problem causing the impairment.
2. Description of pollution controls and how they will achieve the WQS criteria.
3. An estimation or projection of the time when the WQS criteria will be met.

4. Schedule for implementing pollution controls.
5. Monitoring plan to track the effectiveness of pollution controls.
6. Commitment to revise pollution controls as necessary.

Determining whether or not to place a waterbody in Category 4b requires the application of best professional judgment and agency enforcement discretion. This approach includes discussion and analysis of a variety of factors such as pollutant characteristics (e.g., consideration of the magnitude, frequency, and duration of the pollution event or events), pollutant sources, size of the waterbody, the stringency of the requirements or assurances, and the degree of recovery response required.

Waterbodies associated with residue discharges are also placed in Category 4b if the following conditions are met: (1) two or more dive survey reports from LTFs document more than 1.5 acres of continuous residues coverage and (2) the waterbody is addressed in an approved remediation plan under the LTF General Permit (GP) or under an individual state wastewater discharge permit (information on remediation plans is provided in the *Listing Methodology for Determining Water Quality Impairments from Residues Guidance*). Waterbodies that are under the EPA's compliance orders for seafood residue violations may also be considered for placement in Category 4b if the compliance order(s) ensures that the water will attain the water quality criteria for residues in a reasonable time period.

Monitoring is scheduled for these waters as dictated by the specific Category 4b recovery plan to verify that the WQS criteria will be attained as expected.

There are a total of four Category 4b waterbodies which are identified in Appendix A of this report.

2.3.4.3. CATEGORY 4C – IMPAIRMENT IS NOT CAUSED BY A POLLUTANT

Waterbodies are placed in this category when the impairment is not caused by a pollutant affecting water quality. An example impairment with a cause other than a pollutant is hydrologic modification which may cause low flow issues.

The presence of unwanted and invasive aquatic species is another example of a non-pollutant-caused impairment. Aquatic invasive species have the potential to degrade water quality by changing the natural characteristics of a waterbody, reducing the abundance and diversity of native species, or by impacting human recreational uses of the waterbody. Non-native invasive species can cause significant ecological and economic damage and documentation of invasive aquatic species is increasing in Alaska.

In Alaska, invasive aquatics have been recognized as a priority problem for natural resource state agencies. For example, a 2013 Memorandum of Understanding between the DNR, the ADF&G and the DEC recognize the invasive aquatic *Elodea spp.* as a noxious weed that degrades fish habitat and displaces native flora and fauna, and the agencies agree to cooperate with the goal of eradicating *Elodea spp.* in Alaska. Other documented invasive

species include: knotweed (a common name for plants in several genera of the Polygonaceae family) and reed canary grass (*Phalaris arundinacea*).

Alaska has adopted specific criteria or standards for invasive species to identify impairments not related to water quality. The ACWA priority rankings identify aquatic habitat or water quantity impaired waterbodies for action, but these waters are not referred to as “impaired” because they are not impaired in terms of water quality.

There are no waterbodies currently identified as Category 4c in the State of Alaska; however, the Alaska resource agencies will use this category to track waterbodies with non-pollutant impairments in the future.

2.3.5. CATEGORY 5 – IMPAIRED WATERBODIES ON THE SECTION 303(D) LIST

Waterbodies are placed in Category 5 if one or more of the WQS criteria set forth in 18 AAC 70 are not attained and are determined to be water quality impaired as described in **Section 2.3.4 Category 4 – Impaired Waterbody**. Category 5 waters are the Section 303(d) listed waters and a TMDL or waterbody recovery plan to attain the applicable WQS criteria is required.

The 14 waterbodies placed in Category 5 and on the CWA Section 303(d) list are identified and described in Appendix A of this report. Appendix E is an abbreviated list sorted regionally and without narrative descriptions.

2.3.5.1. CONDITIONS USED TO CLASSIFY A WATERBODY AS CATEGORY 5

All waterbodies placed in Category 5, and thus the CWA Section 303(d)-listed waterbodies, have undergone water quality assessments to determine the extent of water quality impairment or if existing controls are adequate to achieve the WQS.

A waterbody placed in Category 5 has a completed water quality assessment that confirms and has determined the extent of impairment to water quality, designated uses, or both. A comprehensive assessment requires the identification of the pollution source and pollutant causing the impairment. The completed assessment would further indicate that the waterbody is impaired and that existing controls are inadequate to achieve WQS in a reasonable time period. Category 5 waterbodies require a TMDL or equivalent waterbody recovery plan.

EPA encourages states to document the decision making processes to assess water quality standards attainments, e.g., identification of impaired waters. These processes are more commonly known as “listing methodologies.” The most recent and finalized listing methodologies can be found at <http://dec.alaska.gov/water/water-quality/integrated-report>

There are 15 waters in Category 5 and Section 303(d) listed.

2.3.5.2. REMOVAL OF WATERBODIES FROM THE CATEGORY 5 LIST

After a waterbody has been placed on the Category 5 list, several conditions can lead to removal of the waterbody from the list. Determinations to remove waterbodies from the

Category 5 list are subject to approval by the EPA. One or more of the following conditions or lines of evidence can support the delisting of a waterbody:

- More recent and accurate data show that one or more of the applicable WQS criteria are met.
- More sophisticated water quality modeling that demonstrates one or more of the applicable WQS criteria are met.
- Identification of flaws in the original analysis of data and information which resulted in the waterbody being incorrectly listed.
- Revised listing methodology criteria which negate the original rationale for listing.
- The water quality criteria for which the waterbody was listed has been revised and the water quality meets the revised criteria.
- Sufficiently stringent mitigation measures have been applied. Examples include incorporation of TMDL-type controls into the APDES permit or controls such as those applied by a cleanup or remediation plan with assurance that one or more of the WQS will be met within a reasonable time period.
- A TMDL or equivalent waterbody recovery plan has been developed. If a TMDL is developed, the waterbody is placed in Category 4a; if an equivalent waterbody recovery plan is developed, the waterbody is placed in Category 4b.
- Other pollution controls are available and in place that ensure WQS criteria will be attained in a reasonable time period (as described for Category 4b waterbodies).
- Other relevant information becomes available that supports the decision that the waterbody should not be included on the Category 5 list.

The following protocols are applied to all waterbodies placed in Category 5/Section 303(d) listed for residues with an associated discharge permit, regardless of whether or not there is an active discharge from the permitted facility before the waterbody is eligible for removal from the Category 5/Section 303(d) list and placement in Category 1 or 2:

- For waterbodies listed under CWA Section 303(d) after 1998 and determined to be impaired for residues based on **two** or more dive surveys:
 - The DEC requires two consecutive dive surveys documenting that continuous residue coverage is no more than 1.5.
- For waterbodies listed under CWA Section 303(d) in 1998 or earlier (based on residue coverage of 1.0 acre) and determined to be impaired for residues based on **one** dive survey or best professional judgment:
 - The DEC requires one dive survey documenting that continuous residue coverage is no more than 1.0 acre.

In addition to consideration of the continuous residues coverage standard, the DEC may consider biological assessment information, such as sediment profile imaging, in a determination to remove a waterbody on the Section 303(d) list for residues.

In addition, all of the following conditions are required to support a determination to remove a waterbody from the Category 5 list:

- “Good cause” has been demonstrated. Typically an explanation of why or on what basis the waterbody was originally listed and why it is now appropriate to remove the listed waterbody or redefine the listed area.
- An administrative record and documentation supporting the recommended determination is needed.
- A public notice of the proposed delisting is published and public comment is sought. Typically the Integrated Report acts as the vehicle for providing public notice and soliciting comments. In special instances, a public meeting could be held in the community closest to the waterbody in question.
- When considering a determination to remove a waterbody from the Category 5 list, in most instances, the level of data to support a determination and burden of proof are not required to be greater than that used in the initial listing determination. In certain instances, determined on a case-by-case basis, additional data or monitoring techniques may be needed to have confidence that WQS are attained.

Appendix B lists the waterbodies removed from Category 5.

APPENDIX A: WATERBODIES IN CATEGORIES 2 THROUGH 5

The tables in this appendix describe the waterbodies that have been placed in Categories 2 through 5. No waterbodies in Alaska have been identified as Category 1 because the state does not possess that level of information for any one waterbody.

To more easily sort and find waterbodies within the tables of this appendix, each waterbody is associated with one of three general regions in Alaska. Within each category, waterbodies are organized by region in the following order: Interior, Southcentral, and Southeast.

Unless otherwise stated in the narrative associated with a waterbody, no determination has been made about the effects to any designated use(s) for that waterbody.

The following abbreviations or notations are used consistently in the tables of Appendix A:

- The “Region” column indicates the general region of Alaska in which the waterbody is located. The abbreviations are defined as follows: IN for Interior, SC for Southcentral, and SE for Southeast.
- The “AK ID Number” column identifies the Alaska waterbody-specific identification number, such as “20402-409.” The first five digits of the number represent the USGS hydrologic (catalog) unit in which the waterbody is located. The last three digits identify the type of waterbody, as follows: 001 for rivers, creeks, or streams; 400 for lakes; 500 for bays (i.e., marine waters); 600 for estuaries; 700 for wetlands; and 800 for coastal waters (i.e., coastline).
- The “Waterbody” column provides the name of the waterbody.
- The “Location” column describes the area or provides location information to clarify the location of the waterbody.
- The “Area of Concern” column describes the specific area of the waterbody that is considered. The abbreviation “N/A” refers to either “not applicable” or “not available” information.
- The “Water Quality Standard” column identifies the standard set forth in 18 AAC 70. This column also identifies one or more WQS that are not attained in the waterbody if the water is a CWA Section 303(d) listed (Category 5) waterbody.
- The “Pollutant Parameters” column identifies the specific pollutant or pollutants for which the waterbody is impaired or, for non-impaired waterbodies, the specific pollutant or pollutants of concern. For instance, a waterbody could be Section 303(d) listed as impaired for the “Residues” standard from the specific pollutant parameter of bark and woody debris.
- The “Pollutant Sources” column identifies the source or sources of the pollutant or pollutants.

A1. CATEGORY 2 WATERBODIES

Alaska's 2014-2016 Final Integrated Water Quality Monitoring and Assessment Report

Category 2 Waterbodies: Attaining some WQS, criteria but insufficient or no data and information to determine if remaining WQS criteria are attained.

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
IN	Category 2	40510-005	Caribou Creek	Denali National Park	16.1 miles	Turbidity	Turbidity	Mining
<p>Caribou Creek was placed on the 1994 Section 303(d) list for non-attainment of the criteria for turbidity from past mining activity within Denali National Park and Preserve. The waterbody lost its sinuosity along segments of the watershed. Currently there is no active mining on Caribou Creek and current National Park Service (NPS) policy will not permit future placer mining. The NPS, the EPA, and the DEC conducted a site visit in 2009 to review the progress of previous reclamation efforts and to assess any areas requiring additional reclamation activities. The NPS established seven cross sections for floodplain design purposes conducting topographic monitoring before and after the establishment of the cross sections. Channel locations and sinuosity were surveyed with a global positioning system (GPS), and water discharge was measured. Analysis and evaluation of site and data resulted in a conclusion that Caribou Creek is meeting the turbidity criteria, although further work would be beneficial. Therefore, a draft recovery plan was prepared to reconstruct the floodplain, rebuild the channel(s), and provide for more natural overbank flooding and deposition. The reconstruction work, including revegetation, stream channel modification and floodplain work was completed in 2010. The turbidity impairment for Caribou Creek was removed from the Section 303(d)/Category 5 list and moved to Category 2 in the 2010 Integrated Report.</p>								
IN	Category 2	40509-002	Chatanika River	North of Fairbanks between the Yukon and Tanana Rivers	Headwaters to Elliot Highway	Turbidity, Dissolved Gas and Toxic & Other Deleterious Organic and Inorganic Substances	Not Applicable	Placer mining
<p>Chatanika River and its tributaries were identified as "special priority" in the 1986 State of Alaska <i>Interagency Placer Mining Guidelines</i> due to increased sediment loads from placer mining when the price of gold was deregulated in 1972, leading to decreased fish stock and complaints from recreational users. Coordinated efforts by the DEC, the DNR and the ADF&G to implement best management practices (BMP) by placer miners resulted in reduced turbidity and recovery of fish stocks. The DEC evaluated turbidity, arsenic and basic water quality parameters during the summers of 2012, 2015 and 2016 at five sites. Results indicated that the Chatanika River is meeting the criteria for turbidity, dissolved gases (specifically DO) and toxic and other deleterious organic and inorganic substances criteria for metals (specifically arsenic). Chatanika River is placed in Category 2 in the 2014-16 Integrated Report for turbidity, DO and arsenic. There is not enough data at this time to determine if the temperature or pH standards are being met.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
IN	Category 2	40506-007	Chena River	Fairbanks	19 miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Urban Runoff
IN	Category 2	40506-007	Chena River	Fairbanks	19 miles	Sediment	Sediment	Urban Runoff
<p>Chena River was Section 303(d) listed in 1990 for non-attainment of the criteria for turbidity, petroleum hydrocarbons, oils and grease, and sediment. The identified pollutant source is urban runoff. The turbidity impairment was removed in 1996. The DEC conducted sampling in 2005, 2007, and 2009 for hydrocarbons and sediment. Data indicated that the Chena River met the petroleum hydrocarbons, oils and grease criteria, but remained impaired from sediment. The petroleum hydrocarbon, oils, and grease impairment for Chena River was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2010 Integrated Report. Additional sediment data collected in 2011 showed that the Chena River was also meeting the criteria for sediment. The sediment impairment for the Chena River is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014-16 Integrated Report.</p>								
IN	Category 2	40506-002	Chena Slough	Fairbanks	13.5 miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Urban Runoff
IN	Category 2	40506-002	Chena Slough	Fairbanks	13.5 miles	Sediment	Sediment	Urban Runoff
<p>Chena Slough was Section 303(d) listed in 1994 for non-attainment of the petroleum hydrocarbons, oils and grease, and sediment criteria. Information presented in the 1994 Statewide Water Quality Assessment survey indicated that a petroleum problem existed and was affecting water quality. File assessment information indicates nonpoint source problems resulting from surface water runoff, road construction, site clearing, and dewatering activities from gravel operations. Based on best professional judgment of DEC staff, the Chena Slough was listed for petroleum products. The DEC conducted water quality testing in 2005, 2007, and 2009 for petroleum hydrocarbons and sediment. Data collected have shown that the Chena Slough met the petroleum hydrocarbon criteria. The petroleum hydrocarbon, oils, and grease impairment for Chena Slough was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2010 Integrated Report. Additional sediment data was collected in 2011 that showed the Chena Slough was also meeting the criteria for sediment. The sediment impairment for Chena Slough is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014-16 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
IN	Category 2	40505-401	Harding Lake	Fairbanks	N/A	FC Bacteria	FC Bacteria	Urban Runoff
<p>Harding Lake was placed on the Section 303(d) list in 1994 for non-attainment of the criteria for FC bacteria. In compiling the 1994 Section 303(d) list, data were reviewed from studies conducted in 1974, 1986, 1987, 1988, and 1994. Most data showed Harding Lake was consistently meeting the FC bacteria criteria during each sampling effort. However, one sample collected in 1986 showed a high level of FC bacteria (more than 60 colonies/100 milliliters [ml]). Although the geometric mean of 29 samples taken during the 1986 study (15.7 colonies/100 ml) met the criteria, a graduate student study of Harding Lake suggested that the lake may not be meeting the criteria because of extensive recreational use. Because of this concern, the DEC decided that “based on the limited sample results and high population density using on-site wastewater disposal systems, it is likely that additional monitoring will show the waterbody to be water quality limited for FC bacteria.” Data collected in fiscal years 1999, 2000, and 2001 through an approved QAPP showed 83% non-detects and no exceedances of the Alaska WQS (18 AAC 70) criteria for FC bacteria of less than 20 FC/100 ml. These results were consistent with results from samples collected in 1987, 1988, and 1994, which also showed Harding Lake attaining WQC. A sampling report prepared by the DNR Division of Land, Mining and Water and the DEC, as well as previous studies by the DEC, documents this information. In summary, the initial listing relied on one sample event and a concern that increased recreational use of the lake was causing suspected additional FC bacteria inputs to the lake. In reviewing the initial listing, it is clear that the one high sample result was an inconsistent outlier and should not have led to listing Harding Lake as impaired. Later sampling showed that WQS criteria for FC bacteria are being achieved and the recreational use of the lake is not causing violations as initially suspected. The new level of information showing that Harding Lake should be delisted is a much stronger body of evidence than that used for the original listing determination. Based on the findings, the FC Bacteria impairment for Harding Lake was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								
IN	Category 2	60402-601	Nearshore Beaufort Lagoons	Sag River to Simpson Lagoon	N/A	Temperature, Dissolved Inorganic Substances	Temperature, Salinity	Causeway
<p>Nearshore Beaufort Lagoons were placed on the Section 303(d) list in 1996 for non-attainment of the criteria for temperature and dissolved inorganic substances, specifically salinity. The waterbody was removed from the Section 303(d)/Category 5 list and placed in Category 4b for tracking and monitoring in the 1998 Integrated Report. Various study reports and information from the EPA Alaska Operations Office indicated that the hydrology and water quality (temperature and salinity) of the Nearshore Beaufort Sea was affected by the causeways and was suspected to have adverse effects to anadromous fish in 1996. Mitigation to correct problems with water quality and fish passage agreed on in the Negotiated Settlement Agreement for Endicott and West Dock Causeways between the United States Army Corps of Engineers (USACE) and the permit holders (Public Notice 91-1). This mitigation, described more specifically in permit modification FF 820562, consisted of additional breaching at both West Dock and Endicott causeways. Breaching construction was finished in fall 1995. The North Slope Borough requires water quality monitoring of the waterbody as a condition to conduct oil and gas operations adjacent and within the waterbody. Monitoring for temperature and salinity of Nearshore Beaufort Lagoons is performed on an annual basis during the ice-free periods, as required by the North Slope Borough. Data and information developed by BP Exploration (Alaska) Inc. and transmitted to the DEC and the EPA in 2002 support that this waterbody is attaining the criteria for temperature and dissolved inorganic substances (salinity). Post-causeway monitoring studies have demonstrated that there is no biological impact and that water quality is within state WQS. Based on this information, the temperature and dissolved inorganic substances impairments for Nearshore Beaufort Lagoons were removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
IN	Category 2	40506-003	Noyes Slough	Fairbanks	5.7 miles	Sediment	Sediment	Urban Runoff
<p>Noyes Slough was placed on the Section 303(d) list in 1994 for non-attainment of the sediment, petroleum hydrocarbons, oils and grease, and residues criteria. Numerous water quality violations were reported. These violations are a result of debris dumped into the slough. The DEC completed a debris assessment in 2007. Data from the assessment were used to complete a TMDL for residues in 2008. Water quality data collected in 2005, 2007, and 2009 determined that a TMDL was necessary for the petroleum hydrocarbons, oils and grease impairment. A TMDL for petroleum hydrocarbons and oil and grease impairment was approved in 2011. Data was collected in 2011 and 2012, and Noyes Slough was determined to be meeting the WQS criteria for sediment. Therefore, the sediment impairment for Noyes Slough is proposed for removal from the Section 303(d) list and placement in Category 2 in the 2014-16 Integrated Report.</p>								
IN	Category 2	40510-003	Slate Creek	Denali National Park	2 miles	Turbidity	Turbidity	Mining
<p>Slate Creek was placed on the Section 303(d) list in 1994 for non-attainment of the criteria for turbidity. The impairment was caused by historic mining activity that occurred from the early 1900s and continued sporadically until 1983. Stream restoration activities were implemented by the NPS and include re-vegetation of disturbed soils and reconfiguration of the stream channel. Water quality monitoring by the USGS from 2008 to 2011 indicate that the creek is meeting the turbidity criteria; however, there are exceedances of the criteria for antimony and arsenic. The waterbody remains impaired for toxic and other deleterious organic and inorganic substances for metals (specifically antimony and arsenic). The turbidity impairment for Slate Creek was removed in the 2012 Integrated Report.</p>								
SC	Category 2	30102-604	Akutan Harbor	Akutan Island	17 acres 0.036 square miles	Dissolved Gas	Dissolved Gas	Seafood Processing/ Waste
<p>Akutan Harbor was placed on the Section 303(d) list in 1994 for non-attainment of the criteria for residues and dissolved gas (DO). The EPA issued two TMDLs for Akutan Harbor in 1995, one for dissolved gas and one for residues. The EPA finalized the associated NPDES permit for this area in spring 1996. The waterbody was removed from the Section 303(d) list in 1998 and placed in Category 4a. Water quality sampling during the summer of 2008, 2009, and 2010, as well as a 2011 benthic survey indicate that the criteria for dissolved gas in the water column is being met. The harbor remains listed for residual solids that exist in quantities larger than the permitted zone of deposit (ZOD). The residual solids or residues TMDL remains in effect and will address and impacts in the immediate area from this impairment. Those solids are being actively degraded anaerobically inside the residual pile and that reduces its size. The current Alaska Pollutant Discharge Elimination System (APDES) Permit continues to require DO monitoring to ensure that the residual solid pile does not negatively impact or cause an impairment of the standard. A TMDL remains in effect for residues on Akutan Harbor. The dissolved gas impairment for Akutan Harbor was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2012 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
SC	Category 2	30102-605	Captain's Bay	Unalaska Island	N/A	Residues	Settleable Solids	Seafood Processing
<p>Captain's Bay was placed on the Section 303(d) list in 1994 for non-attainment of the residues criteria due to settleable solids. Data used for the 1994 list indicated that the established ZOD for the seafood processing discharger was being exceeded. Monitoring data evaluated by the DEC has resulted in the conclusion that the discharger is meeting ZOD requirements. The residues impairment for Captain's Bay was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 1998 Integrated Report. APDES permits for Captain's Bay continue to be issued and enforced.</p>								
SC	Category 2	20401-403	Cheney Lake	Anchorage	N/A	FC Bacteria	FC Bacteria	Urban Runoff, Storm Drainage
<p>Cheney Lake was placed on the Section 303(d) list in 1994 for non-attainment of the FC bacteria criteria. Water quality data collected by the Municipality of Anchorage from 1991 to 1994 indicated that the FC bacteria criterion was exceeded in almost every month of monitoring. However, in 2006 the DEC conducted extensive water quality monitoring in Cheney Lake and the data show that FC bacteria concentrations met state WQS criteria the vast majority of the time. The DEC believes that the higher concentrations, when state criteria were exceeded, are from natural conditions. Cheney Lake is currently meeting the FC bacteria criteria for two reasons: (1) the Municipality of Anchorage (and USF&WS) campaign to reduce the goose population in Anchorage (because of increased number of geese/aircraft incidences, including a crash of a military plane with numerous fatalities blamed on waterfowl), and (2) a successful public awareness campaign educating pet owners on the benefits and owner responsibility of picking up after pets, i.e., "Scoop the Poop" campaign. As a result of this monitoring, the FC bacteria impairment for Cheney Lake was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2008 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
SC	Category 2	20505-001	Cottonwood Creek	Wasilla	Entire 13 miles	Residues, Dissolved Gas, pH, Sediment, Turbidity	Residues (Foam & Debris), FC Bacteria (on-going)	Urban Runoff, Urban Development
<p>Cottonwood Creek (entire 13 miles) was placed on the Section 303(d) list in 2002/2003 for non-attainment of the residues criteria for foam and debris. The DEC had received numerous complaints about foam in Cottonwood Creek with observations in 1998, 2000, 2001, and 2002. Water quality sampling conducted by DEC in 2004, 2005 and 2006 indicated that the foam present in Cottonwood Creek is naturally occurring and meets the residues criteria. The residues impairment (foam) for Cottonwood Creek was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2010 Integrated Report. Additional water quality sampling in 2006 focused on determining the extent of FC bacteria and temperature exceedances. This sampling identified FC bacteria as a concern but temperature was determined to be naturally occurring. FC bacteria exceeded the water quality criteria, and the source(s) is unknown. The DEC conducted a study in 2010 using Microbial Source Tracking (MST) to determine if detected bacteria were from humans, which is documented in <i>Fecal Coliform Bacteria Source Assessment in the Waters of Cottonwood Creek, Wasilla, and Little Campbell Creek, Anchorage</i> (November 2010). Results indicate that humans are a source of the FC bacteria in Cottonwood Creek. Cottonwood Creek was placed on the Section 303(d)/Category 5 list for FC bacteria in the 2010 Integrated Report. Recent water quality studies (2011-2012) conducted by the DEC document that Cottonwood Creek from Neklason Lake downstream to the Surrey Road crossing is currently in attainment of Alaska's water quality criteria for dissolved gas; pH; Sediment (settleable solids); and Turbidity. The dissolved gas, pH, sediment (settleable solids), and turbidity for Cottonwood Creek are proposed for placement in Category 2 in the 2014-16 Integrated Report. Cottonwood Creek remains Section 303(d) listed as impaired for FC bacteria in Category 4a with a TMDL approved by EPA in May 2015.</p>								
SC	Category 2	30102-606	Dutch Harbor	Unalaska Island	0.12 square miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Industrial, Urban Runoff
<p>Dutch Harbor was placed on the Section 303(d) list in 1994 for non-attainment of the petroleum hydrocarbons, oils and grease criteria for petroleum products. An EPA study in August 1994, <i>Water Quality Assessment for Greater Unalaska Bay</i>, concluded that the waterbody was affected by petroleum products. TMDL assessment began in 2006. An existing data compilation was completed, and potential risk sources were identified and assigned priorities. Rigorous field sampling events were conducted in April 2007, September 2007, and September 2008 and included water column and sediment samples for benzene, toluene, ethylbenzene, and xylenes (BTEX); polycyclic aromatic hydrocarbon (PAH); and total organic carbon (TOC). Results indicated that the water column meets criteria for the contaminants of concern; however, several sediment results had surface sheens in exceedance of the standard (18 AAC 70). The TMDL for the remaining impaired areas was completed in July 2010 and approved by the EPA in September 2010. Implementation of the TMDL focuses on dock and harbor BMPs to minimize any new petroleum hydrocarbon inputs to the area. The original area of the petroleum hydrocarbons, oils, and grease impairment for Dutch Harbor was reduced in the 2010 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
SC	Category 2	20302-601	Eagle River Flats (60 acres)	Fort Richardson	N/A	Toxic & Other Deleterious Organic and Inorganic Substances	White Phosphorus, Munitions Residues	Military Base Operations

Eagle River Flats (ERF) was placed on the Section 303(d) list in 1996 for non-attainment of the criteria for toxic and other deleterious organic and inorganic substances, specifically white phosphorus. The EPA prepared a report, *Eagle River Flats - Comprehensive Evaluation Report*, in July 1994. This report is a detailed environmental assessment that qualifies as a waterbody assessment. The report presents water quality data and other information on the relationship between white phosphorous (from artillery shell residue) and its lethal effect on waterfowl in the ERF area. A ROD was signed on September 30, 1998, placing the waterbody in Category 4b. Approximately 60 acres were identified as contaminated and requiring treatment. Remediation activities occurred in 1998 to 2001. During each field season, six pumping systems were placed into the contaminated ponds and operated to drain the water from the ponds. Draining the ponds allowed the sediments to dry out, thus causing the white phosphorus to oxidize and no longer be a threat to the waterfowl. Field activities resulted in a dramatic decrease in white phosphorus concentrations in more than half the total acreage identified as contaminated. By 2004, more than 75% of the contaminated areas were addressed. The remaining area was treated in 2005, the last year for active treatment. The United States Army is now in the long-term monitoring phase to ensure that the remedial action will meet the long-term goal of reducing duck mortality to levels identified in the ROD. Additional pumping of water from the ponds and drying of white phosphorus contaminated sediments occurred in 2007. In 2012, the United States Air Force finalized Environmental Impact Study (EIS) in an effort to open the ERF to year-round firing. (In 2010 the Elmendorf US Army base and Fort Richardson US Air force base joined together in a “joint base” which is now called – Joint Base Elmendorf-Richardson (JBER). The Air Force is in charge of all things going on the former two installations and funds all cleanup, compliance activities, thus the Air Force is in charge from 2010 to present.) The current revised estimate of the total area that had been contaminated by white phosphorus (before treatment) is approximately 47 acres. Pumping and draining remediation activities have successfully treated most of the contaminated area. Smaller hot spots with white phosphorus concentrations above the target of 1 µg/g in areas that could not be drained or pumped consisted of less than 0.5 acre; these areas were remediated through capping. Water fowl monitoring, aerial waterfowl surveys, and white phosphorus monitoring of treated ponds was scheduled to be conducted in 2016 to ensure that the data is available in 2017 for the CERCLA Five-Year Review. The decision for resuming year-round firing at the flats assumes that it does not cause an increase in waterfowl mortality above levels specified in the Record of Decision.

The DEC's Contaminated Sites section summary on ERF can be viewed at <http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/431>. The DEC considers the United States Army to have met the milestones in the ROD, and mortality is considered to be at levels typical for the species in this area. The toxic and other deleterious organic and inorganic substances impairment for ERF was removed from Category 4b and placed in Category 2 in the 2008 Integrated Report.

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
SC	Category 2	30204-023	Eskimo Creek	King Salmon	N/A	Petroleum Hydrocarbons, Oils & Grease; Toxic & Other Deleterious Organic and Inorganic Substances	Petroleum Products, Diesel Range Organics, Trichloroethylene	Landfill, Fuel Storage, Former Underground Storage Tanks, Former Dry Wells (Injection Wells), Military

Eskimo Creek was initially placed on the Section 303(d) list in 1996 for non-attainment of the criteria for petroleum hydrocarbons, oils and grease (specifically diesel-range organics [DRO]) and toxic and other deleterious organic and inorganic substances (metals and pesticides). Information provided by the EPA's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or "Superfund" group showed that seeps from a fuel storage area, former dry wells, and a dump adjacent to Eskimo Creek led to potential stream water contamination by metals, pesticides, and petroleum hydrocarbons. Later information suggested removing metals and pesticides as pollutant parameters because no analytical data support these constituents as contaminants of concern and placement of this segment of Eskimo Creek in Category 2. The primary sources of petroleum hydrocarbons and trichloroethylene (TCE) from aboveground storage tanks and dry wells have been removed. A final ROD for Groundwater Zone 1 was signed by the DEC and the United States Air Force in November/December 2000. A final ROD for Groundwater Zone 2 and a Zone 2 ROD Addendum were signed by the DEC in December 2002 and 2003, respectively, and by the United States Air Force (USAF) in December 2003. Future activities based on the two RODs include removal of extruding surface drums and debris and the recontouring and revegetation of the landfill cover; continued operation, maintenance, and monitoring of the bioventing systems; monitored natural attenuation of the groundwater; groundwater modeling; continued operation of the water treatment system; annual monitoring of groundwater (A-Aquifer and B-Aquifer) and surface water; implementation and maintenance of institutional controls; and 5-year reviews. In general, the remedies required by the earlier RODs have been implemented and surface water and ground water monitoring continues. Based on the monitoring, there is DRO and TCE contamination adjacent to the creek, but samples of surface water are largely non-detect from DRO and below the applicable cleanup level for TCE. There will be a final ROD within the next few years as the characterization is completed and any remedy evaluated. The 5-year review, conducted in 2006, showed that remediation was progressing. The USAF is working on the third and current 5-year review that should be completed in 2016 that will cover all of the Groundwater Zones. The petroleum hydrocarbons, oils and grease and toxic and other deleterious organic and inorganic substances impairments for Eskimo Creek were removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
SC	Category 2	20201-401	Eyak Lake	Cordova	50 feet of shore-line	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products, Petroleum Contamination, Sheen	Aboveground Storage Tanks, Spills

Eyak Lake was placed on the Section 303(d) list in 2002/2003 for non-attainment of the petroleum hydrocarbons, oils and grease criteria due to petroleum products. Remedial actions at the Cordova Electric Power Plant on Eyak Lake, including a groundwater pump-and-treat system and passive product collection, have been effective at eliminating sheen on the surface of the lake, which was last observed in 2005. Groundwater treatment and monitoring is anticipated to continue at this site in the future. In 2005 and 2006, two water quality studies were completed on the lake. Although these studies showed the lake meeting WQS, local residents expressed other petroleum-related concerns. Additional evaluation was warranted, and a study was started in 2009 to determine if sheens were present and whether or not they were natural or anthropogenic. The report was completed in 2010 and concluded that the sheens were the product of soil bacteria and not from anthropogenic sources. The petroleum hydrocarbons, oils, and grease impairment for Eyak Lake was removed from the Category 5/Section 303(d) list and placed in Category 2 in the 2012 Integrated Report.

SC	Category 2	20401-412	Hood/Spenard Lake	Anchorage	N/A	FC Bacteria	FC Bacteria	Urban Runoff, Industrial
SC	Category 2	20401-412	Hood/Spenard Lake	Anchorage	N/A	Dissolved Gas	Low Oxygen	Urban Runoff, Industrial

Hood/Spenard Lake was placed on the Section 303(d) list in 1996 for non-attainment of the criteria for dissolved gas (DO) and FC bacteria. To address DO, Ted Stevens Anchorage International Airport (TSAIA) developed and implemented a waterbody recovery plan for Hood/Spenard Lake. The recovery plan has three components: (1) a reduction in the amount and placement of urea, (2) an increase in glycol recovery, and (3) a diversion of stormwater contaminated by glycol and nutrients. Over the last few years, TSAIA diverted the majority of stormwater from the tarmac and installed retention ponds to treat stormwater coming from the parking lots. TSAIA continues to improve drainage when constructing new facilities, conducting water quality monitoring and evaluating the effectiveness of BMPs installed. DO concentrations have improved and have tracked the predictive modeling in the waterbody recovery plan. To address FC bacteria, TSAIA implemented an active waterfowl hazing program. Review of water quality data obtained from 2000 to 2009 showed that the waterbody met the FC bacteria criteria. The FC bacteria impairment for Hood/Spenard Lake was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2010 Integrated Report. Recent data provided by TSAIA from 2010 to 2013, have shown Hood/Spenard Lake meeting the water quality criteria for DO. The dissolved gas impairment for Hood/Spenard Lake is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014/2016 Integrated Report.

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
SC	Category 2	30102-502	Iliuliuk Bay	Unalaska Island	N/A	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Urban Runoff
<p>Iliuliuk Bay was placed on the Section 303(d) list in 1990 for non-attainment of the petroleum hydrocarbons, oils and grease criteria for petroleum products. An EPA study, <i>Water Quality Assessment for Greater Unalaska Bay (August 1994)</i>, concluded the waterbody was affected by petroleum products. TMDL assessment began in 2006 with completing an existing data compilation and identifying and prioritizing potential risk sources. Rigorous field sampling events were conducted in April 2007 and September 2007 and included water column and sediment samples for BTEX, PAH, and TOC. All sample results for Iliuliuk Bay indicate the water and sediments are meeting criteria for petroleum hydrocarbons, oils and grease. The petroleum hydrocarbons, oils, and grease impairment for Iliuliuk Bay was removed from the Category 5/Section 303(d) list and placed in Category 2 in the 2010 Integrated Report.</p>								
SC	Category 2	30102-606	Iliuliuk Harbor	Unalaska Island	0.07 sq. miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Industrial, Urban Runoff
<p>Iliuliuk Harbor was Section 303(d) listed in 1990 for non-attainment of the petroleum hydrocarbons oils and grease criteria for petroleum products. An EPA study in August 1994, <i>Water Quality Assessment for Greater Unalaska Bay</i>, concluded the waterbody was affected by petroleum products. TMDL assessment began in 2006. An existing data compilation was completed, and potential risk sources were identified and assigned priorities. Rigorous field sampling events were conducted in April 2007, September 2007, and September 2008 and included water column and sediment samples for BTEX, PAH, and TOC. Results indicate the water column meets criteria for these parameters and is in Category 2. However, several sediment results had surface sheens in exceedance of the standard. The area of impairment has been further refined and reduced as a result of the field sampling and includes nearshore areas around docks and harbors. The TMDL was completed in August 2010. The petroleum hydrocarbons, oils, and grease impairment for Iliuliuk Harbor was removed from the Section 303(d)/Category 5 list and moved to Category 4a in the 2012 Integrated Report. Implementation of the TMDL will focus on dock and harbor BMPs to minimize any new petroleum hydrocarbon inputs to the area.</p>								
SC	Category 2	20402-409	Jewel Lake	Anchorage	N/A	FC Bacteria	FC Bacteria	Urban Runoff, Land Development
<p>Jewel Lake was placed on the Section 303(d) list in 1994 for non-attainment of the criteria for FC bacteria. A TMDL was developed and finalized on September 30, 1997. Jewel Lake was removed from the Section 303(d) list to Category 4a in the 1998 Integrated Report. Monitoring results from July through October 2008, as well as May and June 2009, indicate that the waterbody is meeting the state criteria for FC bacteria. The FC bacteria impairment for Jewel Lake was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2010 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	(Previous Impairing) Pollutant Parameters	(Previous Impairing) Pollutant Sources
SC	Category 2	20701-502	Kazakof Bay	Afognak Island	N/A	Residues	Bark & Woody Debris	Log Transfer Facility (LTF)
<p>Kazakof Bay was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria for bark and woody debris. Dive survey information for this LTF (known as Kazakof Bay 1) document exceedances of the bark accumulation level for the interim intertidal threshold (according to the Alaska Timber Task Force (ATTF) <i>Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985) at 1.2 acres of bottom coverage in February 2000 and at 3.0 acres in February 2001. A March 2004 dive survey report documented 0.20 acre of continuous residue coverage. The residues impairment for Kazakof Bay was removed from the Category 5/ Section 303(d) list and placed in Category 2 in the 2004 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SC	Category 2	20302-005	Kenai River (lower)	Kenai	Slikok Creek (river mile 19.0) to the mouth (river mile 0.0)	Petroleum Hydrocarbons, Oils & Grease	Total Aromatic Hydrocarbons	Motorized Watercraft
SC	Category 2	20302-005	Kenai River (entire river)	Kenai Peninsula	River Mile 82 (headwaters) to River Mile 5	Toxic & Other Deleterious Organic and Inorganic Substances (metals); pH	Not Applicable	Urban Runoff, Industrial

Kenai River was placed on the Section 303(d) list in 2006 for non-attainment of the criteria for petroleum hydrocarbons, oils and grease, specifically total aromatic hydrocarbons (TAH). The Kenai River was never placed on the 303(d) list as impaired for Toxic & Other Deleterious Organic and Inorganic Substances (metals) or pH.

Between 2000 and through 2007, data showed exceedances of the criteria for TAH during the month of July. A water quality study conducted by the DEC in 2003 confirmed the source of the petroleum hydrocarbon pollution to be motorboats. Sampling also indicated that there were no detections of TAH in the river in May, low concentrations in June, exceedances of the criteria in July, low concentrations again in August, and no detections in September. In 2008, regulatory actions taken by the ADF&G and the DNR, required all outboard engines operating on the Kenai River during the month of July to be either four-stroke or direct fuel injection two-stroke motors, thus allowing the Kenai River to be moved to Category 4b. Intensive water quality monitoring conducted in July 2008 and 2009 confirmed the actions taken resulted in the Kenai River attaining the petroleum hydrocarbons, oils and grease criteria. Petroleum hydrocarbon (TAH) samples were collected in July 2010 and 2011. Analytical results for both years demonstrated that TAH concentrations were well below the criteria of 10 micrograms per liter (µg/L). The DEC will continue periodic monitoring as motorboat use changes to ensure that petroleum hydrocarbon criteria are being met. The petroleum hydrocarbons, oils, and grease impairment for Kenai River was removed from the Section 303(d)/Category 5 list and moved to Category 2 in the 2010 Integrated Report.

Urban development in the Kenai River watershed (e.g. increased private land development and continuing popularity of recreational activities) created concerns about water quality. Water quality sampling conducted from 2000-2014 found that the Kenai River is meeting fresh water uses for selected metals (arsenic, cadmium, chromium, lead) and pH. The waterbody is proposed to be placed in Category 2 in the 2014/2016 Integrated Report.

Although turbidity met the listing threshold based on an assessment of turbidity monitoring conducted during the month July 2008-2010, analysis of 2018 turbidity data was unable to confirm the previous impairment nor does the study indicate attainment of the turbidity criteria in the lower Kenai River due to changes in the fishery and boat use patterns. Therefore, the Kenai River is left in Category 3 (insufficient information) for turbidity until further information becomes available to reassess the current condition of the river. DEC will work with local stakeholders to create a prioritized watershed plan to address potential water quality issues affecting the Kenai River.

A. Waterbody Categories 2 through 5

SC	Category 2	30203-001	King Salmon Creek	King Salmon	N/A	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Landfill, Military, Unknown Drum Contents
<p>King Salmon Creek was placed on the Section 303(d) list in 1996 for non-attainment of the criteria for petroleum hydrocarbons, oils and grease and for toxic and other deleterious organic and inorganic substances, specifically metals and pesticides. Monthly influent and effluent samples are analyzed for all potential contaminants of concern. A final ROD for Groundwater Zone 3 was signed by the DEC and the United States Air Force (USAF) in April 2000. Activities required by the ROD include landfill cover inspection and maintenance; continued operation of the water treatment system; annual monitoring of groundwater (A-Aquifer and B-Aquifer) and surface water; maintenance of institutional controls; and a 5-year review. The USAF is currently working on the third and most current five-year review that should be complete in 2016 and will cover Groundwater Zone 3. There will also be a comprehensive ROD being prepared that will cover Groundwater Zone 3. The remedy has been implemented and is functioning as intended. The extensive sampling program has not identified any exceedances of criteria at this site. The petroleum hydrocarbons, oils, and grease and toxic and other deleterious organic and inorganic substances impairments for King Salmon Creek were removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								
SC	Category 2	20401-002	Little Meadow Creek	Wasilla	N/A	Dissolved Gas; Petroleum Hydrocarbons, Oils, and Grease; pH; Sediment; Turbidity	Not Applicable	Urban Runoff
<p>Little Meadow Creek was never placed on the Section 303(d) list. Recent water quality studies (2011-2012) conducted by the DEC document that Little Meadow Creek from Meadow Lake Loop road crossing downstream to its confluence with Lucille Creek is currently in attainment of Alaska's water quality criteria for dissolved gas; petroleum hydrocarbons, oils and grease; pH; sediment (settleable solids); and turbidity. Little Meadow Creek is placed in Category 2 in the 2014-2016 Integrated Report for these parameters.</p>								
SC	Category 2	20701-501	Lookout Cove	Afognak Island	N/A	Residues	Bark & Woody Debris	LTF
<p>Lookout Cove was placed on the Section 303(d) list in 2002/2003 for non-attainment of the residues criteria for bark and woody debris. Dive survey information for this LTF from 2002 reported 1.2 acres of continuous residues coverage, and 2003 dive survey reported 0.7 acre of continuous bottom coverage. These dive surveys document that the residues coverage is less than the 1.5 acres impairment criteria for residues. The residues impairment for Lookout Cove was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2004 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SC	Category 2	20505-006	Meadow Creek	Wasilla	N/A	Dissolved Gas; Petroleum Hydrocarbons, Oils, and Grease; pH; Sediment; Turbidity	Not Applicable	Urban Runoff
<p>Meadow Creek was never placed on the Section 303(d) list. Recent water quality studies (2011-2012) conducted by the DEC document that Meadow Creek from its confluence with Lucille Creek downstream to its mouth in Big Lake is currently in attainment of Alaska's criteria for dissolved gas; petroleum hydrocarbons, oils and grease; pH; sediment (settleable solids); and turbidity. Meadow Creek is placed in Category 2 in the 2014-2016 Integrated Report for these parameters.</p>								
SC	Category 2	30204-001	Naknek River	King Salmon	N/A	Petroleum Hydrocarbons, Oil & Grease; Toxic & Other Deleterious Organic and Inorganic Substances	Petroleum Products, TCE	Landfill, Fuel Storage, Former Marina, Military
<p>Naknek River was placed on the Section 303(d) list in 1996 due to pollutants from tributary waterbodies (Eskimo Creek, King Salmon Creek, and Red Fox Creek) that led to non-attainment of the criteria for petroleum hydrocarbons, oil and grease and toxic and other deleterious organic and inorganic substances. In 1998, the Naknek River was removed from the Section 303(d) list because other pollution controls were in place. The primary contaminant sources (a drum storage area and underground storage tanks) were removed prior to 1988. In 1998, and later in 2000, it was determined that this waterbody needed additional monitoring and tracking. Over the years, samples were collected from the Naknek River at various locations for laboratory analysis. No results were detected at concentrations above state and federal regulatory levels. In December 1998, oil sheen was observed on the Naknek River bank adjacent to the King Salmon Morale, Welfare, and Recreation Marina. In 1999, a final ROD was signed by the DEC and the United States Air Force for a groundwater area located approximately 1/2-mile downstream from the main runway at the King Salmon Airport, which includes approximately 3,000 feet of the Naknek River's north shore. Future activities identified in the ROD include passive product recovery system operation and maintenance; annual monitoring of groundwater and surface water; landfill cover inspection and maintenance; implementation and maintenance of institutional controls; and a 5-year review. Between September 2002 and January 2003, approximately 1,100 cubic yards of petroleum-contaminated soil were removed. Groundwater, surface water, and sediment monitoring will continue at the marina to evaluate remedial efforts and natural attenuation processes. No seep or sheen has been observed following the source removal action. The petroleum hydrocarbons, oil and grease and toxic and other deleterious organic and inorganic substances impairments for Naknek River were removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2004 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

IN	Category 2	50404-001	Red Dog Creek, Ikalukrok Creek	Near Red Dog Operation	N/A	Dissolved Inorganic Substances	Total Dissolved Solids	Mining
<p>Red Dog and Ikalukrok Creeks were placed on the Section 303(d) list in 1994 for non-attainment of the criteria for dissolved inorganic substances, specifically total dissolved solids (TDS). The EPA approved a site-specific criterion for zinc in July 1998. The EPA approved the DEC's reclassification of the uses of Red Dog and Ikalukrok Creeks for industrial water supply in February 2002. The facility was issued a water quality-based permit and the revised permit is an existing control that will bring the waterbody into compliance with applicable criteria (fresh water industrial water supply) for TDS, cadmium, lead, selenium, and the site-specific criterion for zinc. A site-specific criterion for TDS was developed and approved by the EPA on April 21, 2006. The dissolved inorganic substances impairment for Red Dog and Ikalukrok Creeks were removed from the Section 303(d)/Category 5 list and placed in Category 4b in the 1998 Integrated Report. However, because of the development of the reclassification, the water-quality based permit, the site-specific criteria for zinc and TDS, and both Red Dog Creek and Ikalukrok Creek are meeting the 1,500 milligrams per liter (mg/L) site-specific criteria for TDS, these creeks are in attainment of WQS. The dissolved inorganic substances impairment for Red Dog and Ikalukrok Creeks were removed from the Category 4b list and placed in Category 2 in the 2006 Integrated Report.</p>								
SC	Category 2	30204-002	Red Fox Creek	King Salmon	N/A	Petroleum Hydrocarbons, Oils & Grease; Toxic & Other Deleterious Organic and Inorganic Substances	Petroleum Products, Diesel Range Organics, Benzene, and Trichloroethylene	Landfill, Fire Training Areas, Military
<p>Red Fox Creek was placed on the Section 303(d) list in 1994 for non-attainment of the petroleum hydrocarbons, oils and grease criteria for petroleum hydrocarbons and the toxic and other deleterious organic and inorganic substances criteria for metals. Information provided by the EPA's CERCLA (or Superfund) group showed that the waterbody was water quality impaired from petroleum hydrocarbons and TCE. Consequently, the metals parameter was dropped from this listing. Water quality assessment studies were completed for the waterbody, and a remediation plan implemented. . Red Fox Creek does not directly affect the Naknek River. Contaminants of concern included DRO, gasoline-range organics (GRO), and benzene in surface water, and DRO, GRO, benzene, toluene, tetrachloroethene, and PAH in sediment. . The 2001 groundwater samples reveal DRO, GRO, TCE, and benzene above the DEC groundwater cleanup levels established in 18 AAC 75..No surface water quality criteria were exceeded in 2002 and 2003. Future activities required by the ROD for this site include continued operation and maintenance of the bioventing system; monitored natural attenuation of the groundwater; annual groundwater, surface water, and sediment sampling; implementation and maintenance of institutional controls; and 5-year review. In general concentrations are decreasing and a recommendation to reduce sampling locations is included in the report. . Surface water sampling is conducted annually as part of the Long Term Monitoring contract. The petroleum hydrocarbon, oils, and grease and toxic and other deleterious organic and inorganic substances impairments for Red Fox Creek were removed from Section 303(d)/Category 5 list and placed in Category 2 in the 2004 Integrated Report.</p>								
SC	Category 2	20401-020	Ship Creek	Anchorage	11 miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Urban Runoff
<p>Ship Creek was placed on the Section 303(d) list in 1990 for non-attainment of the petroleum hydrocarbons, oils and grease criteria. Petroleum products floating on groundwater were believed to be moving toward Ship Creek and threatening the waterbody. In addition, FC bacteria monitoring data from 1989 to 1994, provided by the Municipality of Anchorage, exceeded the criteria. In 1992, FC bacteria was added to the Section 303(d) listing as an impairing pollutant. The final FC bacteria TMDL was approved by the EPA in May 2004. An EPA consent decree with the Alaska Railroad Corporation (ARRC) required groundwater monitoring. The monitoring has shown that petroleum product constituents do not pose a threat to the creek. In addition, the DEC conducted monitoring to determine if a persistent sheen existed. This monitoring demonstrated that there was not a persistent sheen, nor were the analytical indicators for petroleum hydrocarbons present in sufficient concentrations to exceed the water quality criteria. The petroleum hydrocarbons, oils and grease impairment for Ship Creek was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2012 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SC	Category 2	30104-601	Saint Paul Island Lagoon	St. Paul Harbor, St. Paul Island	N/A	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Leaking Aboveground Storage Tanks
<p>Saint Paul Island Lagoon was placed on the Section 303(d) list in 2002/2003 for non-attainment of the petroleum hydrocarbons, oils and grease criteria for petroleum products. An oil sheen was observed on the water on a daily basis. The pollutant source was a seal processing plant that was built in 1918 and demolished in 1988, when commercial seal harvesting ended. Diesel contamination was thought to have been from spillage during fuel handling. An area of approximately 120 square feet showed evidence of diesel contamination and that extended from the surface to groundwater depth at 3 to 5 feet below ground surface. Groundwater movement from the contaminated area threatened uncontaminated wetlands to the west and northwest. The areal extent of contamination was estimated at 10,000 square feet. Leaking aboveground storage tanks and diesel seepage were ongoing into the lagoon from as early as the 1980s. Controls implemented have restricted the sheen. The petroleum hydrocarbons, oils, and grease impairment for St. Paul Island Lagoon was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2008 Integrated Report.</p>								
SC	Category 2	30102-607	Udagak Bay	Unalaska Island	N/A	Residues	Seafood residues	Seafood Processing Waste
<p>Udagak Bay was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria. Recent dive survey reports (from 2008, 2009, and 2010) document a diminishing ZOD in Udagak Bay and not exceeding the criteria for residues. It has been determined that Udagak Bay is in attainment of Alaska's criteria for residues. Therefore, the residues impairment for Udagak Bay is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014-2016 Integrated Report.</p>								
SC	Category 2	AK-20505-002	Wasilla Creek	Wasilla	N/A	Dissolved Gas; Petroleum Hydrocarbons, Oils, and Grease; pH; Sediment; Turbidity	Not Applicable	Urban Runoff
<p>Wasilla Creek was never placed on the Section 303(d) list. Recent water quality studies (2011-2012) conducted by the DEC document that Wasilla Creek from Crabb Circle downstream to the railroad crossing located immediately downstream of the Parks Highway is currently in attainment of Alaska's water quality criteria for dissolved gas; petroleum hydrocarbons, oils and grease; pH; sediment (settleable solids); and turbidity. Therefore Wasilla Creek is proposed placement in Category 2 in the 2014-2016 Integrated Report.</p>								
SE	Category 2	10211-501	Corner Bay	Tenakee Inlet, Baranof Island	N/A	Residues	Bark & Woody Debris	LTF
<p>Tenakee Inlet was placed on the Section 303(d) list in 1998 for non-attainment of the water quality criteria for residues (bark and woody debris). At that time, dive survey information from May 1996 demonstrated an exceedance of the bark accumulation level for the interim intertidal threshold (according to the ATTF <i>Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985) at 1.18 acres of bottom coverage. Dive survey reports from June 2002 of 0.1 acre and from July 2001 of 0.6 acre of bottom coverage document that this water is compliant with the water quality criteria for residues. The residues impairment for Tenakee Inlet was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10204-502	Cube Cove	NW Admiralty Island	N/A	Residues	Bark & Woody Debris	LTF
<p>Cube Cove was placed on the Section 303(d) list in 1998 for non-attainment of the criteria for residues due to LTF operations. In 1998, the policy for including waterbodies on the Section 303(d) list required only one dive survey documenting an exceedance of 1.0 acre of continuous coverage bark residues. A January 1998 dive survey documented 9.5 acres of continuous coverage bark on the marine bottom. Subsequent dive surveys document that the Cube Cove LTF has a trend of reduced continuous coverage bark residues. Dive surveys document 1.35 acres in April 2001 and 1.2 acres in December 2002. A February 2004 dive survey documented 0.9 acre of continuous bark residue coverage. The residues impairment for Cube Cove was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2004 Integrated Report.</p>								
SE	Category 2	10203-808	East Port Frederick	NE Chichagof Island	0.4 acres	Residues	Bark & Woody Debris	LTF
<p>East Port Frederick was placed on the Section 303(d) list in 2002/2003 for non-attainment of the residues criteria for bark and woody debris. Dive survey information documented a significant exceedance of the bark accumulation level for the interim intertidal threshold (according to the <i>ATTF Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985). The operator submitted a remediation plan, which the DEC approved on March 14, 2005. The approved remediation plan contained adequate institutional controls to minimize future accumulation of bark and wood waste on the bottom and was expected to result in reducing continuous cover to less than 1.5 acres within a reasonable period of time. The EPA approved moving East Port Frederick from the Section 303(d)/Category 5 list to Category 4b in the 2004 Integrated Report. A March 2008 bark monitoring survey report documented 1.74 acres of continuous bark debris. A March 2009 bark monitoring survey documented a reduction in bark debris to 1.31 acres of continuous bark debris, which is lower than the 1.5 acre impairment criterion. A 2010 bark monitoring survey report documented continuous bark coverage of 0.92 acre. The 2009 and 2010 bark surveys have documented that East Port Frederick is in attainment of the criteria and remediation plan controls are working. The residues impairment for East Port Frederick was moved from Category 4b to Category 2 in the 2012 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10103-031	Fubar Creek	Prince of Wales Island	N/A	Sediment	Sediment	Timber Harvest
<p>Fubar Creek watershed, located on National Forest lands, was placed on the Section 303(d) list in 1993 for non-attainment of the criteria for sediment due to multiple landslides resulting from heavy rain, resulting in more sediment input to the creek than could be washed downstream. This large influx of sediment negatively affected the ability of the creek to sustain anadromous fish populations. The USFS implemented a recovery plan and Fubar Creek was placed in Category 4b in 1996. No significant commercial harvest activity has occurred within the watershed since the USFS deferred the timber harvest in 1995, and the Fubar Creek watershed was not considered for entry during the next planning cycle for 10-year timber sales. A comprehensive hydrologic condition assessment of the Harris River Basin was completed in 2003. It included a road condition survey that identified 1.2 miles of old logging road that were placed in storage in 2006. Channel condition monitoring was conducted for a number of years. Monitoring assessed trends in geomorphic indicators to determine progress toward channel equilibrium. The watershed-based assessment and the channel condition monitoring helped to guide and prioritize restoration activities in the subwatershed. The USFS Craig Ranger District actively restored vegetation to stabilize landslide areas and the modified the structure and function of riparian timber stands to prevent further sediment input. In 2006 and 2007, the USFS restored about 5,500 feet of creek by removing large quantities of sediment from the creek bed, reconstructing the channel, and reestablishing large wood jams and pools to enhance anadromous fish habitat and spawning. Completion of the 2006 work allowed the first perennial flows under the highway bridge in the 13 years since the 1993 landslides. The last phase of active restoration was replacement of the floodplain overflow culverts on the Hydaburg Highway in summer 2008. Monitoring of restoration efforts to restore the anadromous fish habitat included measurement of pool and channel morphology, smolt counts, and observations of adult spawning activity in the restored channel. A summary of the restoration effort and monitoring results was published in 2008. In 2010 the Forest Service Watershed Program initiated a water quality monitoring study as the final step in the restoration and monitoring effort. The purpose of the effort was to document the range and pattern of turbidity and suspended sediment concentrations after completion of the restoration activities. The study found that suspended sediment and turbidity were in the range of natural variability. The sediment impairment for Fubar Creek was moved from Category 4b to Category 2 in the 2012 Integrated Report.</p>								
SE	Category 2	10203-005	Granite Creek	Sitka	N/A	Turbidity, Sediment	Turbidity, Sediment	Gravel Mining
<p>Granite Creek was placed on the Section 303(d) list in 1996 for non-attainment of the criteria for turbidity and sediment. Data showed that the lower 1.5-mile section of the creek is impaired from sediment and turbidity. A TMDL was completed for Granite Creek and approved by the EPA (September 30 2002). Granite Creek was removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2002/2003 Integrated Report. Priority actions for this water include implementing actions identified in the <i>Granite Creek TMDL Watershed Recovery Strategy and Action Plan</i> (March 2002). Granite Creek has been monitored for turbidity and total suspended solids as part of the TMDL Implementation Plan through ACWA grants since 2001. Twelve years of water quality data shows a consistent decrease in turbidity concentrations due to structural best management practice and stormwater control implementation. The 2015 TMDL Revision (Nov. 2015), uses data collected from 2002-2013 to calculate new load capacities and turbidity limits, and develop waste load allocations. Granite Creek is meeting WQS and the load/wasteload allocations in the 2015 TMDL Revision. Subsequent discussions between EPA and DEC resulted in a decision to withdraw the TMDL. The 2015 TMDL Revision will be renamed the Rationale for Withdrawal document and retained as supplemental guidance for the DEC permit program. The Rationale for Withdrawal will insure the assimilative capacity of Granite Creek is not exceeded. There is no current persistent turbidity impairment in Granite Creek. The turbidity and sediment impairment for Granite Creek is proposed for removal from Category 4a list and placement in Category 2 in the 2014/2016 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10202-601	Hamilton Bay	Kake	N/A	Residues	Bark & Woody Debris	LTF
<p>Hamilton Bay was placed on the Section 303(d) list in 1994 for non-attainment of the criteria for residues (debris). Past dive surveys had indicated that excessive bark existed on the bottom of Hamilton Bay as a result of logging operations on Kupreanof Island that use the Hamilton Bay LTF. A dive survey report from September 2000 documents 0.6 acre of bottom coverage and the June 2002 dive survey reports 0.6 acre of bottom coverage, which shows that this water is compliant with criteria. The residues impairment for Hamilton Bay was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								
SE	Category 2	10202-006	Hammer Slough	Mitkof Island	N/A	Sediment	Sediment	Urban Runoff, Gravel Mining
<p>Hammer Slough was placed on the Section 303(d) list in 1994 for non-attainment of the criteria for sediment. DEC staff has coordinated implementation of BMPs for the waterbody from the responsible parties that have resulted in the waterbody attaining WQC. The water quality data in the file support that the waterbody is no longer impaired. DEC staff inspected the Slough in April 2000 and confirmed that BMP implementation has been accomplished and effective in controlling sedimentation and recommended that this waterbody requires no further action. The sediment impairment for Hammer Slough was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								
SE	Category 2	10201-501	Hobart Bay	Mainland, SE Stephens Passage	N/A	Residues	Bark & Woody Debris	LTF
<p>Hobart Bay was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria due to bark and woody debris. Dive survey information from May 1996 (LTF known as Hobart Bay 3) documented a significant exceedance of the bark accumulation level for the interim intertidal threshold (according to the <i>ATTF Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985) at 2.3 acres of bottom coverage. 1.3 acres of marine bottom adjacent to the LTF was listed as impaired. A 2007 dive survey documented that the LTF and log storage area (LSA) contained no continuous coverage by bark debris and only a few small patches of discontinuous coverage by bark debris. The December 2007 dive survey and assessment document that this facility was attaining WQS. The residues impairment for Hobart Bay was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2008 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10103-502	Klawock Inlet	Klawock Island, W. Prince of Wales Island	N/A	Residues	Bark & Woody Debris	LTF
<p>Klawock Inlet's dock and log transfer area was placed on the Section 303(d) list in 2002/2003 for non-attainment of the residues criteria for bark and woody debris. A dive survey conducted by the operator of the facility in February 2004 documented 1.0 acre of continuous residues coverage, and a subsequent dive survey report in November 2004 documents continuous residues coverage at 0.5 acre. Two consecutive dive survey reports document that continuous residue coverage is less than the 1.5 acre impairment criterion. The residues impairment for Klawock Inlet was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2006 Integrated Report.</p>								
SE	Category 2	10303-401	Mosquito Lake	Haines	134.4 acres	Fecal Coliform Bacteria; Dissolved Gas; pH; temperature	N/A	Fecal Coliform Bacteria; Dissolved Gas; pH; temperature
<p>Mosquito Lake was never placed on the Section 303(d) list as impaired. Mosquito Lake land use changes (e.g., onsite wastewater systems and outhouses, surface runoff, and recreational activities), motorized boat use and increased quantity of aquatic vegetation and damage of shoreline habitat created concerns about water quality and aquatic habitat. Water quality sampling conducted in 2012-2013 indicate that Mosquito Lake is in attainment of WQS for fresh water uses for fecal coliform bacteria, dissolved gas, pH and temperature. Temperature variations in comparison to designated uses is likely a result of natural conditions due to the lake size and depth (0.21 square miles and 6-7 feet at greatest depth). While not regulated by DEC, the stream nutrients of nitrate and nitrite were within typical levels for the area. Invasive plant monitoring revealed only native aquatic plants in Mosquito Lake. A Category 2 Waterbody Attainment Determination for Mosquito Lake for fecal coliform bacteria, dissolved gas, pH and temperature was submitted to EPA on September 30, 2015 and the waterbody was placed in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 2	10203-001	Nakwasina River	Baranof Island, Sitka	8 miles	Sediment, Turbidity	Sediment, Turbidity	Timber Harvest
<p>Nakwasina River was placed on the Section 303(d) list in 1998 for non-attainment of the sediment and turbidity criteria. Past land use activities had created a number of concerns about water quality and fish habitat. The harvest of riparian timber and the location and lack of maintenance of the road system created the following conditions: decreased channel stability, landslides and small slope failures, increased sediment levels, loss of aquatic habitat, siltation of holding pools for migrating salmon, and alteration of watershed hydrology. Watershed effects resulted in use impairment for aquatic life. The USFS submitted a <i>2-year Water Quality and Aquatic Habitat Restoration Assessment</i> in February 2009 and recommended removal from the Section 303(d) list based on its results. The data demonstrate that turbidity levels have decreased below water quality criteria. The turbidity impairment for Nakwasina River was removed from the Section 303(d)/category 5 list and placed in Category 2 in the 2010 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10202-801	Point Macartney	Kupreanof Island, Kake	N/A	Residues	Bark & Woody Debris	LTF
<p>Point Macartney was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria. Dive survey information documented an exceedance of bark accumulation level for the interim intertidal threshold (according to the <i>Log Transfer Facility Siting, Construction, Operation, and Monitoring/Reporting Guidelines</i>, October 21, 1985) from February 2001 at 1.2 acres of bottom coverage. A dive survey report from March 2002 documents 1.0 acre of bottom coverage, and another dive survey report from November 2002 reported 0.52 acre. These findings validate that this waterbody is compliant with the residues criteria. The residues impairment for Point Macartney was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								
SE	Category 2	10202-602	Rowan Bay	Kuiu Island	N/A	Residues	Bark & Woody Debris	LTF
<p>Rowan Bay was placed on the Section 303(d) list in 1996 for non-attainment of the residues criteria due to bark debris. Past dive surveys have shown an exceedance of the bark accumulation level for the interim intertidal threshold (according to the <i>Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985). Dive survey reports from May 2002 of 0.8 acre and from June 2001 of 0.6 acre of bottom coverage document that this waterbody is compliant with the criteria. The residues impairment for Rowan Bay was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								
SE	Category 2	10202-802	Saginaw Bay	Kuiu Island	N/A	Residues	Bark & Woody Debris	LTF
<p>Saginaw Bay was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria due to association with a LTF. Dive survey information from 2001 documented a significant exceedance of the bark accumulation level for the interim intertidal threshold (according to the <i>Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985) at 1.7 acres of bottom coverage. A dive survey report from May 2002 documents 0.7 acre of bottom coverage and validates that that this waterbody is compliant with the residues criteria. The residues impairment for Saginaw Bay was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10203-502	Saint John Baptist Bay	Baranof Island	N/A	Residues	Not Applicable	LTF
<p>Saint John Baptist Bay was never Section 303(d) listed for residues (debris). Dive survey data from September 2000 documented a significant exceedance of the bark accumulation level for the interim intertidal threshold (according to the <i>ATTF Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985) at 1.32 acres of bottom coverage. Saint John Baptist Bay was considered for Section 303(d)/Category 5 listing during the 2002/2003 Integrated Report development process, but the LTF came into compliance with the residues criteria. A dive survey report from June 2002 documented 0.2 acre of bottom coverage and validates that this waterbody is compliant with the residues criteria. The residues impairment for Saint John Baptist Bay was placed in Category 2 in the 2002/2003 Integrated Report.</p>								
SE	Category 2	10203-504	Salt Lake Bay	Port Frederick, Chichagof Island	N/A	Residues	Bark & Woody Debris	LTF
<p>Salt Lake Bay was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria for debris. Dive survey information from October 1991 demonstrated an exceedance of the bark accumulation level for the interim intertidal threshold (according to the <i>Log Transfer Facility Siting, Construction, Operation, and Monitoring/Reporting Guidelines</i>, October 21, 1985) at 1.16 acres of bottom coverage. Dive survey reports from May 2002 of 0.1 acre and from March 2000 of 0.3 acre of bottom coverage document that this waterbody is compliant with the criteria. The residues impairment for Salt Lake Bay was removed from Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10303-008	Sawmill Creek	Haines	N/A	Residues	Debris	Urban Runoff
<p>Sawmill Creek (Haines) was placed in Category 4b for residue (debris) in 1996, but not placed on the Section 303(d) list. Limited debris removal was conducted in 1997, as well as culvert replacement and reseeded. Priority actions included an interagency watershed assessment/recovery plan, a water quality monitoring plan, and working with the City of Haines to review and develop stormwater pollution prevention plans in accordance with EPA and DEC requirements. An extensive debris cleanup was undertaken in 2006 and 2007. The bulk of the debris removed in 2007 was from legacy activities, including abandoned vehicles used for stream bank stabilization. Control measures are in place to prevent similar activities from occurring in the future, and the public knows that using abandoned vehicles for stream bank stabilization is no longer an acceptable practice. Enforcement by the City and Borough of Haines police department also has reduced illegal disposal practices. Spring cleanup events occur annually in the City of Haines. The 2007 Sawmill Creek Water Quality Monitoring Strategy reported the following concerns: sedimentation and turbidity associated with land use, snow disposal practices, and other road maintenance activities; fecal coliform contamination from nearby horse stabling disposal areas and on-site septic systems; and water quantity to support resident fish populations. In 2008, the waterbody was moved from Category 4b to Category 2. In 2015 the Haines Snow Removal Management Plan was complete (funded by FY15 ACWA grant). In 2015/16, two low impact development (LID) projects (funded by FY16 ACWA grant) were constructed to help treat stormwater runoff discharging into Sawmill Creek. The LID projects consist of a rain garden along the newly-constructed Chilkoot Indian Association facility and a bioswale at the Haines Borough right-of-way snow storage area (6th and Dalton Streets). The bioswale was recommended in the 2015 Haines Snow Removal Management Plan. The project included educational outreach about LID options and benefits, an interpretive sign and a video produced by an after-school film education program. In 2016/2017, a stormwater retention wetland was installed adjacent to Sawmill Creek (funded by FY17 ACWA grant) to collect and treat stormwater prior to entering the creek. Education outreach included community/school volunteers for construction and planting of the wetland, a community tour and discussion of the several LID projects in Haines, and several short outreach videos highlighting several aspects of the project (site development, installation, planting, and community tour).</p>								
SE	Category 2	10203-503	Schulze Cove	Fish Bay, Baranof Island	N/A	Residues	Bark & Woody Debris	LSA
<p>Schulze Cove was Section 303(d) listed in 1998 for non-attainment of the residues criteria due to bark and woody debris. The Schulze Cove LSA covers the entire Cove. Review of USF&WS video documentation and dive report (September 1995 report on dives from July 27 and 29, 1995, several transects) revealed extensive bark deposition (more than 1.0 acre in area and 10 centimeters [cm] in thickness). Historically, log storage activities have severely affected Schulze Cove. A December 2007 dive survey and assessment documents that this waterbody is attaining the residues criteria. The 2007 dive assessment work used a parallel pattern to survey the site and consisted of 17 transects at 300-foot spacing intervals. The sample point frequency was at 300-foot intervals using visual survey methods. The survey documented that the LSA contained no continuous coverage by bark debris and 25.02 acres of discontinuous coverage by bark debris. The 2007 dive survey and assessment documented that this facility is attaining the residues criteria. The residues impairment for Schulze Cove was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2008 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10103-602	Thorne Bay (LSA)	Prince of Wales Island	N/A	Residues	Bark & Wood Debris	Historical LTF
<p>Thorne Bay was placed on the Section 303(d) list in 1994 for non-attainment of the residues criteria due to bark and wood debris. Log transfer and storage activities began in 1962 and caused the accumulation of woody debris on the bottom of the head of Thorne Bay. Log transfer and storage activities ended in 2000, and the operator, the USFS, does not plan to resume activities; all equipment and facilities have been removed. A key feature of the recovery of the former log transfer and storage area is the Thorne River, which empties into the bay and deposits sediments onto a large sand and gravel delta, where they mix with debris and aid in biological recovery. The LSA: Dive surveys of the LSA conducted in July 2001 and June 2002 documented 1.1 acres of bark and wood debris on the marine bottom. Dive surveys in 2003 and 2005 detailed the benthic health of 161 acres of the former LSA. Findings included the following: (1) bark debris was mostly decomposed to small fragments and was mixed with natural sediments; (2) the bottom was biologically recovered, exhibiting mostly mature "Stage III" biological communities; and (3) the site was an "extremely healthy coastal embayment." The DEC determined, based on the detailed benthic assessment, that the residues criteria is met in the former LSA. The residues impairment for that part of Thorne Bay associated with the LSA was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2004 Integrated Report. The LSA remained in Category 2 with no known impairments. The LTF: Dive surveys conducted in 1988 and 1990 documented approximately 55 acres of bark accumulation in the LTF. Dive surveys of the LTF conducted in July 2001 and June 2002 documented 2.6 and 1.1 acres of bark and wood debris, respectively, on the marine bottom. An April 2004 dive survey of the LTF documented 6.5 acres of bark and woody debris. The former LTF remained on the Section 303(d) list for a defined area of approximately 35 acres between the LTF shoreline and the boundary of the former LSA established in the 2003-2005 benthic assessment. A December 2007 dive survey documented a reduced area of impaired marine bottom of only 7.5 acres and the rest of the previous area of impairment as meeting the residues criterion and attaining WQS. These findings suggest that biological recovery is proceeding and is well advanced within the area associated with the LTF. A residues TMDL for the Thorne Bay LTF was completed and approved by the EPA on May 8, 2007. With the completed and approved residues TMDL, the residues impairment for the part of Thorne Bay associated with the LTF was removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2008 Integrated Report.</p>								
SE	Category 2	10303-503	Tolstoi Bay	NW Bight of Tolstoi Bay, Prince of Wales Island	N/A	Residues	Bark & Woody Debris	LSA
<p>Tolstoi Bay was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria due to bark and woody debris. A dive survey report from June 1994 for this area (known as Tolstoi Bay 2) reported 1.82 acres of bottom coverage from debris. A March 2003 dive survey report showed 0.7 acre of bark on the bottom. Therefore, the residues impairment for Tolstoi Bay was removed from the Section 303(d)/Category 5 list and moved to Category 2 in the 2002/2003 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10102-502-002	Tongass Narrows 2	Tongass Narrows, Eastern Channel, SE of Thomas Basin	N/A	Residues	Seafood Residues, Seafood Processing Wastes	Seafood Processing Facility
<p>Tongass Narrows 2 was placed in Category 4b in the 2002/2003 Integrated Report for non-attainment of the water quality criteria for residues. Previously, the seafood processing facility exceeded its 1.0 acre ZOD criteria for residues associated with its discharge permit and was under an EPA compliance order for non-compliance with its waste discharge limitations. Additionally, the facility had discharged seafood sludge, deposits, debris, scum, floating solids, oily wastes, or foam, which alone or in combination with other substances can cause a film, sheen emulsion, or scum on the surface of the water. The EPA conducted a compliance inspection of this facility in fall 2006. Reports from this compliance inspection found that the ZOD was less than 1.0 acre, at 0.5 acre, and the facility was compliant with the consent decree and its NPDES permit. This waterbody segment is now meeting the water quality criteria for residues. The residues impairment for Tongass Narrows 2 moved from Category 4b to Category 2 in the 2008 Integrated Report.</p>								
SE	Category 2	10103-503	Twelvemile Arm	Prince of Wales Island	N/A	Residues	Bark & Woody Debris	LSA
<p>Twelvemile Arm was placed on the Section 303(d) list in 1998 for non-attainment of the residues criteria for bark and woody debris. Review of USF&WS video documentation and a dive transect conducted in 1997 revealed 100% coverage along an entire transect and numerous sections exceeding 10 cm in thickness, i.e., extensive bark deposition (more than 1.0 acre in area and more than 10 cm in thickness). Log storage activities had been conducted at the head of the arm in a shallow area lacking sufficient flushing capability. The log storage site is inactive and there have been no new sources of residues. A December 2007 dive survey and assessment documented that this water was meeting the residues criterion and attaining WQS. The 2007 survey documented that the LSA contained no continuous coverage by bark debris and only a few small patches of discontinuous cover by bark debris. The use of plan-view video and dive survey methods quantified the extent and type of both continuous and discontinuous coverage as 0.00 acres of bark debris. The 2007 dive survey and assessment documented that this water is meeting the residues criterion. The residues impairment for Twelvemile Arm was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2008 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10103-010	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3027 (Stream 3)	Prince of Wales Island	0.4 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Aluminum, Cadmium, Copper, Iron	Road Construction
<p>Stream 3 was placed on the Section 303(d) list in 2010 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals, specifically aluminum, cadmium, copper, and iron. Studies approved by the DEC and the Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA) indicate high concentrations of metals leaching into the stream as a result of acid rock drainage from road construction. Contaminants exceeding the criteria and the NOAA screening benchmarks include aluminum, cadmium, copper, and iron. These exceedances were considered an impairment of a designated use. Time-critical removal actions (TCRA) performed under CERCLA to remove or mitigate pyritic rock fill occurred. Five years of stream water monitoring, and post cleanup action biological sampling data in 2011 indicate that WQC are now being attained, and good to very good conditions (based on the Alaska Stream Condition Index for benthic macro-invertebrates) for aquatic fauna have been restored. A 5-year review report was completed in June 2014. The toxic and other deleterious organic and inorganic substances impairment for Stream 3 is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 2	10103-012	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3021 (Stream 6)	Prince of Wales Island	1.14 mile	Toxic & Other Deleterious Organic and Inorganic Substances, Dissolved Inorganic Substances	Metals - Aluminum, Cadmium, Copper, Iron, Manganese, Sulfate	Road Construction
<p>Stream 6 was placed on the Section 303(d) list in 2010 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals, specifically aluminum, cadmium, copper, iron, manganese, and sulfate. Studies approved by the DEC and the WFLHD of the FHWA indicate high concentrations of metals leaching into the stream as a result of acid rock drainage from road construction. Contaminants exceeding the criteria and the NOAA screening benchmarks include aluminum, cadmium, copper, iron, and manganese. Sulfate is included in the list of contaminants for this waterbody. These exceedances were considered an impairment of a designated use. TCRA performed under CERCLA to remove or mitigate pyritic rock fill, 5 years of stream water monitoring, and post cleanup action biological sampling data in 2011 indicate that WQS are now being attained, and good to very good conditions (based on the Alaska Stream Condition Index for benthic macro-invertebrates) for aquatic fauna have been restored. A 5-year review report was completed in June 2014. The toxic and other deleterious organic and inorganic substances impairment for Stream 6 is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014/2016 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10103-013	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3019 tributary (Stream 7)	Prince of Wales Island	0.3 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Aluminum, Cadmium, Copper, Iron, Manganese	Road Construction
<p>Stream 7 was placed on the Section 303(d) list in 2010 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals, specifically aluminum, cadmium, copper, iron, and manganese. Studies approved by the DEC and the WFLHD of the FHWA indicate high concentrations of metals leaching into the stream as a result of acid rock drainage from road construction. Contaminants exceeding the criteria and the NOAA screening benchmarks include aluminum, cadmium, copper, iron, and manganese. These exceedances are considered an impairment of a designated use. TCRA performed under CERCLA to remove or mitigate pyritic rock fill, 5 years of stream water monitoring, and post cleanup action biological sampling data in 2011 indicate that WQS are now being attained, and good to very good conditions (based on the Alaska Stream Condition Index for benthic macro-invertebrates) for aquatic fauna have been restored. A 5-year review report was completed in June 2014. The toxic and other deleterious organic and inorganic substances impairment for Stream 7 is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 2	10103-014	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3019 (Stream 8)	Prince of Wales Island	0.3 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Cadmium, Copper, Iron, Manganese, Nickel, Zinc	Road Construction
<p>Stream 8 was placed on the Section 303(d) list in 2010 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals, specifically cadmium, copper, iron, manganese, nickel, and zinc. Studies approved by the DEC and the WFLHD of the FHWA indicate high concentrations of metals leaching into the stream as a result of acid rock drainage from road construction. Contaminants exceeding the criteria and the NOAA screening benchmarks include cadmium, copper, iron, manganese, nickel, and zinc. These exceedances are considered an impairment of a designated use. TCRA performed under CERCLA to remove or mitigate pyritic rock fill, 5 years of stream water monitoring, and post cleanup action biological sampling data in 2011 indicate that WQS are now being attained, and good to very good conditions (based on the Alaska Stream Condition Index for benthic macro-invertebrates) for aquatic fauna have been restored. A 5-year review report was completed in June 2014. The toxic and other deleterious organic and inorganic substances impairment for Stream 8 is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014/2016 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10103-015	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3017 tributary (Stream 9)	Prince of Wales Island	0.8 mile	Toxic & Other Deleterious Organic and Inorganic Substances, Dissolved Inorganic Substances	Metals - Aluminum, Cadmium, Copper, Iron, Manganese, Nickel, Sulfate, Zinc	Road Construction
<p>Stream 9 was placed on the Section 303(d) list in 2010 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals, specifically aluminum, cadmium, copper, iron, manganese, nickel, and zinc. Studies approved by the DEC and the WFLHD of the FHWA indicate high concentrations of metals leaching into the stream as a result of acid rock drainage from road construction. Contaminants exceeding criteria and the NOAA screening benchmarks include aluminum, cadmium, copper, iron, manganese, nickel, and zinc. Sulfate is included in the list of contaminants present in this waterbody. These exceedances are considered an impairment of a designated use. TCRA performed under CERCLA to remove or mitigate pyritic rock fill, 5 years of stream water monitoring, and post cleanup action biological sampling data in 2011 indicate that WQS are now being attained, and good to very good conditions (based on the Alaska Stream Condition Index for benthic macro-invertebrates) for aquatic fauna have been restored. A 5-year review report was completed in June 2014. The toxic and other deleterious organic and inorganic substances impairment for Stream 9 is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 2	10102-601	Ward Cove	Ketchikan	0.39 square miles	Toxic & Other Deleterious Organic and Inorganic Substances	Pulp Residues, Logs, Bark & Woody Debris, Sediment Toxicity due to Wood Decomposition Byproducts	Industrial
<p>Ward Cove was placed on the Section 303(d) list in 1990 for non-attainment of the criteria for toxic and other deleterious organic and inorganic substances dissolved gas (low DO), and residues (debris). The DEC and the EPA determined that the approved and final ROD of the Superfund cleanup for the "Ketchikan Pulp Company, Marine Operable Unit, Ketchikan, Alaska" (March 29, 2000) were adequate "other pollution controls" for sediment toxicity (4-methyl phenol, ammonia, and sulfides) in Ward Cove. Three acres were dredged in the area of concern, in addition to thin capping of approximately 30 acres of the marine bottom. The Superfund "area of concern" of marine bottom was removed from the Section 303(d)/Category 5 list and moved to Category 4b in the 2004 Integrated Report. Monitoring in 2004 showed that thin layer capping was successful in eliminating sediment toxicity and stimulating colonization by bottom-dwelling invertebrate species. In May 2009, the EPA determined that the Ward Cove sediment cleanup monitoring was complete and objectives had been achieved. Regular monitoring of the sediments since 2009 show that cleanup goals have been met. Consequently, the toxic and other deleterious organic and inorganic substances impairment for the Superfund portion of Ward Cove were moved from Category 4b to Category 2 in the 2010 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

SE	Category 2	10203-804	West Port Frederick	Chichagof Island	N/A	Residues	Bark & Woody Debris	LTF
<p>West Port Frederick was placed on the Section 303(d) list in 1998 for non-attainment of the residues (debris) criteria. Dive survey information from April 1995 demonstrated an exceedance of the bark accumulation level for the interim intertidal threshold (according to the ATTF <i>Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines</i>, October 21, 1985) at 1.35 acres of bottom coverage. Dive survey reports from April 2001 of 0.3 acre and from March 2000 of 0.3 acre of bottom coverage document that this waterbody is compliant with the criteria. The residues impairment for West Port Frederick was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								
SE	Category 2	10203-018	Wrinkleneck Creek/Swan Lake	Sitka	N/A	Residues	Solid Waste	Urban Runoff
<p>Wrinkleneck Creek and Swan Lake were placed on the Section 303(d) list in 1996 for non-attainment of the criteria for residues due to trash and urban debris. The Swan Lake Watershed Recovery Strategy and TMDL were completed (January 2000) and approved by the EPA (May 2000). In 1999, volunteers collected more than 6,600 pounds of trash and debris. In spring 2002, the City and Borough of Sitka (CBS) completed the third annual Swan Lake Cleanup. Each year the amount collected has been lower than previous years. This cleanup will continue to be an annual event in coordination with a citywide spring cleanup. The success of these efforts reflects the community's commitment and the approach of the Swan Lake Watershed Recovery Strategy. The DEC concluded that Wrinkleneck Creek and Swan Lake are attaining the residues criteria. The residues impairment for Wrinkleneck Creek and Swan Lake were removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2002/2003 Integrated Report.</p>								

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A2. CATEGORY 3 WATERBODIES

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Category 3 Waterbodies: Waters for which there are insufficient or no data or information to determine if the WQS are attained

Note:

- DEC has insufficient information on the following waters to make an attainment or impairment determination. Data are available upon request.
- Within the Alaska waterbody identification number (WBID #), the first five numbers indicate in which USGS hydrologic unit code (i.e., HUC”) the waterbody is located.

Water Name	Assessment Unit
Allison Creek	AK-20201-001
Anchor River	AK-20301-004_00
Anvil Creek	AK-50104-008_00
Auke Bay	AK-10301-501_00
Auke Lake	AK-10301-403_00
Auke Nu Cove	AK-10301-801_00
Auke Nu Creek	AK-10301-008_00
Barbara Creek	AK-20301-017
Bass Creek (Chuitna River tributary)	AK-20601-002
Battle Creek	AK-20301-029
Beach @ Bluff Point	AK-20301-801
Beach @ City Park	AK-102020-804
Beach @ Douglas Harbor	AK-10301-803
Beach @ Homer Spit	AK-20301-802
Beach @ Kanakanak (Dillingham)	AK-30304-801
Beach @ King Salmon	AK-30204-801
Beach @ Kvichak Bay (Naknek)	AK-30204-802
Beach @ Letnikof Cove	AK-10303-802
Beach @ Lutak Inlet	AK-10303-801
Beach @ Naknek River	AK-30204-803
Beach @ North Kenai	AK-20302-801
Beach @ Petroglyph Beach	AK-10202-806
Beach @ Point Woronzof	AK-20401-801
Beach @ Portage Cove Boat Harbor	AK-10303-803
Beach @ Sandy Beach	AK-10301-805
Beach @ Sandy Beach Park	AK-10202-805
Beach @ Scandinavian Beach	AK-30304-802
Beach @ Snag Point	AK-30304-806

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A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Beach @ West Beach	AK-50104-802
Bear Cove	AK-20301-506
Bear Creek (Becharof)	AK-30203-002_00
Bear Creek (Hogatza)	AK-40608-002
Bear Creek (Homer)	AK-20301-021
Bear Creek (Hope)	AK-20302-013
Bear Creek (Salchaket Slough)	AK-40507-006
Beaver Creek	AK-20302-007_00
Beaver Inlet	AK-30102-608_00
Beaver Lake	AK-20701-406_00
Bell Flats	AK-20701-701_00
Beluga Lake (Homer)	AK-20301--401
Beluga Slough	AK-20301-028
Benny Creek	AK-20301-020
Berners Bay	AK-10301-502
Bidarka Creek	AK-20301-006
Bidarka Creek	AK-20301-006_00
Big Beaver Lake	AK-20505-412
Birch Creek (Talkeetna)	AK-20505-009
Birch Lake	AK-40507-402_00
Black Bear Creek	AK-10103-023_01
Bodenburg Creek	AK-20402-003_00
Bolio Lake	AK-40504-401_00
Bons Creek	AK-50404-002_00
Bradfield River	AK-10101-001_00
Bridge Creek	AK-20301-007_00
Busch Creek	AK-20501-001
Buskin Lake	AK-20701-407
Buskin River	AK-20701-002
Cache Creek	AK-20504-001_00
California Creek	AK-20401-415_00
Camp Creek (Nulato)	AK-40705-002
Canoe Lake	AK-20505-411
Carlanna Creek	AK-10102-003_00
Cedar Bay	AK-20201-501_00
China Poot Bay	AK-20301-601_00
China Poot Creek	AK-20301-013_00
Chuit Creek	AK-20601-003
Chuitna River	AK-20601-001
Clear Creek	AK-20503-001_00
Clearwater Creek	AK-40503-001_00
Clearwater Lake	AK-40503-402_00

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A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Colleen Lake	AK-60402-401_00
Colville River/Umiat Lake	AK-60303-001_00
Connors Lake	AK-20401-408_00
Cook Inlet (upper)	AK-20401-601_00
Cooper Creek	AK-20302-011
Copper River	AK-20104-001_00
Cottonwood Lake	AK-20505-403_00
Crab Bay	AK-10211-501
Crow Creek	AK-20401-416_00
Dark Lake	AK-20701-402_00
Deep Creek	AK-20301-002_00
Delong Lake	AK-20401-423
Deshka River (Kroto Creek)	AK-20505-010
Diamond Creek	AK-20301-008_00
Dog Salmon Creek	AK-10103-007_00
Dogfish Bay (Koyuktoik Bay)	AK-20301-018
Donlin Creek	AK-30501-002
Dora Bay	AK-10103-001_00
Dora Lake	AK-10103-401
Dry Creek (Nome)	AK-50104-010
Duck River	AK-20201-002
East Creek	AK-20301-019
Edmonds Lake	AK-20401-424
Eklutna River	AK-20402-403_00
Eldred Passage	AK-20301-501
Elfin Cove	AK-10203-805_00
English Bay River	AK-20301-014
Eyak River	AK-20104-002
Falls Creek (Gustavus)	AK-10302-001
Falls Creek (Kachemak)	AK-20302-101
Finger Lake	AK-20505-404_00
Fire Cove	AK-10103-005_00
Fire Lake	AK-20302-401_00
Fortymile River	AK-40104-001_00
Fourth of July Creek	AK-40401-001_00
Fourth of July Creek (Seward)	AK-20202-002
Fox Creek	AK-20301-012_00
Freshwater Creek	AK-10203-006_00
Fritz Creek	AK-20301-009_00
Funny River	AK-20302-006_00
Gastineau Channel	AK-10301-802_00
Gastineau Channel (Harris and Aurora Harbors)	AK-10301-804

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A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Gibson Cove	AK-20701-605_00
Glacier Creek (Girdwood)	AK-20401-026
Glacier Creek (Kantishna Creek)	AK-40510-002
Glacier Creek (Nome)	AK-50104-011
Goodnews River	AK-30502-004_00
Goose Bay	AK-20505-501_00
Goose Creek	AK-20505-008_00
Goose Lake	AK-20401-409_00
Grant Creek	AK-20302-014
Grant River	AK-30304-003
Greens Creek	AK-10204-001_00
Gulkana River	AK-20102-001
Gunnuk Creek	AK-10202-001_00
Halibut Cove	AK-20301-502_00
Harris River	AK-10103-008_00
Hatchery Creek	AK-10103-009_00
Hawk Inlet	AK-10204-501_00
Herring Bay Creek	AK-10102-004_00
Hidden Lake	AK-20401-410_00
Hideway (Hidden) Lake	AK-20401-010
Hoadley Creek	AK-10102-005_00
Hobart Bay	AK-10201-501_00
Hogatza River	AK-40608-001_00
Homer Harbor	AK-20301-505_00
Horseshoe/Island Lakes	AK-20701-405_00
Hospital Lake	AK-40205-401_00
Iliamna Lake	AK-30206-401_00
Illinois Creek	AK-40703-001_00
Indian River	AK-10203-007_00
Jakolof Bay	AK-20301-011_00
Jim Creek	AK-20402-004_00
Jim Lake	AK-20402-402_00
Johnson Creek	AK-10301-009_00
Jones Lake	AK-20401-405_00
Juneau Creek	AK-20302-003_00
Kachemak Bay	AK-20301-504_00
Kalmbach Lake	AK-20505-410
Kanektok River	AK-30502-001_00
Kantishna River	AK-40510-001
Kasilof River	AK-20301-015
Kaskanak Creek	AK-30206-001
Kenai River	AK-20302-005

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A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Ketchikan Creek	AK-10102-006_00
Kitkun Bay	AK-10103-003_00
Klehini/Chilkat River	AK-10303-001_00
Klutina River	AK-20102-002
Knutson Creek	AK-30206-004
Kobuk River	AK-50304-001
Kodiak Landfill Creek	AK-20701-001_00
Kogoluktuk River	AK-50302-001
Koktuli River - North Fork	AK-30302-001
Kotzebue	AK-50301-401_00
Kotzebue Estuary	AK-50403-601_00
Kotzebue Lagoon	AK-50301-601
Kuparuk River	AK-60401-001_00
Kuskokwim River	AK-30502-003_01
Lab Bay	AK-10103-803_00
Lake Clark	AK-30205-401_00
Lake Creek	AK-10301-012_00
Lake Louise	AK-20501-401_00
Lake McDermott	AK-60402-402_00
Lake Otis	AK-20401-404_00
Lignite Creek	AK-40508-002
Lilly Lake	AK-20701-404_00
Little Auke Creek	AK-10301-007_00
Little Campbell Lake	AK-20401-413_00
Little Creek, south fork (Nome)	AK-50104-009
Little Susitna River	AK-20505-004_00
Little Tutka Bay	AK-20301-510
Lost and Found Lake	AK-20301-402
Lost Harbor	AK-30102-501
Lower Fire Lake	AK-20401-422
Lower Talarik Creek	AK-30206-002
Lucille Creek	AK-20505-011
Lutak Inlet	AK-10303-602_00
Margaret Creek	AK-10102-002_00
Mariner Creek	AK-20301-026
McClure Bay	AK-20202-601_00
McDonald Creek (Salchaket Slough)	AK-40507-005
McKenzie Inlet	AK-10103-002_00
McKinley Lake	AK-20201-402_00
McNeil Creek	AK-20301-010_00
McRoberts Creek	AK-20402-005_00
Meadow Creek	AK-20505-006_00

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A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Meadow Lake	AK-20401-411_00
Memory Lake	AK-20505-405_00
Mendenhall River	AK-10301-006_00
Millard Bay	AK-20301-508
Mills Creek	AK-20302-001_00
Minook Creek	AK-40404-001_00
Mirror Lake	AK-20401-401_00
Mission Lake	AK-20701-403_00
Montana Creek (Juneau)	AK-10301-002_00
Montana Creek (Talkeetna)	AK-20505-008
Moose Creek	AK-40507-001_00
Moose River	AK-20302-009_00
Mosquito Lake	AK-10303-401_00
Mud Bay (Homer)	AK-20301-520
Mulchatna River	AK-30302-003
Nahodak Creek	AK-20301-022
Nancy Lake	AK-20505-406_00
Nataga Creek	AK-10303-003_00
Neptune Bay	AK-20301-507
Nilumat Creek	AK-30502-002_00
Ninilchik River	AK-20301-005_00
Nome River	AK-50104-003_00
North Twin Lakes	AK-10301-401_00
Nushagak River	AK-30304-002_00
One Mile Creek	AK-10303-002_00
Ophir Creek	AK-10401-001_00
Orca Inlet	AK-20201-801_00
Packers Creek	AK-20702-001
Palmer Creek (Homer)	AK-20301-023
Passage Canal (Whittier Harbor)	AK-20202-501
Pavlof River	AK-10203-004_00
Paxson Lake	AK-20102-401
Peters Creek	AK-20401-001_00
Peterson Bay	AK-20301-503_00
Peterson Creek	AK-10301-010_00
Pile Driver Slough	AK-40507-002_00
Port Clarence	AK-50104-801_00
Port Valdez	AK-20201-602_00
Port Valdez Small Boat Harbor	AK-20201-603_00
Potato Patch Lake	AK-20701-401_00
Potter Creek	AK-20401-021
Power Creek	AK-20201-003

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A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Quartz Creek	AK-20302-008_00
Quartz Lake	AK-40507-401_00
Rabbit Creek	AK-20401-007_00
Red Devil Creek	AK-30501-001_00
Resurrection Creek	AK-20302-002_00
Rice Creek	AK-20301-024
Robe Lake	AK-20201-403
Rock Creek	AK-50104-012
Rogge Creek	AK-40505-001_00
Ruby Creek	AK-20301-025
Russian Creek	AK-20701-003
Sagavanirktok River	AK-60402-001_00
Saint Paul Harbor	AK-20701-503
Salmon Creek	AK-10301-011_00
Salmon River (Hyder)	AK-10101-002
Salmon River (Kinegnak)	AK-30502-005
Salmon River (Platinum)	AK-30502-006
Sawmill Creek (Sitka)	AK-10203-009
Scheffler Creek	AK-20202-004
Schoenbar Creek	AK-10102-007
Seldovia Bay	AK-20301-602_00
Shaw Creek	AK-40507-004
Sheenjok River	AK-40205-001
Shoal Cove	AK-10102-503
Shoal Creek	AK-10102-001_00
Shoemaker Bay	AK-10102-603_00
Shovel Creek	AK-50104-006_00
Sinuk River	AK-50104-004_00
Sitka Channel	AK-10203-807_00
Sitka Sound	AK-10203-806_00
Situk River	AK-10401-002_00
Sleepy Bay	AK-20202-801_00
Slikok Creek	AK-20302-010
Snake River	AK-50104-002_00
Soldotna Creek	AK-20302-004
Solomon River	AK-50104-001_00
Solomon River, East Fork	AK-50104-007_00
South Twin Lakes	AK-10301-402_00
Spring Creek	AK-20402-006
Spring Creek (Seward)	AK-20202-003
Stariski Creek	AK-20301-003_00
Starrigavan Creek	AK-10203-008

Alaska's FINAL 2014-2016 Integrated Report

A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Sundi Lake	AK-20401-406_00
Sunshine Cove	AK-10203-809_00
Sunshine Creek	AK-20503-003_00
Suqitughneq River	AK-50101-001_00
Susitna River	AK-20505-007_00
Sweeper Cove	AK-30103-501_00
Sweeper Creek	AK-30103-001_00
Taku River	AK-10301-018
Talkeetna River	AK-20503-002_00
Tanana River	AK-40506-010_00
Thorne River Estuary	AK-10103-603_00
Tisuk River	AK-50104-005_00
Tolstoi Bay	AK-10303-503_00
Tolstoi Bay Watershed	AK-10103-501_00
Tongass Narrows, Refuge Cove	AK-10102-801_00
Town Lake	AK-20102-402
Troutman Lake	AK-50101-401_00
Tubutulik River	AK-50104-013
Turnaround Creek	AK-10203-003_00
Tuxedni Bay	AK-20602-601
Twitter Creek	AK-20301-016
Two Moon Bay	AK-20201-802_00
Ugashik River	AK-30202-001
Unalaska Lake	AK-30102-401_00
Unnamed Creek (Chignik)	AK-20702-002
Unnamed Creek (Chuitna River tributary)	AK-30601-004
Unnamed Creek (City of Kenai)	AK-20302-012
Unnamed Creek (Old Harbor)	AK-20701-004
Unnamed Creek (Petersburg)	AK-10202-002
Unnamed Lake (Chena Hot Springs Rd.)	AK-40506-401
Upper Bonnie Lake	AK-20402-404
Upper Fire Lake	AK-20401-407_00
Walby Lake	AK-20402-401_00
Wasilla Creek	AK-20505-002_00
Wasilla Lake	AK-20505-402_00
Whale Passage	AK-10103-004_00
Whittier Creek	AK-20202-001
Willow Creek	AK-20505-003_00
Winter Harbor	AK-10103-006_00
Women's Bay	AK-20701-802_00
Wood River	AK-30304-001_00
Woodard Creek	AK-20301-001_00

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A. Waterbody Categories 2 through 5

Water Name	Assessment Unit
Wrangell Narrows	AK-10202-803_00
Wulik River	AK-50404-003
Zinc Creek	AK-10204-002_00

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A3. CATEGORY 4A WATERBODIES

Alaska's 2014-2016 Final Integrated Water Quality Monitoring and Assessment Report
 Category 4a Waterbodies: TMDL has been completed; impaired water.

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
IN	Category 4a	40402-001	Birch Creek Drainage:- Upper Birch Creek; Eagle Creek; Golddust Creek	North of Fairbanks	10.6 miles total	Turbidity	Turbidity	Placer Mining
<p>Birch Creek was placed on the Section 303(d) list in 1992 for non-attainment of the turbidity criteria as a result of placer mining activity within the drainage. A TMDL was developed and finalized on October 10, 1996, and thus the turbidity impairment for Birch Creek was removed from the Section 303(d)/Category 5 list and moved to Category 4a in the 1998 Integrated Report. Priority actions for this waterbody include continued APDES inspections to monitor reduction of discharges from active mine sites, particularly during storm events; continued implementation of reclamation activities in key areas to address high-priority nonpoint source problems; and monitoring at key sites in the drainage to determine the extent of the water quality improvements. The United States Bureau of Land Management (BLM) conducted water quality sampling during 2001-2005 which was published in a 2007 report. Additional data collection occurred in 2004-2005, and 2007-2012. Data are currently under review and the BLM will publish a report when final. The BLM continued data collection in collaboration with the DEC in 2014, 2015 and 2016.</p>								
IN	Category 4a	40506-009	Garrison Slough	Eielson Air Force Base	5.1 miles	Toxic & Other Deleterious Organic and Inorganic Substances	Polychlorinated Biphenyls	Military Base/ Operations
<p>Garrison Slough was placed on the Section 303(d) list in 1996 for non-attainment of the standard for toxic and other deleterious organic and inorganic substances, specifically the polychlorinated biphenyls (PCB) criteria. A TMDL was developed in 1996, moving Garrison Slough to Category 4a in 1998. Sediment and fish samples from the slough contained elevated concentrations of PCBs. The source of the PCBs was traced to a drainage ditch. Eielson Air Force Base vacuum dredged and removed most of the upper 18 to 24 inches of soil in the drainage ditch leading into Garrison Slough. Excavation in the drainage ditch extended downward until either groundwater was encountered or field screening results indicated PCB concentrations of less than 10 milligrams per kilogram. A 180-foot section of Garrison Slough was not excavated because an unexploded ordnance was discovered. PCBs at concentrations above the DEC cleanup levels set forth in 18 AAC 75 are known to remain in the slough sediments. Fish tissue sampling has been performed. A risk assessment was completed to set maximum contamination levels allowable in fish. As a temporary measure, engineering controls were initiated to prevent fish from entering the slough. An additional munitions sweep was conducted in spring 2007 and ensured no other unexploded ordnances existed. Some sediment profiling was conducted in spring 2007 and 2008. In the 5-year Record of Decision (ROD) review, completed in 2008, the DEC and the EPA recommended additional actions to address the contamination. DEC and EPA conducted site visits in 2010 and 2011 and received the draft Uniformed Federal Policy-QAPP in 2011 which included fish and sediment sampling. In 2012, the DEC granted approval for the Final Remedial Investigation/Feasibility Study (RI/FS) Management Plan, QAPP, and Risk Assessment Work Plan. Results from the 2012 sampling showed that grayling from Garrison Slough have significantly higher PCB concentrations than fish from nearby Piledriver Slough, the Chena River, and the Chatanika River. In April 2013, the DEC reviewed and approved the After-Action Report on the Supplemental Remedial Investigation. The DEC, with assistance from the Department of Law, finalized a settlement agreement with the Air Force and the EPA establishing a plan and schedule for completing an updated RI/FS on Garrison Slough in August 2013. In 2014 the Air Force submitted the Draft Supplemental Remedial Investigation (SRI) Report. In 2015 the draft Final ROD clean-up plan was approved by DEC and EPA. Implementation of the clean-up ROD began in 2015 and continues through 2016 to reach the clean-up level.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
IN	Category 4a	40509-001	Goldstream Creek	Fairbanks	35.7 miles	Turbidity	Turbidity	Placer Mining
<p>Goldstream Creek was placed on the Section 303(d) list in 1992 for non-attainment of the turbidity criteria. A waterbody assessment was completed and confirmed the pollutant and the pollutant source. The assessment determined that existing controls were sufficient to address the turbidity issue and that a formal TMDL was not needed. Nevertheless, the water quality assessment was prepared for Goldstream Creek (September 30, 1994) and submitted to the EPA for technical review. The assessment contains a section on development of a management plan and a pollution control strategy. However, no further sampling was conducted to confirm that existing controls were sufficient until 2010. From 2010-2013 a water quality assessment was conducted and data showed the creek was not meeting WQS. A TMDL was developed and approved by EPA in September 2015 and the water is moved to Category 4a in the 2014-16 Integrated Report for turbidity.</p>								
IN	Category 4a	40506-003	Noyes Slough	Fairbanks	5.7 miles	Residues	Debris	Urban Runoff
IN	Category 4a	40506-003	Noyes Slough	Fairbanks	5.7 miles	Petroleum Hydrocarbons, Oil, and Grease	Sheens	Urban Runoff
<p>Noyes Slough was placed on the Section 303(d) list in 1994 for non-attainment of the residues (debris), petroleum hydrocarbons, oils and grease and sediment criteria. A TMDL was developed and finalized for the residues impairment in May 2008. A TMDL for petroleum hydrocarbons, oils and grease was finalized in 2011. Additional sediment data collected in 2011 showed that Noyes Slough is also meeting the water quality criteria for sediment. The sediment impairment for Noyes Slough is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014-16 Integrated Report.</p>								
IN	Category 4a	40510-003	Slate Creek	Denali National Park	2 miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals – Antimony, Arsenic, and Iron	Mining

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Slate Creek was placed on the Section 303(d) list in 1994 for non-attainment of the turbidity criteria because of historic placer mining activities. Current NPS policy will not permit mining. A recovery plan implementation began in August 1997 and continued through 2002. The recovery plan included restoration objectives for 4 acres of disturbed upland and stream channel areas in the vicinity of the old antimony mine site. Objectives included placement of fill over exposed antimony ore body, reconfiguration of the stream channel, increases in the pH of acidic soils, and revegetation of disturbed soils with willow and alder seedlings. In 2006, Slate Creek was visited by DEC and NPS staff for a general site review of the recovery plan implementation, which was completed in 2002. The 2006 site visit revealed that the recovery plan was not successful and that in many areas actions implemented were no longer performing their functions properly. NPS staff visited Slate Creek twice in the 2007 field season to gather information to develop an amended recovery concept plan. Amended plans were developed to address the surface and groundwater drainage for erosion control and acidic mitigation. Significant reclamation work was conducted in 2010 and included removal of mining debris, movement of tailings piles, and reconfiguration of the stream channel. NPS and DEC staff conducted a site visit in 2011. In several areas the restoration are failing and much of the vegetation failed to establish. Water quality monitoring by the USGS from 2008-2011 indicate that the creek is meeting the turbidity criteria; however exceedances of the toxic and other deleterious organic and inorganic substances criteria for antimony and arsenic were found. Slate Creek was removed from the 303(d) list for turbidity in the 2012 Integrated Report and placed in Category 2. A TMDL was developed and approved by EPA in June 2014 and the water is moved to Category 4a in the 2014-16 Integrated Report for antimony, arsenic, and iron.</p>								
SC	Category 4a	30102-604	Akutan Harbor	Akutan Island	0.036 square miles	Residues	Settleable Solids	Seafood Processing/Waste
<p>Akutan Harbor was placed on the Section 303(d) list in 1994 for non-attainment of the criteria for residues and dissolved gas (DO). The EPA issued two TMDL's for Akutan Harbor in 1995, moving Akutan Harbor to Category 4a in 1998. The first TMDL was issued to address violations of Residues, limiting seafood Settleable Solids in Akutan Harbor. The other TMDL was issued to address dissolved oxygen by limiting Biochemical Oxygen Demand loading in the harbor. The EPA finalized the associated NPDES permit for this area in spring 1996. Water quality sampling during the summer of 2008, 2009, and 2010, as well as a 2011 benthic survey, indicate that the water quality criteria for dissolved gas in the water column is being met. The harbor remains listed for residues. The Settleable Solids TMDL to address residues remains in effect and implementation of limits in the permit and source control will lead to the removing this water body the from this impairment listing. The seafood processing facility in the harbor is currently under a consent decree that has implemented three remediation pilot projects to determine the best approach to decrease the deposits on the seafloor. Since the 2011 Consent decree began in 2012, the zone of impact has reduced in size from 50 acres to 22 acres. The current APDES permit continues to require DO monitoring to ensure that the residual pile does not negatively impact or cause an impairment of the standard and the proposed permit is implementing the Consent Decree residues remediation requirements. The dissolved gas impairment for Akutan Harbor was removed and placed in Category 2 in the 2012 Integrated Report.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
SC	Category 4a	20505-401	Big Lake	Wasilla	1,250 acres	Petroleum Hydrocarbons	Total Aromatic Hydrocarbons	Motorized Watercraft
<p>Big Lake was placed on the Section 303(d) list in 2006 for non-attainment of the petroleum hydrocarbons, oils and grease (TAH) criteria. A TMDL was completed in May 2012 and approved by the EPA in June 2012 and Big Lake was moved to Category 4a. The impairment was based on sampling performed in the open water months in 2004, 2005 and 2009. Petroleum hydrocarbon (TAH) sampling was conducted in the water column at multiple sites, depths, and degrees of motorized watercraft activity throughout the lake. Sampling sites in areas that received heavier use by motorized watercraft consistently exceeded the water quality criteria for TAH and the concentrations are likely influenced by a combination of good weather and time of season. Specifically, the areas of impairment together equal an estimated 1,250 acres and are seasonal in nature, from May 15 to September 15 with particular impairment issues on two holiday weekends (Memorial Day and Independence Day). The following specific areas in the east basin are the areas of impairment: harbors and marinas, launch areas, and traffic lanes. Sampling was conducted outside these specific areas and exceedances of the WQS were not identified. Two reports support the impairment listing: <i>Big Lake and Lake Lucille Water Quality Monitoring Final Report</i> (September 2, 2004) and <i>Big Lake Water Quality Monitoring Report</i> (June 15, 2006). A third report, <i>Water Quality Monitoring, Big Lake</i> (January 2009) confirmed the impairment. Although no water quality samples were collected below 5 meters, it is considered unlikely that petroleum-contaminated sediment is a concern. The source of petroleum is motorized watercraft. The TMDL includes a description of management measures the community is currently working on or may implement in the future. DEC has funded education/outreach activities on clean boating practices from 2010 to present. Water quality sampling was conducted in the summer of 2013 to document progress towards meeting the petroleum hydrocarbons, oils and grease water quality criteria. The sampling included two 96-hour monitoring events. The lake remains impaired.</p>								
SC	Category 4a	20401-004	Campbell Creek	Anchorage	9 miles	FC Bacteria	FC Bacteria	Urban Runoff
<p>Campbell Creek was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria criteria. The Campbell Creek water quality assessment completed by the Municipality of Anchorage in June 1994 investigated several parameters of concern, including temperature, turbidity, zinc, and lead, but concluded that Campbell Creek was water quality limited for FC bacteria only. Water quality sampling was conducted in 2005. A TMDL was developed for FC bacteria and was approved by the EPA on June 15, 2006. Campbell Creek was removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2006 Integrated Report. In 2014, DEC received a pet waste assessment report; pet waste is a major component of fecal coliform in Campbell Creek. Implementation of the recommendations to address pet waste is ongoing.</p>								
SC	Category 4a	20401-402	Campbell Lake	Anchorage	125 acres	FC Bacteria	FC Bacteria	Urban Runoff
<p>Campbell Lake was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria criteria. The Campbell Creek water quality assessment, completed by the Municipality of Anchorage in June 1994, included an assessment of Campbell Lake. The assessment investigated several parameters of concern, including FC bacteria, lead, and zinc, but concluded that Campbell Lake was water quality limited only for FC bacteria. Water quality sampling was conducted in 2005. A TMDL was developed for FC bacteria and was approved by the EPA on June 15, 2006. Campbell Lake was removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2006 Integrated Report. Implementation of a plan to conduct public outreach and education to prevent human feeding of waterfowl is ongoing; waterfowl are a major source of fecal coliform in Campbell Lake.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
SC	Category 4a	20401-003	Chester Creek	Anchorage	10.31 miles	FC Bacteria	FC Bacteria	Urban Runoff, Industrial
<p>Chester Creek was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria criteria. In April 1993, a water quality assessment was completed on the Chester Creek drainage. Although the assessment identified several parameters of concern for Chester Creek, it was concluded that the waterbody is water quality limited only for FC bacteria. A TMDL for FC bacteria was developed and approved by the EPA (dated May 2005). Implementation of a plan to conduct public outreach and education to prevent human feeding of waterfowl is ongoing; waterfowl are a major source of fecal coliform in Chester Creek. Chester Creek was removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2006 Integrated Report.</p>								
SC	Category 4a	20505-001	Cottonwood Creek	Wasilla	7 miles	Fecal Coliform Bacteria	Fecal Coliform Bacteria	Urban Runoff, Unspecified Septic Sources
<p>Cottonwood Creek (13 miles) was placed on the Section 303(d) list in 2002/2003 for non-attainment of the residues criteria due to foam and debris. The DEC had received numerous complaints about foam in Cottonwood Creek and foam was observed in the creek in 1998, 2000, 2001, and 2002. An intensive water quality evaluation was conducted, commencing in September 2004. Water quality sampling conducted in 2004, 2005 and 2006 indicated that the foam present in Cottonwood Creek is naturally occurring and to be meeting WQS. Foam was determined to be influenced by natural conditions. Continued water quality sampling in 2006 focused on determining the extent of FC bacteria and temperature exceedances discovered during the sampling for foam, as well as further investigation of the foam. Foam and temperature were determined to be naturally occurring hence meeting WQS. FC bacteria exceeded water quality criteria, and the source(s) is unknown. The DEC conducted a study in 2010 using MST to determine if detected bacteria were from humans, <i>Fecal Coliform Bacteria Source Assessment in the waters of Cottonwood Creek, Wasilla, and Little Campbell Creek, Anchorage</i> (November 2010). Results indicate that human activity is one of the sources of the increased FC bacteria in Cottonwood Creek. A TMDL for the fecal coliform bacteria impairment in Cottonwood Creek was developed and approved by the EPA in May 2015. The DEC funded a project (2013-2015) to develop septic pumping cooperatives for neighborhoods adjacent to Cottonwood Creek and also conducted outreach and education on septic maintenance. DEC also funded a project (20016-2017) to conduct a stormwater infrastructure inventory of the creek. Cottonwood Creek is now in Category 2 for attainment of the residues (foam) criteria and remains impaired for FC bacteria.</p>								
SC	Category 4a	30102-606	Dutch Harbor	Unalaska Island	0.12 square miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Industrial, Urban Runoff

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Dutch Harbor was placed on the Section 303(d) list in 1994 for non-attainment of the petroleum hydrocarbons, oils and grease standard for petroleum products. An EPA study in August 1994, <i>Water Quality Assessment for Greater Unalaska Bay</i>, concluded that the waterbody was affected by petroleum products. TMDL assessment began in 2006. An existing data compilation was completed, and potential risk sources were identified and assigned priorities. Rigorous field sampling events were conducted in April 2007, September 2007, and September 2008 and included water column and sediment sample collection for BTEX, PAH, and TOC. Results indicate that the water column meets WQS, but several sediment results had surface sheening in exceedance of the standard. The area of impairment has been further refined and reduced as a result of the field sampling and includes two nearshore areas. The area of the harbor that has been found to meet the petroleum hydrocarbons, oils and grease criteria in the water column was removed from the Section 303(d)/Category 5 list and moved to Category 2 in the 2010 Integrated Report. The TMDL for the remaining impaired areas was completed in August 2010. Dutch Harbor was moved to Category 4a in the 2012 Integrated Report. Implementation of the TMDL will focus on dock and harbor BMPs to minimize any new petroleum hydrocarbon inputs to the area.</p>								
SC	Category 4a	20402-002	Eagle River	Eagle River	0.3 miles	Toxic & Other Deleterious Organic and Inorganic Substances	Ammonia, Chlorine, Copper, Lead, Silver	Wastewater Treatment Facility
<p>Eagle River was never Section 303(d) listed, however a TMDL for the waterbody for non-attainment of the standard for toxic and other deleterious organic and inorganic substances, specifically chlorine, ammonia and metals, was completed by the EPA on April 12, 1995 to support the NPDES permit for the wastewater treatment facility, which discharges to the river. The facility continues to operate under an APDES permit. The most recent Eagle River Waste Water Discharge Permit was issued May 23 and became effective July 1, 2014.</p>								
SC	Category 4a	20401-005	Fish Creek	Anchorage	6.4 miles	FC Bacteria	FC Bacteria	Urban Runoff
<p>Fish Creek was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria and the turbidity criteria. A 1995 waterbody assessment concluded Fish Creek was impaired only for FC bacteria. A TMDL for FC bacteria was developed and approved by the EPA in March 2004. Overpopulation of waterfowl in the Cuddy Park Ponds, a portion of Fish Creek, caused a high level of FC bacteria. A multi-agency task force was created to address the problem with remedies were implemented in 2016. In late summer 2016, FC bacteria level had dropped significantly, indicating that the remedies are producing a desired effect.</p>								
SC	Category 4a	20401-006	Furrow Creek	Anchorage	5.3 miles	FC Bacteria	FC Bacteria	Urban Runoff
<p>Furrow Creek was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria criteria. Water quality monitoring data from the Municipality of Anchorage show that the levels of FC bacteria exceed the designated use criteria for drinking water, primary contact recreation, and occasionally for secondary contact recreation. The source of the FC bacteria is presumed to be human-caused from urban runoff sources. A TMDL for FC bacteria was developed and was approved by the EPA in March 2004. In 2014, DEC received a pet waste assessment report; pet waste is a major component of fecal coliform in Furrow Creek. Implementation of the recommendations to address pet waste is ongoing.</p>								
SC	Category 4a	30102-602	Iliuliuk Harbor	Unalaska Island	0.07 mi ²	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Urban Runoff

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Iliuliuk Harbor was placed on the Section 303(d) list in 1990 for non-attainment of the petroleum hydrocarbons, oils and grease standard for petroleum products. An EPA study in August 1994, <i>Water Quality Assessment for Greater Unalaska Bay</i>, concluded the waterbody was affected by petroleum products. TMDL assessment began in 2006. An existing data compilation was completed, and potential risk sources were identified and assigned priorities. Rigorous field sampling events were conducted in April 2007, September 2007, and September 2008 and included water column and sediment sample collection for BTEX, PAH, and TOC. Results indicate that the water column meets criteria set forth in 18 AAC 70, but several sediment results had surface sheening in exceedance of the standard. The area of impairment has been further refined and reduced as a result of the field sampling and includes nearshore areas around docks and harbors. The TMDL was completed in August 2010. Iliuliuk Harbor was removed from the Section 303(d)/Category 5 list and moved to Category 4a in the 2012 Integrated Report. Implementation of the TMDL will focus on dock and harbor BMPs to minimize any new petroleum hydrocarbon inputs to the area.</p>								
SC	Category 4a	30101-501	King Cove	King Cove	0.00006 square miles	Residues	Seafood Waste Residue	Seafood Processing/Waste
<p>King Cove was placed on the Section 303(d) list in 1996 for residues. On October 10, 1998, the EPA completed a TMDL for King Cove moving the water to Category 4a in 1998. The original listing was based on historical information provided by the Aleutians East Borough and verified by DEC staff. The information included citizen complaints and photographs, as well as other indications that persistent exceedances of seafood residues were from seafood processing activity adjacent to the waterbody. The waterbody has remained in Category 4a since a TMDL was developed in 1998.</p>								
SC	Category 4a	20505-409	Lake Lucille	Wasilla	N/A	Dissolved Gas	Low Dissolved Oxygen	Urban Runoff
<p>Lake Lucille was placed on the Section 303(d) list in 1994 for non-attainment of the dissolved gas (low DO) criteria and nutrients. A TMDL for Lake Lucille was completed and was approved by the EPA (March 2002) moving the lake to Category 4a in the 2002/2003 Integrated Report. TMDL implementation continues. The next priority action for this waterbody includes developing a stormwater management plan. Water quality data collected by the DEC in 2004, 2005, and 2006 indicate that DO concentrations have been within applicable criteria during open water seasons, but below water quality criteria during times of ice cover in parts of the lake. Additional monitoring was conducted in 2011-2013, finding non-attainment of the toxic and other deleterious organic and inorganic substances criteria for toxics in lake bed sediments. Lake Lucille is proposed for including on the 303(d) list for Toxic and Other Deleterious Organic and Inorganic Substances in the 2014-2016 Integrated Report.</p>								
SC	Category 4a	20401-017	Little Campbell Creek	Anchorage	8.3 miles	FC Bacteria	FC Bacteria	Urban Runoff
<p>Little Campbell Creek was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria criteria. The water quality assessment for the Campbell Creek drainage indicates that Little Campbell Creek is impaired only for FC bacteria. A TMDL for FC bacteria was developed and was approved by the EPA in March 2004. Additional monitoring completed in 2010 showed a reduction in FC bacteria concentration compared to historical data; however, concentrations still exceeded state water quality criteria. In 2014, DEC received a pet waste assessment report; pet waste is a major component of fecal coliform in Little Campbell Creek. Implementation of the recommendations to address pet waste is ongoing. Additionally, the National Resource Conservation Service has prioritized working with equestrian facilities in the Little Campbell Creek watershed to reduce bacterial contamination and sediment loading.</p>								
SC	Category 4a	20401-024	Little Rabbit Creek	Anchorage	5.2 miles	FC Bacteria	FC Bacteria	Urban Runoff

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Little Rabbit Creek was placed on the Section 303(d) list in 1994 for non-attainment of the FC bacteria criteria. A TMDL for FC bacteria was developed and was approved by the EPA in March 2004. In 2014, DEC received a pet waste assessment report; pet waste is a component of fecal coliform in Little Rabbit Creek. Implementation of the recommendations to address pet waste is ongoing.</p>								
SC	Category 4a	20401-018	Little Survival Creek	Anchorage	3.0 miles	FC Bacteria	FC Bacteria	Urban Runoff
<p>Little Survival Creek was placed on the Section 303(d) list in 1994 for non-attainment of the FC bacteria criteria. The sources of the FC bacteria exceedances have been identified as both human and non-human, such as wildlife. A TMDL for FC bacteria was developed and was approved by the EPA in March 2004.</p>								
SC	Category 4a	20701-408	Red Lake and Anton Road Pond	Kodiak	0.9 acres	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Iron, Manganese	Urban Runoff
<p>Red Lake and Anton Road Pond were placed on the Section 303(d) list in 1994 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals, specifically iron and manganese. The DEC concluded that Red Lake clearly appears to have exceedances of applicable criteria for iron and manganese because of human actions. A TMDL for the iron and manganese impairments on Red Lake and Anton Road Pond was developed and approved by the EPA in June 2013. With the development of the TMDL, Red Lake and Anton Road Pond were removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2012 Integrated Report. Currently, ADEC is working with the US Army Corps of Engineers to further characterize the cause, extent, and level of the toxic and other deleterious organic and inorganic substances.</p>								
SC	Category 4a	20401-020	Ship Creek - Glenn Hwy. Bridge. Down to Mouth	Anchorage	9 miles, Glenn Hwy. Bridge. Down to Mouth	FC Bacteria	FC Bacteria	Urban Runoff
<p>Ship Creek was placed on the Section 303(d) list in 1990 for non-attainment of the petroleum hydrocarbons, oils and grease criteria. Petroleum products floating on the groundwater were believed to be moving toward Ship Creek and threatening the waterbody. In addition, FC bacteria monitoring data from 1989 to 1994, provided by the Municipality of Anchorage, exceeded the criteria. In 1992, FC bacteria was added to the Section 303(d) listing for Ship Creek as an impairing pollutant. The final FC bacteria TMDL was approved by the EPA in May 2004. An EPA consent decree with the Alaska Railroad Corporation (ARRC) required groundwater monitoring. The monitoring has shown that petroleum product constituents do not pose a threat to the creek. In addition, the DEC conducted monitoring to determine if a persistent sheen existed. This monitoring demonstrated that there was not a persistent sheen, nor were the analytical indicators for petroleum hydrocarbons present in sufficient concentrations to exceed the criteria. Therefore, the petroleum hydrocarbons, oils, and grease impairment for Ship Creek was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2012 Integrated Report. Ship Creek remains impaired for FC bacteria.</p>								
SC	Category 4a	30102-603	South Unalaska Bay	Unalaska Island	0.015625 square miles	Residues	Seafood Waste Residues	Seafood Processing Waste
SC	Category 4a	30102-603	South Unalaska Bay	Unalaska Island	0.0152625 square miles	Dissolved Gas	Biochemical Oxygen Demand	Seafood Processing Waste

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>South Unalaska Bay was placed on the Section 303(d) list in 1994 for non-attainment of both the residues (settleable solids) and dissolved gas (DO) criteria. The EPA issued two TMDLs on February 12, 1995, and revised seafood processing permits to implement TMDL controls thus moving South Unalaska Bay to Category 4a in 1996. Seafood processors discharging into South Unalaska Bay have been implementing TMDL controls. South Unalaska Bay discharge permits are tracked and monitored by the DEC and/or the EPA to ensure that waterbody recovery continues, and the seafood processors are fully implementing their revised permit requirements.</p>								
SC	Category 4a	20401-419	University Lake	Anchorage	23 acres	FC Bacteria	FC Bacteria	Urban Runoff
<p>University Lake was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria criteria. The <i>Chester Creek Drainage Water Quality Assessment</i>, focusing on an area that included University Lake, was completed in April 1993. It determined that the waterbody was impaired only for FC bacteria. A TMDL for FC bacteria was developed and was approved by the EPA (dated May 2005). Implementation of a plan to conduct public outreach and education to prevent human feeding of waterfowl is ongoing; waterfowl are a major source of fecal coliform in University Lake. Additionally, in 2014, DEC received a pet waste assessment report; pet waste is another major component of fecal coliform in University Lake. Implementation of the recommendations to address pet waste is ongoing.</p>								
SC	Category 4a	20401-421	Westchester Lagoon	Anchorage	73 acres	FC Bacteria	FC Bacteria	Urban Runoff
<p>Westchester Lagoon was placed on the Section 303(d) list in 1990 for non-attainment of the FC bacteria criteria. The <i>Chester Creek Drainage Water Quality Assessment</i> (which also included Westchester Lagoon), from April 1993, indicated Westchester Lagoon was impaired only for FC bacteria. A TMDL for FC bacteria was developed and was approved by the EPA (dated May 2005). Implementation of a plan to conduct public outreach and education to prevent human feeding of waterfowl is ongoing; waterfowl are a major source of fecal coliform in Westchester Lagoon.</p>								
SE	Category 4a	10301-005	Duck Creek	Juneau	4 miles	Residues	Debris	Urban Runoff, Landfill, Road Runoff, Land Development
SE	Category 4a	10301-005	Duck Creek	Juneau	4 miles	FC Bacteria	FC Bacteria	Urban Runoff, Landfill, Road Runoff, Land Development
SE	Category 4a	10301-005	Duck Creek	Juneau	4 miles	Turbidity	Turbidity	Urban Runoff, Landfill, Road Runoff, Land Development
SE	Category 4a	10301-005	Duck Creek	Juneau	4 miles	Dissolved Gas, Toxic & Other Deleterious Organic and Inorganic Substances	Dissolved Oxygen, Iron	Urban Runoff, Landfill, Road Runoff, Land Development

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Duck Creek was placed on the Section 303(d) list in 1994 for non-attainment of the dissolved gas (low DO), residues (debris), toxic and other deleterious organic and inorganic substances (specifically metals), FC bacteria, and turbidity criteria. TMDLs were completed for all pollutants (turbidity in 1999, FC bacteria and residues in 2000, and dissolved gas and toxic and other deleterious organic and inorganic substances in 2001), and Duck Creek moved to Category 4a in the 2002/2003 Integrated Report. Priority actions identified for this waterbody include: implementing the Duck Creek Management Plan and actions to address loadings identified in TMDLs; conducting monitoring program to determine if recovery actions are improving water quality; maintaining stream flow to provide fish rearing habitat in the stream, dilute pollutants, and prevent salt water intrusion; and working with the City and Borough of Juneau and others to ensure adequate stormwater permitting practices and controls are implemented to restore water quality. According to the 2006 final monitoring report (<i>Watershed Protection and Recovery for Duck Creek, Juneau, AK Project #: ACWA-06-09</i>, Nagorski, Hood, Hoferkamp, July 2006), Duck Creek continued to suffer from low in-stream flow, except for during large precipitation events; DO levels continued to regularly fall below state standards for aquatic life; pH values were centered near and at times below the state water quality criteria of 6.5 for aquatic life, at least during the morning sampling events conducted for this study (variations in pH are expected based on time of day and amount of sunlight); and large amounts of iron flocculate deposits were noted at all sites. Stream cleanup events are conducted annually to address ongoing residues (debris) issues in high-density corridors. Since 1994, many restoration projects have been completed along Duck Creek to improve water quality and fish habitat, including culvert replacement, streambank stabilizations, revegetation projects, and creation of wetlands. However, ongoing land use, ordinance enforcement, and snow disposal on private lands adjacent to Duck Creek continue to impair water quality. In 2016/17, through an ACWA grant (ACWA-17-02) the Southeast Alaska Watershed Coalition and the Juneau Watershed Partnership are coordinating with University of Alaska Southeast to collect water quality data to measure the restoration projects effectiveness. In 2017/18, the water quality assessment continues through an ACWA grant (ACWA-18-01). Stormwater mapping is in progress for Juneau watersheds (creeks include Duck, Jordan, Vanderbilt, Lemon, and Pederson Hill) by the City/Borough of Juneau. The mapping will address the current need for a Geographic Information System (GIS) urban hydrography data layer. A study is being prepared by the U.S. Fish and Wildlife Service and Juneau Watershed Partnership to identify, prioritize, and design watershed restoration and mitigation projects for high priority areas.</p>								
SE	Category 4a	10203-603	Herring Cove of Silver Bay	Sitka	0.159375 square miles	Residues	Bark & Woody Debris	Log Storage from former Pulp Mill Operations
<p>Herring Cove, a segment of Silver Bay, was placed on the Section 303(d) list in 1994 for non-attainment of the residues criteria due to bark and woody debris. On September 27, 1999, a TMDL was completed for residues for this segment of Silver Bay. Herring Cove was removed from the Section 303(d)/Category 5 list and placed in Category 4a in the 2002/2003 Integrated Report.</p>								
SE	Category 4a	10301-004	Jordan Creek	Juneau	3 miles from tide-water upstream	Residues	Debris	Land Development, Road Runoff
SE	Category 4a	10301-004	Jordan Creek	Juneau	3 miles from tide-water upstream	Sediment, Dissolved Gas	Sediment, Low Dissolved Oxygen	Land Development, Road Runoff

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Jordan Creek was placed on the Section 303(d) list in 1998 for non-attainment of the residues (debris), dissolved gas (low DO), and sediment criteria. Sampling and restoration efforts include water quality monitoring, stream cleanup events, and stormwater best management practices demonstration sites. Excess sediment in the creek lead to poor survival of salmon eggs and low oxygen readings in the substrate. The creek is largely spring fed and cannot transport large volumes of sediment. The stream corridor is under development, considerable iron flocculate deposits are observed, and the lower section regularly goes dry. TMDLs were complete for residues (2005) and for dissolved gas and sediment (2009) and Jordan Creek was removed from the Section 303(d) list and moved to Category 4a. Past efforts include water quality sampling (DO, conductivity, pH, turbidity, total suspended solids, water temperature) from 2003-2013, yearly community cleanup events, and construction of stormwater best management practices demonstration sites (2009 and 2015). A rain garden, bioswale and snow fence was constructed adjacent to Jordan Creek, at the Airport Shopping Center south of the Glacier Highway. The green infrastructure project intercepts the urban runoff prior to entering the creek, and deters direct discharge of contaminated snow and snow melt into the creek. Stormwater mapping is in progress for Juneau watersheds (creeks include Duck, Jordan, Vanderbilt, Lemon, and Pederson Hill) by City/Borough of Juneau. The mapping will address the current need for a Geographic Information System (GIS) urban hydrography data layer. A study is being prepared by the U.S. Fish and Wildlife Service and Juneau Watershed Partnership to identify, prioritize, and design watershed restoration and mitigation projects for high priority areas.</p>								
SE	Category 4a	10203-602	Klag Bay	West Chichagof Island	0.09 square miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Arsenic, Cobalt, Copper, Lead, Manganese, Mercury, Silver, Zinc	Mining

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Klag Bay was placed on the Section 303(d) list in 1996 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals, specifically arsenic, cobalt, copper, lead, manganese, mercury, silver, and zinc. Past mining activities resulted in the deposition of large amounts of tailings in Klag Bay. Studies conducted by the Fish and Wildlife Service (USFWS) and EPA documented high levels of metals (arsenic, cadmium, cobalt, copper, lead, manganese, mercury, silver, and zinc) in the bay's sediments that appear to be causing abnormalities in blue mussels. Based on the mercury in bald eagle blood and marine invertebrates from Klag Bay, Chichagof Island, Alaska (USFWS, 2001), the State Environmental Public Health Program (EPHP) concluded that eating clams and mussels from Klag Bay does not pose an appreciable health risk. A 2009 TMDL for metals impairments moved the water from Category 5 to Category 4a. Based on the WLA, no future discharge of mine waste is permitted in the area until such time as the WQS are met or the TMDL is revised. The TMDL recommended monitored natural attenuation, institutional controls (future development restrictions), and posting warning signs. In August 2014, DEC conducted more sampling of mussels and clams to evaluate whether recreational and subsistence harvesting of seafood in Klag Bay, Alaska poses any health risk. The study reported similar metal concentrations in sediment and shellfish. Arsenic and mercury were detected in sediments exceeding the PEL values. The shellfish metal concentration data confirms that at least some partition of the metals present in the tailings are bioavailable and are bioaccumulating. The Department of Health and Social Services reviewed the 2014 data and concluded that based on existing contaminant data, eating clams and mussels from Klag Bay does not pose an appreciable risk to public health. Warning signs are currently posted at the Klag Bay Mine.</p>								
SE	Category 4a	10301-001	Lemon Creek	Juneau	6 miles	Turbidity, Sediment	Turbidity, Sediment	Urban Runoff, Gravel Mining
<p>Lemon Creek was placed on the Section 303(d) list in 1990 for non-attainment of the criteria for turbidity, sediment, and for concerns about habitat modification. A waterbody recovery plan that included a TMDL was prepared and approved for this waterbody in fall 1995, and Lemon Creek was removed from the Section 303(d)/Category 5 list and moved to Category 4a in the 1996 Integrated Report. Waterbody recovery plan implementation began during fall 1995. The University of Alaska Southeast conducted a sediment assessment. This assessment defined concentrations of natural nonpoint source sediment within Lemon Creek, where active glacial processes contribute to sediment problems. A paired watershed study was conducted from May 2002 through June 2003 to ascertain the roles of glacier processes on watershed sediment discharge. This study concluded that in systems substantially influenced by glacier and mass wasting processes, the traditional total suspended solids-stream discharge relationship is not particularly meaningful because some of the most pronounced sediment events are associated with processes that are not well correlated with stream discharge. Priority actions for this water include implementing control actions and monitoring as recommended in the TMDL document. Stormwater mapping is in progress for Juneau watersheds (creeks include Duck, Jordan, Vanderbilt, Lemon, and Pederson Hill) by the City/Borough of Juneau. The mapping will address the current need for a GIS urban hydrography data layer. A study is being prepared by the U.S. Fish and Wildlife Service and Juneau Watershed Partnership to identify, prioritize, and design watershed restoration and mitigation projects for high priority areas..</p>								
SE	Category 4a	10301-014	Pederson Hill Creek	Juneau	3.56 miles	FC Bacteria	FC Bacteria	Septic Tanks

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Pederson Hill Creek was placed on the 303(d) list of impaired waterbodies in 1990 for non-attainment of the fecal coliform bacteria WQS. Failing septic systems within the watershed were identified as the probable pollutant source. Fecal coliform bacteria contamination had been documented since 1985. A 2006 assessment and a 2008 TMDL for fecal coliform bacteria followed. The water moved from Category 5 to Category 4a in 2010. In 2011, the municipal sewer system was extended in the Pederson Hill Creek watershed; sewer system was not extended on Engineer Cut-off Road. Additional fecal coliform monitoring occurred in 2012, 2013, and 2014 showing fecal coliform bacteria above WQS; Microbial Source Tracking (MST) tests were also conducted on 2013 and 2014 samples. Both human and horse bacteroidetes were detected, however, the horse bacteroidetes were detected below instrument detection levels, and not quantifiable. Fecal coliform bacteria and human bacteroidetes continue to be detected in the surface water even though nearly all of the residential and commercial area buildings are connected to the sewer system. Potential sources may be stormwater runoff from an upgradient horse stable, transient persons, camper vehicles discharging holding tanks, and/or break(s) in the sewer system. Stormwater mapping is in progress for Juneau watersheds (creeks include Duck, Jordan, Vanderbilt, Lemon, and Pederson Hill) by the City/Borough of Juneau. The mapping will address the current need for a GIS urban hydrography data layer. A study is being prepared by the U.S. Fish and Wildlife Service and Juneau Watershed Partnership to identify, prioritize, and design watershed restoration and mitigation projects for high priority areas.</p>								
SE	Category 4a	10303-004	Pullen Creek (Lower Mile)	Skagway	Lower 1.5 mile of Pullen Creek	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Cadmium, Copper, Lead, Zinc	Industrial
<p>Pullen Creek was placed on the Section 303(d) list in 1990 for non-attainment of the toxic and other deleterious organic and inorganic substances standard for metals, specifically cadmium, copper, lead, and zinc. The lower mile of Pullen Creek was previously listed with the Skagway Harbor Section 303(d) listing, but was segmented out into its own listing in the 2006 Integrated Report. Baseline water quality monitoring and a waterbody recovery plan for Pullen Creek was completed in 2006. Assessment results found no elevated levels of toxics in the water column. Elevated levels of lead, zinc, and barium were found in stream bottom sediments and adjoining banks. Elevated levels of metals were also found near railroad transport areas where ore was transported in the past. Several restoration projects which were completed in 2009. A TMDL was developed in 2010 and Pullen Creek was removed from the Section 303(d)/Category 5 list and moved to Category 4a in the 2010 Integrated Report. In 2012, the Taiya Inlet Watershed Council completed the Stormwater Best Management Practices: Protecting Pullen Creek, an Urban Stream; several BMPs noted in this report were completed in 2013. A rain garden at 11th and Broadway was completed in 2014/2015 (FY15 ACWA grant).</p>								
SE	Category 4a	10203-601	Silver Bay	Sitka	0.106 square miles	Residues, Toxic & Other Deleterious Organic and Inorganic Substances	Pulp Residues, Logs, Bark & Woody Debris, Sediment Toxicity due to Wood Decomposition By-products	Industrial, Historical Pulp Mill Activity

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Silver Bay was placed on the Section 303(d) list in 1994 for non-attainment of the residues (sludge), toxic and other deleterious organic and inorganic substances, and dissolved gas (DO) criteria. A report titled <i>Final Expanded Site Inspection Report, Alaska Pulp Corporation, Sitka, Alaska</i>, prepared in February 1995 substantiated water quality exceedances. Discharges from the mill ceased in March 1993. Based on a DEC June 1993 water quality assessment the pollutant parameters of concern were sludge and DO. A contaminated site Remedial Investigation/Feasibility Study for Silver Bay was contracted by Alaska Pulp Company from July 1996 to February 1999. The DEC issued a ROD in 1999. The remedial action objective identified by the ROD was natural recovery, with long-term monitoring. A TMDL was developed for Silver Bay in 2003, with waste load allocations for residues and sediment toxicity. Monitoring data show that Silver Bay is no longer impaired for DO. Although DO concentration below the criteria have been observed in deep water between Sawmill Cove and Herring Cove, no correlation between these levels and the presence of wood waste has been identified, and no current source of DO depression is known. Therefore, the DO pollutant parameter was removed from the Silver Bay listing, and a TMDL was not developed for dissolved gas. In 1999, a TMDL was completed for residues for the Herring Cove segment of Silver Bay. A TMDL for residues and sediment toxicity was completed in 2003. Based on the 2003 TMDL, the residues and toxic and other deleterious organic and inorganic substances impairments for Silver Bay were removed from the Section 303(d)/Category list and placed in Category 4a in the 2002/2003 Integrated Report.</p>								
SE	Category 4a	10303-601	Skagway Harbor	Skagway	0.001562 square miles	Petroleum Hydrocarbons, Oils and Grease	Petroleum Hydrocarbons	Industrial
<p>Skagway Harbor was placed on the Section 303(d) list in 1990 due to non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals in sediment. Studies concluded that a decrease in infauna diversity in the harbor was present. Samples collected in 2007/2008 concluded that petroleum hydrocarbons, not metals, are the primary cause for the decrease in fauna diversity in the harbor. A TMDL for petroleum was completed in 2011, and the harbor moved to Category 4a in the 2012 Integrated Report. As part of the TMDL data collection efforts, the east harbor (small boat harbor area) was found to be attaining WQS criteria. The 2014 Ore Dock Sampling and Analysis Plan proposed dredging to support construction of a new dock, generate fill material for the project, and remove legacy sediment contamination. Open-water disposal was not proposed. Pre-dredge sampling and sediment characterization occurred in January and June 2015. The toxicity characteristic leaching procedure results exceed federal threshold for lead; characterizing the sediment as hazardous waste if removed. The sediment are unsuitable for direct placement as fill in upland or marine environments, and require disposal at a Subtitle C landfill. Treatment of dredge materials has the potential to reduce the leachability of the lead. A treatability study and dredging was planned for 2015, however, Skagway residents voted down the proposed revised harbor property lease, ending the harbor development project. The agencies, DEC, EPA and USACE, continue working with the various responsible parties to coordinate and move forward with a risk assessment and cleanup of the contaminated sediments.</p>								
SE	Category 4a	10103-602	Thorne Bay	Prince of Wales Island	0.011718 square miles	Residues	Bark & Wood Debris	Historical LTF

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Thorne Bay, in the area associated with the historical marine LTF, was placed on the Section 303(d) list in 1994 for non-attainment of the residues criteria due to bark and wood debris. Log transfer and storage activities began in 1962 and caused the accumulation of woody debris on the bottom of the head of Thorne Bay. Log transfer and storage activities ended in 2000, and the operator, the USFS, does not plan to resume activities; all equipment and facilities have been removed. A key feature of the recovery of the former log transfer and storage area is the Thorne River, which empties into the bay and deposits sediments onto a large sand and gravel delta, where they mix with debris and aid in biological recovery. The LSA: Dive surveys of the LSA conducted in July 2001 and June 2002 documented 1.1 acres of bark and wood debris on the marine bottom. Dive surveys in 2003 and 2005 detailed the benthic health of 161 acres of the former LSA. Findings included the following: (1) bark debris was mostly decomposed to small fragments and was mixed with natural sediments; (2) the bottom was biologically recovered, exhibiting mostly mature "Stage III" biological communities; and (3) the site was an "extremely healthy coastal embayment." The DEC determined, based on the detailed benthic assessment, that the residues criteria is met in the former LSA. The residues impairment for the LSA was removed from the Section 303(d)/Category 5 list and placed in Category 2 in the 2004 Integrated Report. The LSA remains in Category 2 with no known impairments. The LTF: Dive surveys conducted in 1988 and 1990 documented approximately 55 acres of bark accumulation in the LTF. Dive surveys of the LTF conducted in July 2001 and June 2002 documented 2.6 and 1.1 acres of bark and wood debris, respectively, on the marine bottom. An April 2004 dive survey of the LTF documented 6.5 acres of bark and woody debris. The former LTF remained on the Section 303(d) list for a defined area of approximately 35 acres between the LTF shoreline and the boundary of the former LSA established in the 2003-2005 benthic assessment. A December 2007 dive survey documented a reduced area of impaired marine bottom of only 7.5 acres and the rest of the previous area of impairment as meeting the residues criterion and attaining WQS. These findings suggest that biological recovery is proceeding and is well advanced within the area associated with the LTF. A residues TMDL for the Thorne Bay LTF was completed and approved by the EPA on May 8, 2007. With the completed TMDL for residues, the area of Thorne Bay associated with the LTF was removed from the Section 303(d)/Category 5 list and placed in Category 4a.</p>								
SE	Category 4a	10301-017	Vanderbilt Creek	Juneau	1.5 miles	Turbidity, Sediment, Residues	Turbidity, Sediment, Debris	Urban Runoff
<p>Vanderbilt Creek was placed on the Section 303(d) list in 1990 for non-attainment of the criteria for turbidity, residues (debris), sediment, and with concerns for habitat modification. A TMDL was prepared in 1995 and Vanderbilt Creek moved to Category 4a. Watershed plans including protection, recovery and management, and a wetland assessment were completed in 2007/08. Debris removal efforts occurred in 2009 (FY09 ACWA grant), resulting in annual stream cleanup events. Urban runoff continues to be a major concern for the creek. Other concerns include barriers to fish passage, bank erosion and riparian damage. The Southeast Alaska Land Trust is pursuing a 37-acre parcel mitigation project purchase in Vanderbilt Creek headwaters. If accomplished, this parcel would be donated to City/Borough of Juneau (CBJ) in exchange for a conservation easement on the parcel and on an abutting CBJ parcel of 21 acres. DOT road upgrades and pedestrian improvements are planned along Vanderbilt Hill Road, adjacent to the creek. DEC and USFWS continued collaboration with DOT on this project resulted in the inclusion of green infrastructure to address stormwater runoff.</p> <p>Stormwater mapping is in progress for Juneau watersheds (creeks include Duck, Jordan, Vanderbilt, Lemon, and Pederson Hill) by the City/Borough of Juneau. The mapping will address the current need for a GIS urban hydrography data layer. A study is being prepared by the U.S. Fish and Wildlife Service and Juneau Watershed Partnership to identify, prioritize, and design watershed restoration and mitigation projects for high priority areas.</p>								
SE	Category 4a	10102-601	Ward Cove	Ketchikan	0.39 square miles	Dissolved Gas	Biochemical Oxygen Demand	Industrial

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
SE	Category 4a	10102-601	Ward Cove	Ketchikan	0.39 square miles	Residues, Dissolved Gas	Logs, Bark & Woody Debris, Low Dissolved Oxygen	Industrial
<p>Ward Cove was placed on the Section 303(d) list in 1990 for non-attainment of the residues and dissolved gas criteria due to pulp residues, logs, bark and woody debris, and low DO concentrations from historical discharges and associated activity from the Ketchikan Pulp Company (KPC) pulp mill operations. The KPC site is located on the shoreline of Ward Cove, near Ketchikan, Alaska. The site is divided into two Operable Units (OUs): the Uplands Operable Unit and the Marine Operable Unit. The site is part of the EPA's Superfund cleanup program. The sediment toxicity impairment was removed from Section 303(d)/Category 5 list and moved to Category 2 in the 2006 Integrated Report. A TMDL was developed for residues and dissolved gas (DO) in 2007; these impairments were removed from Section 303(d)/Category 5 list and moved to Category 4a in the 2008 Integrated Report. Brief chronology of events: 1954-1997 KPC operated a dissolving sulfite pulp mill; 1991-2000 site investigations; 2000 Record of Decisions signed; 1998-2010 remedial actions; 2001-2010 long-term monitoring; 2005, 2010 and 2015 5-year reviews. The 2015 third Five-Year Review Report concludes all remedies at the site are protective of human health and the environment. There continues to be considerable redevelopment in the area, however ICs remain effective and protective of the Uplands and Marine OUs. The next five-year review is due August 2020.</p>								

A4. CATEGORY 4B WATERBODIES

Alaska's 2014 Draft Integrated Water Quality Monitoring and Assessment Report

Category 4b Waterbodies: Impaired, but not needing a TMDL; expected to meet water quality criteria in a reasonable time period.

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
IN	Category 4b	40501-001	Cabin Creek	Nabesna	1.5 miles	Toxic & Other Deleterious Organic and Inorganic Substances	Arsenic, Cadmium, Copper, Iron, Cadmium	Mining

Cabin Creek was placed on the Section 303(d) list in 1996 for non-attainment of the criteria for toxic and other deleterious organic and inorganic substances, specifically the metal manganese, due to the Nabesna Mine Site - a patented mining claim area located on private property within the legislative boundary of Wrangell-St. Elias National Preserve. Cabin Creek is located on park lands within Wrangell-St. Elias National Park and Preserve. The USGS and NPS completed a field sampling component of an environmental geochemical site characterization study at the Nabesna Mine in 1997 (results published in the USGS Professional Paper 1619). NPS and DEC staff visited the site in June 1997 to discuss the specifics of a waterbody recovery plan with the owner of the Nabesna Mine property. Acidic mill tailings located down slope of the mill building (situated on both private and NPS-managed lands), may be compromising the water quality of Cabin Creek. Elevated metal concentrations were detected periodically in the Cabin Creek drainage within the 1 mile reach below the mill tailings. Recovery plan objectives include re-construction of the existing historic drainage ditches around the tailings to divert stormwater and seasonal snow melt run-off away from (bypass) the tailings. In the 2002/2003 Integrated Report, arsenic, cadmium, copper, and iron were added to the 1996 Section 303(d) listing as contaminants of concern. The NPS implemented a surface water flow mitigation plan in 2004 and re-directed surface water flows away from the tailings to minimize introduction of metals into Cabin Creek. Visual observations by the NPS indicate that the water flow mitigation work has intercepted 80% of the water that previously flowed across the tailings. It was determined that Cabin Creek met the Category 4b criteria and thus the waterbody was removed from Section 303(d)/Category 5 list and placed in Category 4b in the 2004 Integrated Report. A Category 4b rationale was been developed as part of this process and is on record and available upon request. Water quality monitoring was conducted during spring run-off in May 2007. The volume of water flowing across the tailings was substantially diminished, which resulted in lower volumes of water carrying dissolved metals. Additional water quality sampling was conducted in 2009 and was used, among other things, to validate the effectiveness of the on-the-ground- controls. The NPS is utilizing the CERCLA process to respond to the release of hazardous substances at the Nabesna Mine Site. This response consists of performing a non-time critical removal action (NTCRA). A NTCRA requires the development of an Engineering Evaluation/Cost Evaluation (EE/CA). Through this process, current site conditions and existing data are duly considered in furthering the removal action selection process. The selected removal action will address unacceptable human health and ecological risks associated with site contaminants. Field activities for the EE/CA investigation were conducted in the fall of 2009. A draft "Supplemental Site Investigation" report was developed which detailed sampling results. No groundwater impacts were documented at the site. Surface water impacts downstream include elevated concentrations of arsenic, copper, lead, and zinc. The NPS conducted a site visit in September of 2011 and found the diversion ditches were functioning as designed and continue to divert surface flow, which originates off-site away from the mine tailings. The EE/CA report is under internal NPS review and the final report is expected to be issued in 2016.

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
SC	Category 4b	20505-004	Little Susitna River	Matanuska-Susitna Borough	8.5 miles	Petroleum Hydrocarbons, Oils and Grease	Petroleum Hydrocarbons	Motorized Watercraft
<p>Little Susitna River, located in the Matanuska-Susitna Borough, is proposed for Category 4b as water quality threatened for petroleum hydrocarbon pollution in the 2014/2016 Integrated Report. Water quality sampling conducted during 2007-2014 indicates persistent total aromatic hydrocarbon (TAH) exceedances. The source of the TAH pollution is motorized boats. The impairment is 8.5 river miles surrounding the state-operated Public Use Facility, from river mile 17.5 to river mile 26 during the month of August at the heaviest times of motorized boat use. Actions by the Alaska Board of Fisheries (effective January 2017) to restrict fishing from a boat with a carbureted 2-stroke motor is expected to reduce petroleum pollution sources and allow the waterbody to recover. As a result of the Board of Fisheries action, DEC is proposing to place the Little Susitna River in Category 4b as impaired with pollution controls other than a total maximum daily load (TMDL) in the 2014/2016 Integrated Report.</p>								
SE	Category 4b	10102-502-001	Tongass Narrows 1	Tongass Narrows, Eastern Channel, SE of Thomas Basin	0.002 square miles	Residues	Seafood Residues, Seafood Processing Wastes	Seafood Processing Facility
<p>Tongass Narrows 1, located in Ketchikan Harbor was placed in Category 4b in the 2012 Integrated Report due to non-attainment of the residues criteria. A review of seafloor surveys (2010-2011) indicated that continuous coverage of seafood residue in excess of 1.5 acres existed at the Trident Seafoods Ketchikan Cannery Plant. The impairment included an area of 1.89 acres, encompassing the Trident outfall and ZOD. The facility discontinued ground waste discharge from the outfall in 2008, except for some ground salmon head bones discharge from a by-product process line in 2009 and 2010, and has used screens since that time to capture seafood waste for transport and disposal in open water approximately 13 miles southeast of Ketchikan near Bold Island (permit AKG520002). In 2012, Trident and EPA reached a Consent Decree (CD) (No. 11-1616 Amended Consent Decree) agreement that requires reducing its discharge of seafood processing waste and residues, monitoring benthic recovery, and reducing the Zone of Deposit (ZOD) and Zone of Impact (ZOI) associated with seafood waste deposits. The consent decree specifies that the ZOD and ZOI associated with the Ketchikan facility will be reduced to 0.5 acres within 3 years of the Effective Date of the CD (June 18, 2012). Dive surveys conducted in 2013, 2014 and 2015, found 1.04, 1.13, and 1.14 acres of seafood waste deposits (respectively).</p>								
SC	Category 4b	N/A	Exxon Valdez Beaches	Prince William Sound - Alaska Peninsula	36 locations 14.08 (total) miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Exxon Valdez Crude Oil Spill

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
								<p>Exxon Valdez Beaches were placed on the Section 303(d) list in 1990 due to non-attainment of the petroleum hydrocarbons, oils, and grease criteria. The 22 Exxon Valdez affected beaches and adjacent marine waters were later placed in Category 4b because it was believed that a TMDL process would be redundant to the efforts of the Exxon Valdez Oil Spill (EVOS) Trustee Council and restoration projects specified in the Exxon Valdez Restoration Plan. Several studies have been funded to address the persistent, lingering subsurface oil from the 1989 Exxon Valdez oil spill. The studies address (1) locating the remaining lingering oil, using field sampling and modeling, (2) identifying the factors that have slowed the natural removal of the oil, (3) identifying and evaluating candidate bioremediation technologies, (4) evaluating the potential for biodegradation of Exxon Valdez oil in laboratory columns, (5) pilot testing of candidate bioremediation technologies, and (6) determining the linkage between lingering oil on the shoreline and habitat use by recovering species, namely sea otters and harlequin ducks. The project reports include:</p> <ul style="list-style-type: none"> • The 2010 <i>Assessment of the Areal Distribution and Amount of Lingering Oil in Prince William Sound and the Gulf of Alaska</i> uses GIS modeling tools to determine the extent of shoreline that has the potential to contain lingering oil in the sediment. • The 2010 <i>Distribution of Subsurface Oil from the Exxon Valdez Oil Spill</i> (Restoration Project 070801) maps the distribution and assesses patterns of lingering oil. • The 2014 <i>Pilot Studies of Bioremediation of the Exxon Valdez Oil in Prince William Sound Beaches</i> (Restoration Project 11100836) evaluates whether the oil lingering in the subsurface could be bio-remediated. • The 2014 <i>Update Injured Resources and Services</i> acknowledges the recovery of sea otters, Barrow's goldeneye, harlequin ducks, clams, and mussels; 13 resources and four services remain in recovery status. • The 2015 <i>Priorities, Methods, and Costs for Restoration of Lingering Subsurface Oil from the Exxon Valdez Oil Spill in Prince William Sound, Alaska</i> (Restoration Project 15150121) provides guidance on known or predicted lingering oil sites considered for restoration. <p>DEC is realigning the listed beaches with the 63 beaches identified by current and ongoing Trustee Council studies. Since many of these locations are connected and/or overlapped, the listed beaches will be revised to a total of 36 locations. An updated Category 4b Rationale that follows the progress of the 2015 study on priorities, methods, and costs for restoration of lingering subsurface oil (Restoration Project 15150121) to identify restoration needs and alternatives is available upon request.</p>

A5. CATEGORY 5/SECTION 303(D) LISTED WATERBODIES

Alaska's 2014-2016 Final Integrated Water Quality Monitoring and Assessment Report

Category 5 Waterbodies: Impaired by pollutant(s) for one or more water quality criteria and requiring a TMDL. CWA Section 303(d) Listed.

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
IN	Category 5 Section 303(d) Listed	40402-010	Crooked Creek Watershed: Bonanza Creek Crooked Creek Deadwood Creek Ketchem Creek Mammoth Creek Mastodon Creek Porcupine Creek	North of Fairbanks	79 miles	Turbidity	Turbidity	Placer Mining
<p>Crooked Creek watershed was placed on the Section 303(d) list in 1992 for non-attainment of the turbidity criteria. A water quality assessment was completed in August 1995. Monitoring conducted in the early 1990s documented major improvements in water quality. The assessment called for the development of a waterbody recovery plan to restore and maintain habitat quality; however, this plan has not been developed. The DEC prepared a monitoring and sampling plan and collected data in 2014 and 2016. Limited data was collected in 2015. The monitoring results will provide current data that will determine if a TMDL is needed for Crooked Creek.</p>								
IN	Category 5 Section 303(d) Listed	30501-004	Kuskokwim River (Red Devil)	Red Devil	0.189 miles: 1,000 feet, 900 downriver and 100 feet upriver from the mouth of Red Devil Creek	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Antimony, Arsenic, Mercury	Mining
<p>Kuskokwim River was placed on the Section 303(d) list in 2010 for non-attainment of the criteria for toxic and other deleterious organic and inorganic substances, specifically antimony, arsenic, and mercury. Sampling data collected in 1971, 1979, 1988, and 1999 have documented exceedances of the criteria for the metals antimony, arsenic, and mercury. BLM conducted a Remedial Investigation to define the nature and extent of the contamination in groundwater, surface water, soil, and sediment from 2010-2014. In summer 2015, BLM conducted additional groundwater monitoring and further characterization of Kuskokwim River sediments. In 2013-2015, BLM has developed 3 versions of a draft Feasibility Study which evaluates potential remedial alternatives. On November 4, 2015, BLM provided a draft Proposed Plan to DEC, EPA, and other agencies which outlines their preferred alternative from the Feasibility Study.</p>								
IN	Category 5 Section 303(d) Listed	30501-003	Red Devil Creek	Red Devil	1.5 mile of creek	Toxic & Other Deleterious Organic and Inorganic Substances	Metals – Antimony, Arsenic, Mercury	Inactive Mine

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Red Devil Creek was placed on the Section 303(d) list in 2010 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria, specifically antimony, arsenic, and mercury. Sampling and data collected in 1971, 1979, 1988, and 1999 have documented exceedances for the metals antimony, arsenic, and mercury. The Red Devil mine site investigation is led by the Bureau of Land Management (BLM) through the CERCLA process. The BLM began sampling, including surface soil, groundwater, sediment and surface water, for a Remedial Investigation Report in 2010 and has continued sampling through present along with implementing remedial actions to prevent or reduce mine tailing erosion and runoff into Red Devil Creek. BLM maintains an updated web site of site activities and documents https://www.blm.gov/programs/public-safety-and-fire/abandoned-mine-lands/regional-information/alaska/projects/red-devil-mine. In 2014, BLM conducted a non-time critical removal action to remove tailings from Red Devil Creek and recontour the creek banks to prevent further erosion of tailings into the creek. In 2013-2015, BLM has developed 3 versions of a draft Feasibility Study which evaluates potential remedial alternatives. On November 4, 2015, BLM provided a draft Proposed Plan to DEC, EPA, and other agencies which outlines their preferred alternative from the Feasibility Study.</p>								
IN	Category 5 Section 303(d) Listed	40510-004	Stampede Creek	Denali National Park	2.3 miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals – Antimony	Mining, Abandoned Mine
<p>Stampede Creek was placed on the Section 303(d) list in 2012 for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for antimony, with exceedances resulting from past mining activity within Denali National Park and Preserve. The largest antimony producer in Alaska, Stampede Mine, was located near the headwaters of the creek. Mining at the Stampede Mine ceased in 1970 and the NPS will not permit future mining. Historical data collected by the NPS from 25 years ago reported exceedances of the criteria for antimony. More recent sampling conducted by the University of Alaska Fairbanks (with some funding and support from the NPS) within the last 5 years confirmed that antimony exceedances persist. Currently, there are fine tailings in the banks of Stampede Creek and tailings piles adjacent to the creek.</p>								
SC	Category 5 Section 303(d) Listed	30101-500	Cold Bay	King Cove, Alaska Peninsula	0.000015 square miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Military, Fuel Storage

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Cold Bay was placed on the 1998 Section 303(d) list for non-attainment of the petroleum hydrocarbons, oils, and grease criteria for petroleum products. Enough evidence exists to indicate that water quality violations occurred on a persistent (though intermittent) basis. Because the cleanup of petroleum contaminated soils at the Cold Bay Formally Used Defense Site is considered a high-priority project, the USACE completed an assessment and recovery plan. A release investigation of the seep at the foot of the high sea bluff found high levels of DRO in beach soils (more than 10,000 parts per million) and petroleum contamination in sediments below the high tide line. Four feet of free product was found in a monitoring well in the bluff. The seep weeps a mixture of petroleum and water intermittently along 100 to 300 feet of bluff. In the summer of 2002, the USACE used a pilot test to evaluate several passive and active technologies for recovering product before it would reach the waters of Cold Bay. The results of this test were used to develop a feasibility study to determine the best solution for the beach seeps. The feasibility study was completed in 2003. In accordance with the ROD, the USACE agreed to dig and treat petroleum contaminated soil to a depth of 15 feet below ground surface. Contaminated soil deeper than 15 feet below ground surface will undergo <i>in situ</i> treatment. Soil excavation and treatment were conducted in 2006. For the drum disposal and beach seep area, a two-phased approach was selected. In summer 2006, soil 15 feet below ground surface and above was excavated and thermally treated. In 2007, the USACE installed bioventing, SVE and high vacuum extraction (HVE) wells to continue remediating the area. The amount of contamination discharging to the beach decreased markedly. The DEC's Contaminated Sites Program reports that the petroleum sheen is getting smaller every time inspections are made on site. The Contaminated Sites Program receives monthly reports showing the amount of free product recovered and petroleum product degraded as a result of the SVE and HVE systems in operation. In July 2009, the USACE reassessed the petroleum seep at the foot of the beach bluff. They found the longitudinal area of the seep has reduced by two-thirds since it was last evaluated in 2007.</p>								
SC	Category 5 Section 303(d) Listed	30203-001	Egegik River	Egegik	0.5 mile	Petroleum Hydrocarbons, Oil & Grease	Petroleum Products	Spills, Fuel Tanks, Underground Fuel Tanks
<p>Egegik River was placed on the Section 303(d) list in 2002/2003 for non-attainment of the petroleum hydrocarbons, oils, and grease criteria for petroleum products. Contamination from at least three major sources has migrated into the groundwater and through soils into the Egegik River: the former locations of two 10,000-gallon gasoline tanks, an unlined diesel tank farm, and the underground threaded-coupling pipeline from the tank farm on the bluff that leaked gasoline in April 2001. The area was used to house fuel tanks, which were filled from a barge in the river. Extensive contamination is suspected. Site characterization of the entire site has not been completed. It is believed that the old fuel tanks were in place and active from the 1960s through the 1990s and continue to be a problem. The river inundates the soils behind the seawall (which are contaminated) regularly when the tide comes up. The monthly high tides usually breach the seawall and flood the area. Fuel from the April 2001 gasoline spill reaches the water continuously. It appears that the groundwater is hydrologically connected to the river and that the fuels will continue to migrate to the river. Photographic documentation shows petroleum daylighting into the river and sheen on the water. The problem is likely to remain chronic unless the contaminated soils are excavated and free product recovery is completed.</p>								
SC	Category 5 Section 303(d) Listed	20505-409	Lake Lucille	Wasilla	4.5 acres in NE area of lake and 1.1	Toxic & Other Deleterious Organic and Inorganic Substances	Metals – Lead and Zinc	Stormwater Discharge

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
					acres in NW area of lake			
<p>Lake Lucille is proposed to be placed on the Section 303(d) list in the 2014-2016 Integrated Report for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for Fresh Water Uses based on water column and sediment sampling that the DEC conducted in 2011-2013 surrounding two stormwater discharge outfalls. The high concentration of metals (lead and zinc) in lake bed sediments in Lake Lucille support a conclusion that increased metals concentrations are the result of runoff from urban and commercial development within this drainage area as discharged through the two stormwater outfalls into the lake bed sediments. Exceedances of the NOAA Threshold Effects Level (TEL) and Probable Effects Level (PEL) benchmarks occur during times of active stormwater discharge and during times of dry weather with no discharge. The pollutants are copper, lead, and zinc in lake bed sediments at the stormwater discharge outfalls located along the north shore in the east end and west end of the lake. Copper levels exceed the TEL but not the PEL. The source of contamination is stormwater runoff. The areas proposed for impairment are 4.5 acres in the northeast area of the lake surrounding the stormwater discharge outfall and 1.1 acres in the northwest area of the lake surrounding the stormwater discharge outfall. 367 acres of Lake Lucille was previously placed on the Section 303(d)/Category 5 list for non-attainment of the criteria for dissolved gas (low DO) and nutrients in the 1994 Integrated Report. A TMDL for Lake Lucille was completed and was approved by the EPA (March 2002), thus moving the dissolved gas impairment for Lake Lucille lake from the Section 303(d)/Category 5 list to Category 4a in the 2002/2003 Integrated Report.</p>								
SC	Category 5 Section 303(d) Listed	20505-004	Little Susitna River	Matanuska-Susitna Borough	8.5 miles	Turbidity	Turbidity	Motorized Watercraft
<p>Little Susitna River, located in the Matanuska-Susitna Borough, is proposed for Category 5 Section 303(d) listing as non-attainment of the turbidity standard in the 2014/2016 Integrated Report. Continuous turbidity monitoring was conducted during salmon fisheries in 2008-2011. The 24-hour average of turbidity in the waterbody (duration threshold) exceeds the most stringent turbidity criterion of 5 NTUs over natural conditions (magnitude threshold) in more than 10% of the samples measured (frequency threshold). The impaired uses are water supply, contact recreation, and secondary recreation. The river is considered water quality threatened for the use of growth and propagation of fish, shellfish, other aquatic life and wildlife. The impairment area is 8.5 river miles from River Mile 17.5 (7.5 river miles) downstream of the state-operated Public Use Facility boat launch to River Mile 26 (approximately 1 river mile) upstream of the Public Use Facility boat launch) during the months of late May - June and late July - August coinciding with the peak king salmon and silver salmon fisheries respectively. The source of turbidity pollution is motorized boats. Therefore the Little Susitna River is proposed for Category 5 Section 303(d) listing in the 2014/2016 Integrated Report.</p>								
SC	Category 5 Section 303(d) Listed	20402-001	Matanuska River	Palmer	0.5 mile	Residues	Debris	Landfill

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>Matanuska River was placed on the Section 303(d) list in 2002/2003 for non-attainment of the residues criteria for debris. An active open dump is located on and in the Matanuska River just north of Eagle Drive in Palmer. Numerous derailed railroad cars, dozens of automobiles, scrap metal, old 55-gallon drums, and household refuse and appliances are visible in the river and riparian area. Debris continues in the river and riparian area upstream for approximately 1/2 mile. This open dump is within the Drinking Water Protection Area for a minimum of three public water systems. In August 2004, the DEC conducted a site assessment study. Activities included characterizing and quantifying the debris, mapping the site, and collecting surface water, sediment, and soil samples. No hazardous or petroleum contamination was discovered. After characterizing the debris, options were developed for possible debris removal as part of the study. Following subsequent meetings with involved parties, in March 2005, the USACE issued a jurisdictional determination to the Alaska Railroad Corporation, as the property owner, that the railroad cars that are below ordinary high water serve as bank stabilization material and should not be removed. As such, these items are no longer in violation of WQS. However, the remaining debris on the slope above ordinary high water has a potential of entering the water column, and the upper layers are not considered bank stabilization material. To date, the ARRC has installed concrete jersey barriers to prevent vehicular access to the site. DEC is currently developing a TMDL for the site.</p>								
SC	Category 5 Section 303(d) Listed	30101-502	Popof Strait	East Aleutians Borough	0.07 square miles	Residues	Seafood Waste Residue	Seafood Processor
<p>Popof Strait was placed on the Section 303(d) list in 1996 for non-attainment of the residues criteria due to seafood waste residues. Information provided by the Aleutians East Borough, and verified by DEC staff, included citizen complaints, photographs, and other indications that persistent exceedances of "seafood residue" occur from a seafood processor operating adjacent to the waterbody. The seafood processing facility located in Sand Point has installed a fish meal plant that reduces the discharge of solid wastes to Popof Strait. Dive surveys from April 2000 to July 2015 document the permitted 1.0 acre ZOD has been exceeded for over 15 years. The 2014 dive survey measured the area of the ZOD at 4.90 acres making the impaired area 3.90 acres. The APDES permit for the site has been administratively extended since 2004. In 2011 Trident and EPA entered into a consent decree for Trident's Alaska facilities including at Sand Point. Trident is preparing a remediation plan to bring the ZOD into compliance with permit requirements.</p>								
SE	Category 5 Section 303(d) Listed	10204-501	Hawk Inlet	NW Admiralty Island	0.002 square miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Cadmium, Copper, Lead, Mercury, and Zinc	Mine, Ore Transfer Facility
<p>Hawk Inlet, in the area immediately around the Greens Creek Mine Ore Concentrate Loading Area, was placed on the Section 303(d) list in 2012 for non-attainment of toxic and other deleterious organic and inorganic substances criteria (specifically the metals cadmium, copper, lead, mercury, and zinc) for marine water uses. In 1989, the first attempt to load a barge with ore concentrate resulted in a spill of this concentrate into Hawk Inlet. Approximately 900 to 1,000 pounds of bulk and zinc concentrate were spilled. One third of the concentrate fell into Hawk Inlet and two thirds fell on land. Clean up occurred at the time of the spill. Post-spill monitoring indicated that the sediment was contaminated due to the spill. In 1994, a suction dredge was used to remove as much of the spilled ore concentrate from the sediment as possible; a total of 550 cubic yards of material was removed. Confirmation samples showed that metal concentrations were at or close to pre-spill conditions. However, the original cannery fire debris complicated cleanup efforts and liter-sized pockets of concentrate were not removed. Marine sediment sample locations in the immediate vicinity of the Ore Concentrate Loading Area exceed NOAA Screening Quick Reference Tables (SQuiRTs) Effect Range Low screening benchmarks for marine sediment for cadmium, copper, lead, mercury, and zinc. The total area of concern is approximately 1.12 acres, as determined by establishing a perimeter around the loading dock and the sampling locations. The mine has an APDES permit (AK0043206) for wastewater and stormwater discharge. Annual</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>monitoring requirements include: aquatic biomonitoring (2002-2016); fresh water monitoring (2002-2016); tailings and production rock, and inactive production rock and quarries (2001-2016); and Hawk Inlet water, sediment and biota (2005-2016). The primary objective of the Hawk Inlet monitoring program is to document the water quality, sediment and biological conditions in receiving waters and marine environments that may be impacted by the mine's operations. TMDL development for Hawk Inlet began in September 2015. The stakeholder review occurred in March 2016. The TMDL approach involves extensive data analyses to identify potential sources to Hawk Inlet and evaluates spatial or temporal trends. The TMDL is scheduled for completion in 2017.</p>								
SE	Category 5 Section 303(d) Listed	10203-002	Katlian River	North of Sitka, Baranof Island	4.5 miles	Sediment, Turbidity	Sediment, Turbidity	Timber Harvest
<p>Katlian River was placed on the Section 303(d) list in 1998 for non-attainment of the sediment and turbidity criteria. Past land use activities have created a number of concerns about water quality and fish habitat. The harvest of riparian timber and location, and lack of maintenance of the road system created the following concerns: decreased channel stability, landslides and small slope failures, increased sediment levels, loss of aquatic habitat, siltation of holding pools for migrating salmon, and alteration of watershed hydrology. Watershed effects resulted in use impairment for aquatic life. In 2016, the U.S. Forest Service (USFS) evaluated Katlian watershed conditions and the potential major sediment sources, and determined restoration opportunities; the evaluation report is expected in early 2017.</p>								
SE	Category 5 Section 303(d) Listed	10203-010	Kimshan Cove	N. of Sitka, Baranof Island	0.028 square miles (18 acres)	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Arsenic, Copper, Lead, Mercury	Abandoned Mine
<p>Kimshan Cove was placed on the Section 303(d) list in the 2012 Integrated Report for non-attainment of toxic and other deleterious organic and inorganic substances criteria, specifically for metals. The Kimshan Cove Mine site is located on the east shore of Kimshan Cove, on the North side of Doolth Mountain. A PA/SI was conducted in 1999 and the report was submitted to the Region 10 Superfund Technical Assessment and Response Team.. Marine and freshwater sediments were sampled in the PA/SI. The tailings piles associated with the mine are located in the intertidal and subtidal areas and are estimated to contain approximately 140,000 tons of material with an additional 70,000 tons located in the upland area. This site is listed in the DEC Office of Spill Prevention and Response (SPAR) Database of Contaminated Sites. The SPAR program reports that the upland property owner has been contacted about said metals contamination and that further characterization and/or clean-up will be required. Marine sediment concentrations exceed the NOAA SQuiRTs screening benchmarks for arsenic, lead, and mercury by an order of magnitude in numerous locations. An inter-agency scoping meeting in late 2013 discussed the prospect of a spring 2014 site inspection, and potential monitoring and remedial plans; however the site is complicated with no Potential Responsible Party (PRP) and no further studies have conducted to date.</p>								
SE	Category 5 Section 303(d) Listed	10103-504	Salt Chuck Bay	Kasaan Area, Prince of Wales Island	0.025 square miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Copper	Mining
<p>Salt Chuck Bay was placed on the Section 303(d) list in the 2010 Integrated Report for non-attainment of the toxic and other deleterious organic and inorganic substances criteria for metals. The Salt Chuck Mine is an abandoned historic gold, silver, copper and palladium mine on the southeast side of Prince of Wales Island.</p>								

A. Waterbody Categories 2 through 5

Region	Category	AK ID Number	Waterbody	Location	Area of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>The mine and mill operated from 1905 to 1941, processing more than 326,000 tons of ore. An extensive tailings deposit of an estimated 100,000 cubic yards is located mostly in the intertidal zone south of the mill, on state-owned tidelands. Additional tailings are located in the upland area, which is managed by the U.S. Forest Service (USFS). The tailings deposits on the whole site, including the intertidal zone and the upland area, cover 23 acres. The DNR's Prince of Wales Area Plan identifies the area around the site as "intensive public recreation use." The USFS has public-use cabins and a campground in the area, and Salt Chuck Bay is used for subsistence clamming and crabbing, and adjacent Lake Ellen Creek supports five species of anadromous fish.</p> <p>The Salt Chuck Mine was listed by the EPA on the Federal Agency Hazardous Waste Compliance Docket and published in the Federal Register on June 27, 1997, because studies indicated the presence of physical and chemical hazards to the public and environment. In 2002, an Engineering Evaluation/Cost Analysis (EE/CA) was conducted; additional site investigations were complete in 2006. Copper concentrations found in the intertidal water column exceeded State of Alaska water quality criteria. In addition, sediment/tailings found in the intertidal zone exceed the NOAA SQuiRT's screening benchmarks for sediment quality. In March 2010, the site was added to the EPA NPL. In 2012, the USFS conducted a non-time critical removal action on the uplands; this was the selected alternative in the 2010 EE/CA. The USFS built a short road to provide access to the site, removed building debris, drums and tanks, and excavated roughly 5,400 cubic yards of petroleum-contaminated soil and metals-contaminated tailings. Although the USFS's removal action was substantial, additional contamination remains in the uplands on USFS-managed lands. In 2013, the inter-tidal area risk assessment workplan, and a treatability study were finalized, and the remaining Remedial Investigation (RI) field work was complete. In September 2014, review of the uplands RI and risk assessment reports were conducted; comments have not been resolved. Preparation of the treatability study is planned for 2016.</p>								

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APPENDIX B: WATERBODIES REMOVED FROM THE SECTION 303(D) LIST

B1. SECTION 303(D) LISTED WATERBODIES IN 2012 REMOVED FROM THE LIST IN 2014-2016

Alaska's 2014 Final Integrated Water Quality Monitoring and Assessment Report
Removed Waterbodies: Section 303(d) Listed Waterbodies in 2012 removed from the List in 2014

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
IN	Category 2	40506-007	Chena River	Fairbanks	19 miles	Sediment	Sediment	Urban Runoff
REASON FOR REMOVAL: Additional sediment data was collected in 2011 that showed the Chena River was meeting the water quality criteria for sediment. The sediment impairment for the Chena River is proposed to be removed from the Section 303(d)/Category 5 list and Chena River is placed in Category 2 in the 2014-16 Integrated Report.								
IN	Category 2	40506-002	Chena Slough	Fairbanks	13.5 miles	Sediment	Sediment	Urban Runoff
REASON FOR REMOVAL: Additional sediment data was collected in 2011 that showed the Chena Slough was meeting the water quality criteria for sediment. The sediment impairment for Chena Slough is proposed to be removed from the Section 303(d)/Category 5 list and Chena Slough is placed in Category 2 in the 2014-16 Integrated Report.								
IN	Category 4a Section 303(d) Listed	40509-001	Goldstream Creek	Fairbanks	35.7 miles	Turbidity	Turbidity	Placer Mining
REASON FOR REMOVAL: A TMDL was developed and approved by EPA in September 2015 and the water is moved to Category 4a in the 2014-16 Integrated Report for turbidity.								
IN	Category 2	40506-003	Noyes Slough	Fairbanks	5.7 miles	Sediment	Sediment	Urban Runoff
REASON FOR REMOVAL: Additional sediment data was collected in 2011 and 2012 and it was determined that Noyes Slough was meeting the water quality criteria for sediment. The sediment impairment for Noyes Slough is proposed for removal from the Section 303(d)/Category 5 list and placement in Category 2 in the 2014-16 Integrated Report. Noyes Slough remains impaired for petroleum hydrocarbons, oils, and grease.								

B. Waterbodies Removed from the Section 303(D) List

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
IN	Category 4a	40510-003	Slate Creek	Denali National Park	2 miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals- Antimony, Arsenic, Iron	Placer mining
<p>REASON FOR REMOVAL: A TMDL was developed and approved by EPA in June 2014 and the water is moved to Category 4a in the 2014/2016 Report for antimony, arsenic, and iron.</p>								
SC	Category 4a	20505-001	Cottonwood Creek	Wasilla	7 miles	Fecal Coliform Bacteria	Fecal Coliform Bacteria	Urban Runoff, Unspecified Septic Sources
<p>REASON FOR REMOVAL: A TMDL was developed and approved by EPA for fecal coliform bacteria on May 5, 2015 and the water is moved to Category 4a in the 2014/2015 Integrated Report. Cottonwood Creek is in Category 2 for attainment of the residues (foam) criteria and impaired for FC bacteria.</p>								
SC	Category 2	20401-412	Hood/Spenard Lake	Anchorage	N/A	Dissolved Gas	Low Oxygen	Urban Runoff, Industrial
<p>REASON FOR REMOVAL: DO concentrations have improved and have tracked the predictive modeling in the waterbody recovery plan. Recent data done by TSAIA from 2010 to 2011 showed the lakes meeting the water quality criteria for dissolved gas (DO). The dissolved gas impairment was removed from the Section 303(d)/Category 5 list and Hood/Spenard Lake placed in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 5	10103-010	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3027 (Stream 3)	Prince of Wales Island	0.4 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Aluminum, Cadmium, Copper, Iron	Road Construction
<p>REASON FOR REMOVAL: Recent monitoring has shown that metals concentrations are meeting water quality criteria as a result of remedial actions and thus the waterbody is meeting the toxic and other deleterious organic and inorganic substances standard. The toxic and other deleterious organic and inorganic substances impairment for Stream 3 is proposed for removal from the Section 303(d)/Category 5 list and Stream 3 is placed in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 5 Section 303(d) listed	10103-012	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3021 (Stream 6)	Prince of Wales Island	1.14 mile	Toxic & Other Deleterious Organic and Inorganic Substances, Dissolved Inorganic Substances	Metals - Aluminum, Cadmium, Copper, Iron, Manganese, Sulfate	Road Construction

B. Waterbodies Removed from the Section 303(D) List

Region	Category	AK ID Number	Waterbody	Location	Portion of Concern	Water Quality Standard	Pollutant Parameters	Pollutant Sources
<p>REASON FOR REMOVAL: Recent monitoring show that metals concentrations are meeting water quality criteria as a result of remedial actions, and thus the waterbody is meeting the standard for toxic and other deleterious organic and inorganic substances. The toxic and other deleterious organic and inorganic substances impairment for Stream 6 is proposed for removal from the Section 303(d)/Category 5 list and Stream 6 is placed in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 5 Section 303(d) listed	10103-013	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3019 tributary (Stream 7)	Prince of Wales Island	0.3 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Aluminum, Cadmium, Copper, Iron, Manganese	Road Construction
<p>REASON FOR REMOVAL: Recent monitoring show that metals concentrations are meeting water quality criteria as a result of remedial actions, and thus the waterbody is now meeting the standard for toxic and other deleterious organic and inorganic substances. The toxic and other deleterious organic and inorganic substances impairment for Stream 7 is proposed for removal from the Section 303(d)/Category 5 list and Stream 7 is placed in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 5 Section 303(d) listed	10103-014	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3019 (Stream 8)	Prince of Wales Island	0.3 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Cadmium, Copper, Iron, Manganese, Nickel, Zinc	Road Construction
<p>REASON FOR REMOVAL: Recent monitoring show that metals concentrations are meeting water quality criteria as a result of remedial actions, and thus the waterbody is now meeting the standard for toxic and other deleterious organic and inorganic substances. The toxic and other deleterious organic and inorganic substances impairment for Stream 8 is proposed for removal from the Section 303(d)/Category 5 list and Stream 8 is placed in Category 2 in the 2014/2016 Integrated Report.</p>								
SE	Category 5 Section 303(d) listed	10103-015	Unnamed Creek, Sweetwater Lake, USFS 3030 Road, ADF&G Stream 3017 tributary (Stream 9)	Prince of Wales Island	0.8 mile	Toxic & Other Deleterious Organic and Inorganic Substances, Dissolved Inorganic Substances	Metals- Aluminum, Cadmium, Copper, Iron, Manganese, Nickel, Sulfate, Zinc	Road Construction
<p>REASON FOR REMOVAL: Recent monitoring has shown that metals concentrations are meeting water quality criteria as a result of remedial actions, and thus the waterbody is now meeting the standard for toxic and other deleterious organic and inorganic substances. The toxic and other deleterious organic and inorganic substances impairment for Stream 9 is proposed for removal from the Section 303(d)/Category 5 list and Stream 9 is placed in Category 2 in the 2014/2016 Integrated Report.</p>								

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APPENDIX C: TMDL SCHEDULE AND FACTORS

C1. ALASKA TMDL COMPLETION DATE SCHEDULE (REVISED NOVEMBER 2014/2016)

Note: The years shown are from July 1 to June 30. It is expected that the TMDL will be completed by June 30 of the year with which the waterbody is categorized in the table. During TMDL development, it may be determined that a TMDL is not needed if the waterbody has recovered or adequate restoration actions are ongoing.

Alaska's approved and final TMDLs can be found at the following website:

<http://dec.alaska.gov/water/tmdl/approvedtmdls.htm>

Completion Date	Southeast	Southcentral	Interior/North Slope
2017	Hawk Inlet		
2017		Matanuska River	Crooked Creek Watershed (partial)
2018			Crooked Creek Watershed (partial)
2019		Popof Strait	Stampede Creek
2020	Salt Chuck Bay	Little Susitna River	
2021		Lake Lucille	
2021	Kimshan Cove	Egegik River	Kuskokwim River (Red Devil)
2022	Katlian River	Cold Bay	Red Devil Creek

C2. FACTORS CONSIDERED IN ALASKA'S TMDL SCHEDULE REVISION

Alaska Category 5 Section 303(d) listed waters in the 2014-2016 Integrated Water Quality Monitoring and Assessment Report are scheduled for development of TMDL between 2016 and 2022. The TMDLs for these waterbodies are scheduled based on the DEC's consideration of the factors listed below. These factors are not necessarily listed by priority and may be used in conjunction with one another, combined with other project management decisions, or both.

- Severity and persistence of pollutant sources, exceedances of WQS, and/or impacts to the beneficial uses of the waterbody.
- Significance of the waterbody in terms of public and resource values.

C. TMDL Schedule and Factors

- Degree of public, industry, and agency interest in accomplishing the TMDL so that allocations and required controls or permit limits can be known.
- Applicability of existing pollution controls, waterbody recovery plans, and APDES discharge permits.
- Technical feasibility and difficulty of developing the TMDL. Development of some TMDLs require significantly more time and resources than other TMDLs, and agency resources have annual limits of time available for TMDL development. Factors that increase the amount of time for TMDL development include waterbodies with uncommon types of impairments for which model TMDLs are not available; TMDLs that require complex models and loading calculations; and TMDLs on waterbodies with several stakeholders who will be significantly affected by loading allocations.
- Availability and accuracy of water quality information necessary for assessing the waterbody and making loading determinations. TMDLs for which little data are available are scheduled later so that essential data can be acquired.
- Waterbodies where pilot BMPs or other controls are being implemented and monitored. TMDL development on these waters may be delayed so that improved loading allocations can be made based on performance of the controls.
- Likelihood that proposed restoration efforts might occur in a reasonable time period that, if they occur, may make TMDL development unnecessary.
- Development of stakeholder plans that may satisfactorily substitute for (or supplement) a waterbody's TMDL. Examples include a contaminated site remediation plan or another agency's assessment and restoration plan. TMDL development may be scheduled to occur shortly after completion of such plans if they include information that satisfies what is required in the TMDL.
- Development of multiple TMDLs as part of a unified effort. These situations include development of TMDLs that address similar pollutants and approaches, waters in the same watershed or area, same stakeholders, and similar restoration actions.
- Length of time the water is on the impaired waters list.

The following paragraphs describe important terms.

TMDL—A total maximum daily load plan is a “pollution budget” designed to restore the health of a waterbody. A TMDL calculates the amount of a specific pollutant that a waterbody can receive and still meet Alaska's WQS.

TMDL load allocation— The portion of the loading capacity attributed to (1) the existing or future nonpoint sources of pollution and (2) natural background sources. Wherever possible, nonpoint source loads and natural loads should be distinguished.

C. TMDL Schedule and Factors

NPDES or APDES permit limits—NPDES permit limits and APDES permit limits establish the amount of pollutants a wastewater facility can discharge to the environment and still meet Alaska's WQS.

WQS—The State of Alaska WQS are guides to help create programs that protect and restore water quality in Alaska. These programs include the impaired waterbody list and the nonpoint source pollution program. The WQS also help set the limits for state and federal discharge permits and cleanup standards for contaminated sites and landfills.

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APPENDIX D: LOGIC FLOW DIAGRAM

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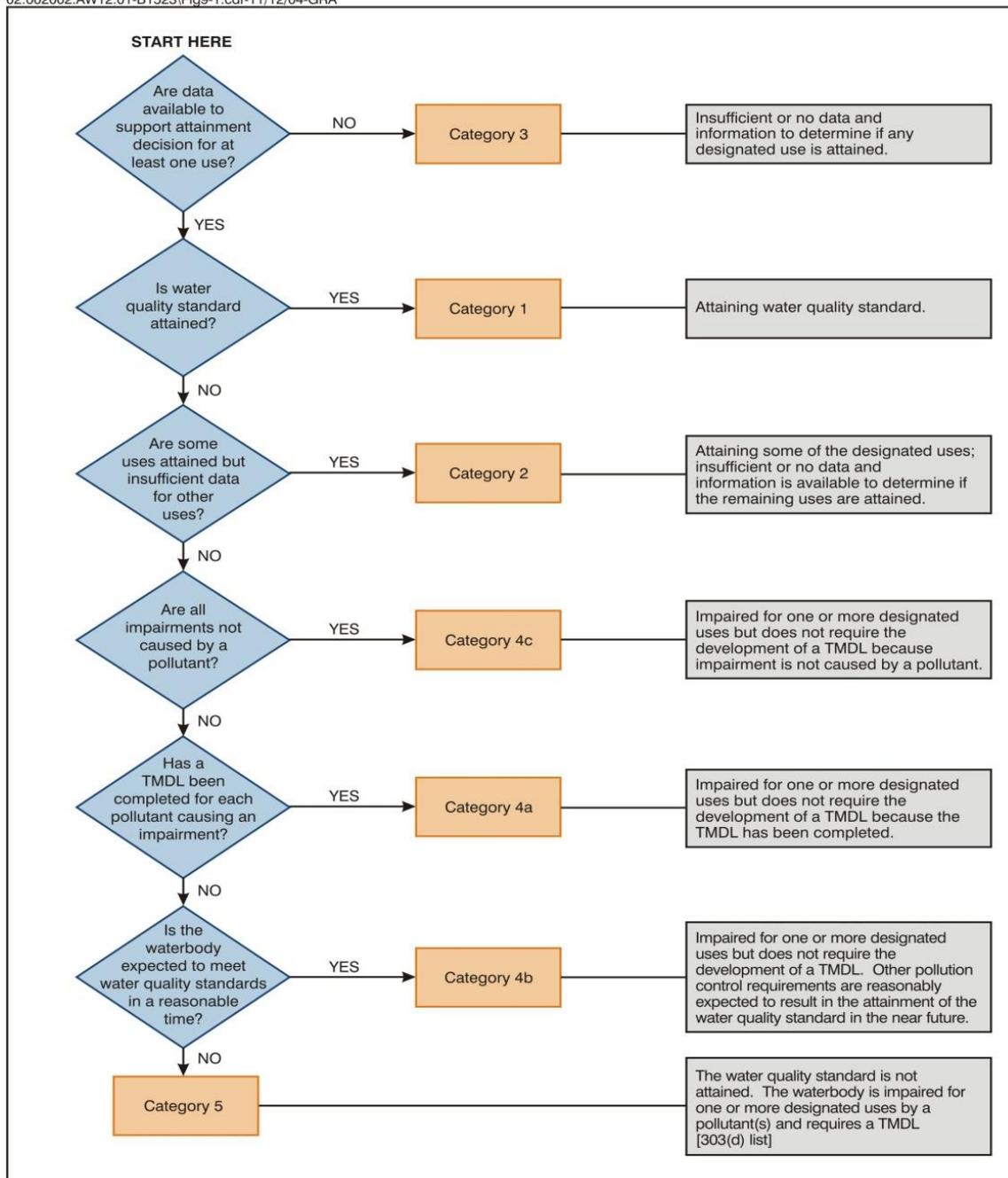


Figure D-1: Logic Flow Diagram for Making Category Determinations

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APPENDIX E: LIST OF ALASKA'S CATEGORY 5/SECTION 303(D) IMPAIRED WATERS

Note: This appendix is an abbreviated list, alphabetized by Alaska regions, of the Category 5/Section 303(d) list of impaired waters. The waters are listed alphabetically by region: Interior (IN), Southcentral (SC), and Southeast (SE).

#	Region	Alaska ID Number	Waterbody	Locations	Area of Concern	Water Quality Standard	Pollutant Parameter	Pollutant Sources
1	IN	40402-010	Bonanza Creek, Crooked Creek, Deadwood Creek, Ketchem Creek, Mammoth Creek, Mastodon Creek, and Porcupine Creek	North of Fairbanks	79 miles	Turbidity	Turbidity	Placer Mining
2	IN	30501-004	Kuskokwim River (Red Devil)	Red Devil	0.189 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Antimony, Arsenic, Mercury	Mining
3	IN	30501-003	Red Devil Creek	Red Devil	1.5 mile	Toxic & Other Deleterious Organic and Inorganic Substances	Antimony, Arsenic, Mercury	Mining
4	IN	40510-004	Stampede Creek	Denali National Park	2.3 miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Antimony	Mining
5	SC	30101-500	Cold Bay	King Cove, Alaska Peninsula	0.000015square miles	Petroleum Hydrocarbons, Oils & Grease	Petroleum Products	Military, Fuel Storage
6	SC	30203-001	Egegik River	Egegik	0.5 mile	Petroleum Hydrocarbons, Oil & Grease	Petroleum Products	Spills, Fuel Tanks, Under-ground Fuel Tanks
7	SC	20505-409	Lake Lucille	Wasilla	5.6 acres: 4.5 acres in the NE area of the lake & 1.1 acres in the NW area of the lake	Toxic & Other Deleterious Organic and Inorganic Substances	Metals –Lead, and Zinc	Stormwater Discharge

E. List of Alaska's Category 5/Section 303(d) Impaired Waters

#	Region	Alaska ID Number	Waterbody	Locations	Area of Concern	Water Quality Standard	Pollutant Parameter	Pollutant Sources
8	SC	20505-004	Little Susitna River	Matanuska-Susitna Borough	8.5 miles	Turbidity	Turbidity	Motorized Boats
9	SC	20402-001	Matanuska River	Palmer	½ mile	Residues	Debris	Landfill
10	SC	30101-502	Popof Strait	East Aleutians Borough	0.07 square miles	Residues	Seafood Waste Residue	Seafood Processor
11	SE	10204-501	Hawk Inlet	NW Admiralty Island	0.002 square miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Cadmium, Copper, Lead, Mercury, and Zinc	Mine, Ore Transfer Facility
12	SE	10203-002	Katlian River	N. of Sitka, Baranof Island	4.5 miles	Sediment and Turbidity	Sediment, Turbidity	Timber Harvest
13	SE	10203-010	Kimshan Cove	N. of Sitka, Baranof Island	0.028 square miles (18 acres)	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Arsenic, Cooper, Lead, Mercury	Abandoned Mine
14	SE	10103-504	Salt Chuck Bay	Prince of Wales Island	0.025 square miles	Toxic & Other Deleterious Organic and Inorganic Substances	Metals - Copper	Mining

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