

# 2020 Alaska Progress Report

The essential reference for policy makers.



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About the cover: With budget pressures, three straight years of population decline, depressed oil revenue and downgraded credit ratings Alaska faces challenges like never before.

2020 ALASKA PROGRESS REPORT

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First printing, February 2020

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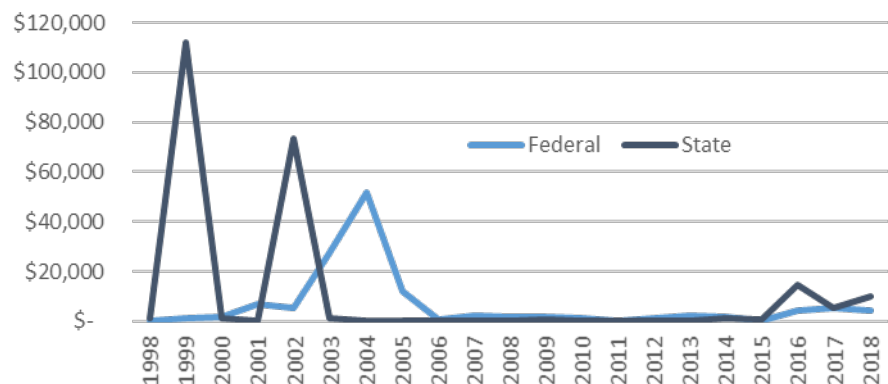
# 20. Biodiversity

The preservation of biological diversity is essential for environmental health, including that of humans.

Individual species and whole natural communities support subsistence, sport and commercial hunting and fishing, biomedical products, and disease control. Biological diversity also sustains forestry, tourism, wilderness values, as well as ecosystem functions.

A deep understanding and protection of Alaska's biodiversity is critical to a healthy future for Alaska.

Federal and state money spent to acquire parcels of land in Alaska for conservation purposes, 1998-2018:



Source: Trust for Public Land, Conservation Almanac 2019

## Biodiversity in Alaska

Alaska is a huge state with abundant wildlife and unique ecosystems, including the largest wildlife refuge in the nation, yet it is considered “diversity poor” with a low total number of plant and animal species due to our extreme climate and other reasons. In 2008 Alaska was ranked 49th in species diversity by NatureServe, with 7.7 percent of native species at risk of extinction.

## Species of concern

The Alaska Department of Fish and Game (ADF&G) maintains a list of endangered species under state law. The five species on the list include two bird—the short-tailed albatross and the Eskimo curlew—and three whales—the blue and specific populations of humpback and right whales. These species are on the federal endangered list as well.

The Endangered Species Act defines two categories of concern to be managed by the National Marine Fisheries Service and the US Fish and Wildlife Service (USFWS): endangered species are in danger of extinction and threatened species are likely to become endangered. ADF&G lists thirteen species as federally endangered in Alaska, but USFWS uses a slightly different criteria and counts only three. Likewise ADF&G lists eight species as federally threatened but USFWS lists only five.

Until 2011 ADF&G maintained a Species of Special Concern list since superseded by the 2015 Alaska Wildlife Action Plan, which allows Alaska to access federal funding to prevent species from becoming listed as threatened or endangered by designating them as “species of greatest conservation need” or SGCN. The plan identifies “326 verte-

brate taxa as SGCN in Alaska, including 58 fish, 5 amphibians, 192 birds, and 71 mammals. Invertebrate SGCN include 5 orders of freshwater invertebrates, 4 orders of marine zooplankton, 36 species and one phylum of larger marine invertebrates, and 5 orders of terrestrial arthropods.”

The report prioritizes species, habitat and threats for action, and concludes that “overall, Alaska has very healthy habitats and abundant wildlife populations. This is due to its location, large size, small human population, and minimally modified lands.”

**Climate change is likely the most impactful threat to wildlife in Alaska.**

## Invasive species

Invasive species are species that are not native to an area, but have been introduced accidentally or on purpose and are able to adapt and subsist in their new ecosystem. Invasive species can alter the balance of plant and animal species and sometimes crowd out native species altogether through predation, disease and competition for food.

Invasive species in Alaska include northern pike, Norway rats, rock doves and Atlantic salmon, the last of which periodically escape from pens in British Columbia.

## Climate change

From the 2015 Alaska Wildlife Action Plan: “Climate change is likely the most impactful threat to wildlife in Alaska. Species that inhabit the northern edge of the continent, or that depend on sea ice, are most vulnerable to climate change because their niche is not just shifting, it is disappearing. Climate change has been the principle driver of ESA listing petitions in Alaska in the last 15 years, and is the basis for recent positive findings with respect to ice seals and polar bears.”

## More information

Alaska Center for Conservation Science: [accs.uaa.alaska.edu/invasive-species/](http://accs.uaa.alaska.edu/invasive-species/)  
Alaska Department of Fish and Game: [adfg.alaska.gov/index.cfm?adfg=species.main](http://adfg.alaska.gov/index.cfm?adfg=species.main)  
US Fish and Wildlife Service: [fws.gov/endangered/](http://fws.gov/endangered/)

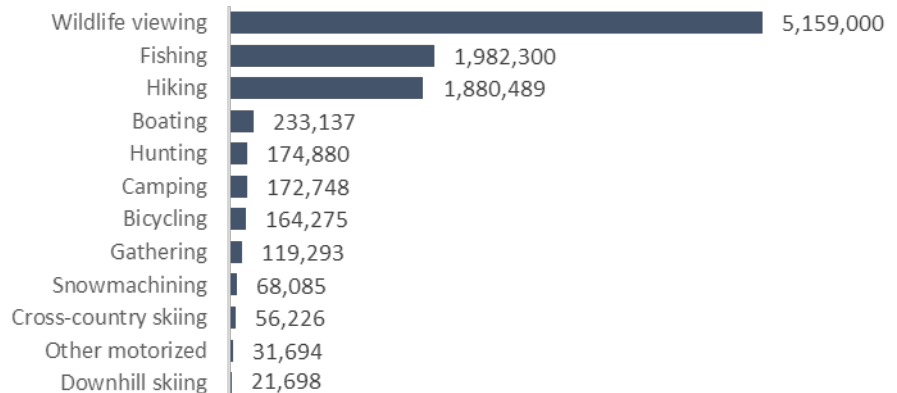
# 21. Wilderness

Preservation and management of wilderness areas is important for both sound ecological reasons and to support public uses.

Wilderness provides habitat for plants and animals, and the unspoiled nature of wild ecosystems serves as a valuable benchmark for developed environments.

These areas provide significant economic benefits not only through fishing, hunting, tourism and recreation but through thousands of jobs in managing wilderness areas.

Participation days by activity, 2019. Data not specific to wilderness areas:



Source: Outdoor Recreation 2019

## The Wilderness Act of 1964

Wilderness is a legal term defined by the Wilderness Act of 1964. It refers to areas designated by Congress in which permanent structures, roads, logging and mining are prohibited to maintain an area in a natural state.

Alaska has 48 official wilderness areas. They total 57 million acres or 16 percent of Alaska's total land area, both the highest figures for any state.

Alaska has 52 percent of all designated wilderness in the nation and includes the single largest area, 9.7 million acres in Wrangell-St. Elias, as well as the top five largest areas. 106 million acres nationwide are designated as wilderness, under 5 percent of total US lands. The last wilderness areas designated in Alaska were in 1990. From 1990 to 2015 federal land ownership in Alaska decreased by 9 percent.

Wilderness in Alaska is part of the 61% of Alaska's land owned by the federal government. The rest is owned by the state (28%), Alaska Native Corporations (12%) and other private owners (1%). Alaska also has a state wilderness program established in 1970 that manages under one million acres.

## ANILCA

The Alaska National Interest Lands Conservation Act of 1980 (ANILCA) doubled the size of the nation's national park and refuge system and tripled the amount of land designated as wilderness. It also allowed permitting of many activities in Alaska that would otherwise not conform to the Wilderness Act of 1964. These activities include motorized access for traditional uses and subsistence purposes, modi-

fication of fish habitat, establishment of fish hatchery programs, construction of a limited number of new recreation cabins or shelters to protect public health and safety, use of trees for house logs and firewood, and commercial salvage of beach logs. Temporary facilities, such as tent platforms and shelters, may be established for hunting and fishing.

Alaska has 48 official wilderness areas that total 57 million acres, 15.8% of our total land area.

## Managing wilderness

Wilderness needs to be managed to ensure that fire, pollution, pests, recreation and other activities that take place both inside and outside wilderness areas do not degrade its natural state.

Wilderness land is managed by four federal agencies: the Bureau of Land Management, the US Fish and Wildlife Service, the Forest Service and the National Park Service.

There are currently no standardized indicators of wilderness used by managing agencies. The Forest Service has taken the lead in developing core indicators of wilderness areas that can be shared across agencies and over time.

This initiative is the National Monitoring Protocol that is targeted for implementation in 2006-07. The protocol will gather data on four qualities of wilderness that measure the efficacy of stewardship efforts and management strategies.

## Editor's note

National Park Service data show a moderate increase the last few years in the total number of visitors to parks in Alaska, but a moderate decrease in the total number of visitor days. Possible improvements include data from the National Monitoring Protocol as it becomes available.

## More information

Alaska Wilderness League: [alaskawild.org](http://alaskawild.org)

National Park Service: [nps.gov/subjects/wilderness/law-and-policy.htm](https://nps.gov/subjects/wilderness/law-and-policy.htm)

Wilderness Connect: [wilderness.net/practitioners/wilderness-areas/summary-reports/acreage-by-state.php](http://wilderness.net/practitioners/wilderness-areas/summary-reports/acreage-by-state.php)

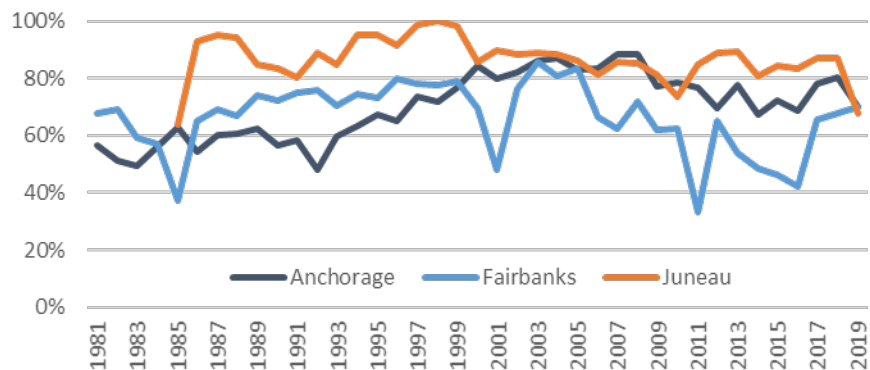
# 22. Air Quality

Air pollution affects health, the economy and the environment. It leads to respiratory problems and heart and lung disease, which in turn lead to missed days at work and at school.

Children, the elderly and those with sensitive conditions such as asthma—one of the leading causes of school absenteeism—are at higher risk. Air pollution can significantly affect ecosystems and water bodies.

Poor air quality can also compromise Alaska's reputation for a pristine environment that attracts outside visitors.

Percent of monitored days rated "good" on the EPA Air Quality Index, by Metro/micro-politain Statistical Area (Anchorage MSA includes Mat-Su Borough):



Source: US Environmental Protection Agency

Abridged from "2019 Annual Air Quality Monitoring Network Plan," Alaska Department of Environmental Conservation, Division of Air Quality, June 2019.

## Executive summary

Most of the air monitoring activities are focused on population centers and areas that have shown in the past to have air quality problems. Due to budget cuts over the past several years DEC continues to reduce the ambient monitoring network to include only regulatory required sites. Looking ahead, DEC does not expect to expand the network during the next several years due to fiscal constraints.

The most significant changes to the network during 2019 will be: shutdown of Palmer SPM PM10 and PM2.5 site; shutdown of Fairbanks SOB PM2.5 site; establishment of Fairbanks A Street SLAMS (max impact site); addition of chemical speciation monitoring at North Pole Hurst Road site.

## Monitoring priorities

In 1970 Congress created the U.S. Environmental Protection Agency and promulgated the Clean Air Act, which established National Ambient Air Quality Standards to protect public health. In accordance with the National Monitoring Strategy, DEC plans air monitoring activities using the following criteria: monitor in larger communities to cover the largest possible population exposure; monitor in designated smaller towns and villages that are representative of multiple communities in a region and; monitor in response to air quality concerns, as funding and staffing levels allow.

Air quality monitoring is focused on seven primary issues by descending priority: 1. Fine particulate matter (PM2.5) monitoring; 2. Coarse particulate matter (PM10) monitoring; 3. Wildland fire monitoring (PM2.5); 4. Carbon monoxide (CO) monitoring; 5. Rural community and tribal village monitoring (primarily PM10); 6. Lead (Pb) monitoring; and 7. Ozone (O3) monitoring.

No monitoring is required for lead anywhere in Alaska. Monitoring in Juneau focuses on particulate matter. The Mendenhall Valley had been designated as a PM10 non-attainment area and has met the standard since 1994. CO monitoring is required in Anchorage and Fairbanks. Both areas had been previously designated as non-attainment, but neither has had a violation of the CO standard since 2000.

Anchorage triggered the PM10 monitoring requirement based on four exceedances elevated concentrations in 2016 and 2018. The exceedances result from high wind events that pick up dust from frozen, exposed, braided river beds. The Fairbanks PM2.5 monitor requirement is based on the elevated concentrations measured in Fairbanks and North Pole.

The Alaska Regional Haze plan includes monitoring air quality and visibility impairment at three of Alaska's four Class I areas: Denali National Park and Preserve, Tuxedni National Wildlife Refuge, and Simeonof Wilderness Area. There is no air monitoring being conducted at the Bering Sea Wilderness Area due to its remote location.

**The American Lung Association "State of the Air" 2019 report found that Alaska has some of the worst air quality in the nation, with wood-burning stoves and wildfire smoke contributing to poor air quality.**

## More information

Alaska Department of Environmental Conservation, Division of Air Quality: [dec.alaska.gov/air](http://dec.alaska.gov/air)  
 Environmental Protection Agency: [epa.gov/outdoor-air-quality-data](http://epa.gov/outdoor-air-quality-data)  
 Scorecard.org air quality data: [www.scorecard.org](http://www.scorecard.org)

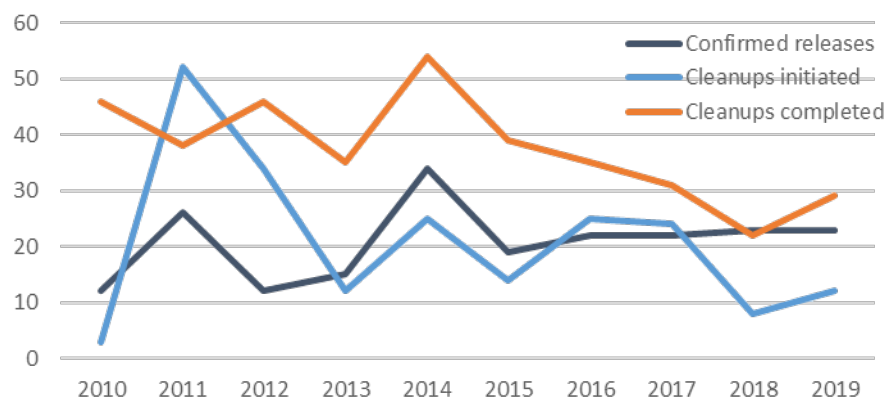
# 23. Land Quality

Alaska's resource economy and strategic importance have given us a legacy of industrial and defense related installations and activity.

Much of this activity occurred before there was wide knowledge of the nature and severity of the contaminants that go along with them, resulting in contaminated sites.

It is important to identify and remediate situations that threaten public health or the environment and result in economic hardship for people and communities.

Annual contaminant releases and cleanups from leaking underground storage tanks in Alaska:



Source: Environmental Protection Agency

## Superfund and RCRA sites

Congress established the Superfund Program in 1980 to clean up abandoned hazardous waste sites throughout the US. The most seriously contaminated sites are on the National Priorities List (NPL). As of January 2020 there were 1,870 sites on the NPL, of which Alaska had ten. Six of those are active Superfund sites, three have been delisted and one is being dealt with under the Superfund Alternative Approach (Alaska Railroad).

Under the Resource Conservation and Recovery Act of 1976 the Environmental Protection Agency (EPA) has identified five Corrective Action sites in Alaska that are seriously contaminated and may pose significant threats to humans or the environment. Some of these sites are also NPL sites, none located in Alaska.

## Brownfields and contaminated sites

Brownfield properties are contaminated sites that can potentially be redeveloped and reused if they are cleaned up, and there is no identifiable or viable "responsible party" to do so. If there is a responsible party it is generally considered a generic contaminated site. Both are managed by the Alaska Department of Environmental Conservation (ADEC), and brownfield remediation is funded by the EPA. In FY18 ADEC had four brownfield projects underway.

At the beginning of 2020 ADEC listed 5,495 contaminated sites statewide, of which 2,080 or 38 percent are listed as "open" and currently being assessed and monitored.

## Underground storage tanks

Leaking underground storage tanks (LUSTs) have impacted

a number of public drinking water systems in Alaska. Benzene, a petroleum component and known carcinogen, poses a significant threat to human health and the environment. Over 50 percent of all pre-1998 underground storage tanks systems in Alaska leaked over time, impacting soils and groundwater.

Alaska is not one of the 38 states that have received EPA approval of the state program for regulating underground storage tanks, and ADEC manages the process. As of September 2019 Alaska had completed a total of 2,215 LUST cleanups, with an outstanding backlog of 296. There were 919 active petroleum tank systems and one active hazardous substance tank system, and ADEC completed 165 on-site inspections. In prior years ADEC reported delivery prohibitions resulting from inspections, but did not report this data in 2019.

**There are six active Superfund National Priorities List sites in Alaska, all but one first listed in the period 1989-1994.**

75 percent of facilities were in compliance with all four Technical Compliance Rate measures: spill prevention (78 percent), overfill prevention (80 percent), corrosion protection (90 percent) and release detection (75 percent). Requirements compliance was 94 percent with operator training, 95 percent with financial responsibility and 70 percent with walk-through.

## Toxic release inventory

The EPA promotes the Toxic Release Inventory (TRI) as "a resource for learning about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities." In 2018 over 91 percent of Alaska TRI chemicals were from Red Dog Mine in the form of permitted disposal of waste rock from mining operations.

## More information

Alaska DEC Contaminated Sites Program: [dec.alaska.gov/spar/csp](http://dec.alaska.gov/spar/csp)

Environmental Protection Agency Superfund Program: [www.epa.gov/superfund](http://www.epa.gov/superfund)

Environmental Protection Agency TRI Inventory: [enviro.epa.gov/triexplorer/tri\\_release.chemical](http://enviro.epa.gov/triexplorer/tri_release.chemical)

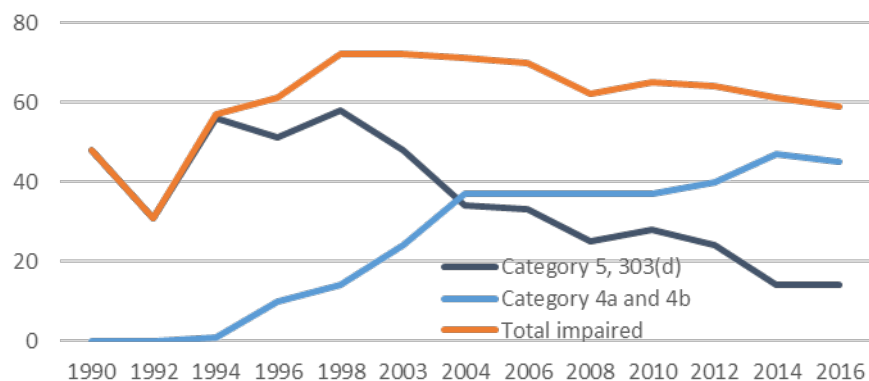
# 24. Water Quality

Surface freshwater supplies three quarters of the state's water needs for industry, agriculture, mining, fish processing, and public water use, and is used for about half of Alaska's domestic water supply.

Alaska's surface waters include over 15,000 salmon streams, an important resource to Alaskans and the world.

Alaska has the greatest groundwater resources of any state and the primary use of groundwater is for domestic needs.

Number and type of impaired waters in Alaska:



Source: Environmental Protection Agency

SOURCE: Abridged from "2014/2016 Final Integrated Water Quality Monitoring and Assessment Report," Alaska Department of Environmental Conservation, November 2018.

## Purpose

The Clean Water Act (CWA) mandates that each state develop a program to monitor and report on the quality of its surface waters. Alaska Water Quality Standards (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).

## Overview

More than 99.9 percent of Alaska's waters are considered unimpaired. 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 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.

## Waterbody categories

The Alaska Department of Environmental Conservation (ADEC) assigns waterbodies to categories by the degree to which water quality goals are attained for its designated uses, from category 1 (unimpaired, meeting all WQS criteria) to 5 (impaired, identified on the CWA Section 303(d) list. 4 waterbodies at the time of this report).

The process for identifying waterbodies that do not meet WQS 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 303(d) list, a Total Maximum Daily Load (TMDL) or recovery plan is developed, and a public participation process is initiated.

## TMDL detail

From the ADEC: "A TMDL is a process through which pollution sources are identified. The study analyzes pollution sources of a waterbody and calculates the amount or 'load' of that specific pollutant that the water can receive and still maintain Water Quality Standards. TMDLs are a necessary first step toward waterbody recovery and are required for a waterbody to be 'de-listed' from the Alaska 303(d) Category 5 Impaired Waters List. A waterbody can also be taken off the list if other controls are in place to assure the recovery of the waterbody."

**More than 99.9 percent of Alaska's waters are considered unimpaired.**

## More information

Alaska Department of Environmental Conservation, Division of Water: [dec.alaska.gov/water/water-quality](http://dec.alaska.gov/water/water-quality)  
 Environmental Protection Agency: [www.epa.gov/water](http://www.epa.gov/water)  
 Infrastructure Report Card: [infrastructurereportcard.org/cat-item/drinking\\_water/](http://infrastructurereportcard.org/cat-item/drinking_water/)

# 25. Fisheries

The health of Alaskan fisheries reflects the underlying health of marine ecosystems and the soundness of fisheries management practices.

The Alaska fishing industry employs more workers than any other private sector industry, and is second (very distantly) to the oil industry in providing revenue to the state.

Alaska fisheries also are an important source of food for the U.S. and the rest of the world: two-thirds of the total national yearly seafood harvest comes from Alaska.

Halibut, one of Alaska's most valuable fisheries, was in decline from 1997-2013. Discard mortality of Pacific halibut in commercial Alaska fisheries, in pounds:



Source: International Pacific Halibut Commission

## Managing for sustainability

The Magnuson-Stevens Act (MSA) was passed in 1976 to reverse the effects of overfishing and limit unfair foreign competition. Through the establishment of eight regional fisheries councils it has been largely successful in its goals to prevent overfishing and balance resource conservation with the needs of commercial, recreational and subsistence fishing and the communities that depend on them. The MSA was amended in 2006 to include annual catch limits and other accountability measures.

The North Pacific Fishery Management Council (NPFMC) manages primarily groundfish in federal waters from 3 to 200 nautical miles offshore, known as the Exclusive Economic Zone. The NPFMC prepares annually six fishery management plans (FMPs) for Alaska, for groundfish (Gulf of Alaska and Bering Sea/Aleutian Islands), crab, scallop, salmon and Arctic. The plans cover 47 stocks with over 140 species, including pollock, cod, rockfish, crab, scallops, halibut, and state-managed salmon fisheries.

The NPFMC coordinates with state, federal and international agencies including the State of Alaska Department of Fish and Game (salmon and scallop FMPs), NOAA Fisheries (implementation) and the International Pacific Halibut Commission. This can cause confusion over boundaries, for example between policy for and enforcement of bycatch.

## Economic importance

The fishing industry provided about 59,000 jobs in 2017-18, 26,000 (43 percent) of which were filled by Alaskans, with total direct wages of \$2.1 billion. Jobs are roughly split evenly between harvesting and processing, and have de-

clined about 10 percent over the past five years even as about 75 new commercial fishing boats were added annually during that period. The estimated contribution to statewide economic activity was \$5.6 billion, and the State of Alaska in 2019 collected \$79 million in taxes, fees and assessments from fishing industries, second (very distantly) to oil and gas revenue (\$1.1 billion).

## Preventing overfishing, bycatch and discards

NOAA Fisheries monitors stocks quarterly, issues an annual Stock Assessment and Fishery Evaluation (SAFE) report and sets Total Allowable Catch (TAC) limits annually in the FMP. At the end of 2019 Alaska had only two stocks of a single species (blue crab in the Pribilof Islands and St. Matthew Island) on the list of 45 overfished (population is too small) stocks nationwide, and none

on the list of 26 overfishing (rate of catch is too high) stocks. ADF&G lists 16 salmon stocks of concern: none at the most severe level, 12 at the middle level and 4 at the lowest level.

Bycatch of nontargeted species contributes to the TAC, and once it is met the fishery is closed. Depending on the fishery and prohibited species the catch may be retained or discarded. Some fisheries require observers on every vessel and some only a sample, and data is difficult to access.

## Monitoring the ecosystem

NOAA Fisheries produces annual Ecosystem Status Reports (ESRs) that are lengthy compilations of research and data on weather, climate, ice conditions, species health, unusual mortality events and many other indicators. A Management Uses section at the end of the ESR in Brief provides a summary of direction for policy.

**In 2019 trawlers took triple their bycatch allotment of sablefish in the Bering Sea, and double in the Gulf of Alaska.**

## More information

Alaska Seafood Marketing Institute, economic benefit reports: [alaskaseafood.org/the-catch/economic-benefit](http://alaskaseafood.org/the-catch/economic-benefit)

National Oceanic and Atmospheric Administration Fisheries: [fisheries.noaa.gov/topic/bycatch](http://fisheries.noaa.gov/topic/bycatch)

North Pacific Fishery Management Council, Fisheries Management Plans: [npfmc.org/fishery-management-plans](http://npfmc.org/fishery-management-plans)



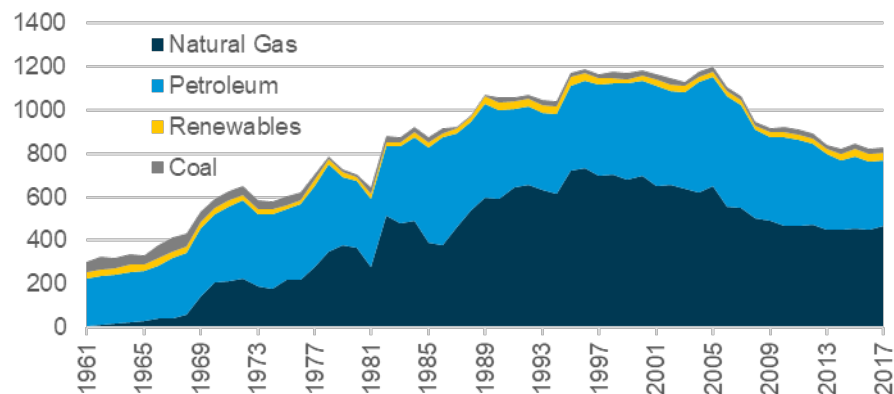
# 26. Energy

The quantity and quality of the energy we use has important consequences.

Energy efficiency makes our products less expensive and reduces the total cost of service delivery.

Alaska's raw energy consumption rate is relatively low, however on a per capita basis Alaskans use almost 1.2 million Btus per year. That ranks Alaska number one in the nation in per capita energy consumption, at more than three times the national average.

Per capita consumption of energy in Alaska (millions of BTUs):



Source: US Energy Information Administration

SOURCE: Abridged from "Alaska State Energy Profile," US Energy Information Administration, December 2019.

## Overview

In 2018, natural gas accounted for 47% of Alaska's total utility-scale electricity net generation and hydroelectric power generated 27%, the highest on record. Petroleum liquids accounted for 13%, coal for 10%, and wind power and biomass collectively accounted for 3%. The Railbelt grid serves the Fairbanks and Anchorage areas, where three-fourths of the state's population lives.

In 2018 the commercial sector accounted for 44% of Alaska's retail sales of electricity, followed by the residential sector at 33%, and the industrial sector at 23%. Retail electricity prices in rural areas can be three to five times higher than the rates in the urban areas, so the state provides financial assistance to local communities to help cover the cost of electricity. Alaska ranks fourth among the states in the total amount of electricity generated from burning petroleum products.

## Natural gas

Alaska's proved natural gas reserves totaled 6.6 trillion cubic feet at the start of 2018, and ranked 12th in largest gas reserves among the states. Alaska ranks third in the nation in natural gas gross withdrawals, far exceeding local demand, and there is no pipeline to transport the natural gas to consumers in the south. About 80% of Alaska's natural gas consumption occurs in the natural gas and crude oil production process. The electric power sector accounts for another 7% of the state's gas consumption, as almost half of Alaska's electricity is generated by natural gas-fired generating units.

## Petroleum

The state's North Slope contains 6 of the 100 largest oil fields in the US: Prudhoe Bay is among the 10 largest. Alaska was the second-highest in per capita petroleum consumption in 2017. The state has five operating refineries, with a combined processing capacity of about 164,000 barrels of crude oil per day. In 2018 petroleum liquids generated about 13% of the state's utility-scale electricity. The state also produces electricity from small diesel-fueled generators in isolated communities.

## Coal

Alaska's recoverable coal reserves were estimated to be about 2.8 billion tons at the end of 2018. Alaska has only one operating surface coal mine, the Usibelli mine, which produces about 900,000 tons per year. In 2018 all of Alaska's coal

was used in-state for electricity generation by commercial and institutional users.

## Renewables

In 2010 the Alaska legislature enacted a non-binding goal for 50% of the state's electricity to be generated from renewable and alternative energy sources by 2025. In 2018 about 30% of Alaska's utility-scale electricity net generation came from renewable energy sources, mostly hydropower with much smaller amounts of wind power and biomass-based generation. Utility-scale hydropower facilities are concentrated in Southeast Alaska in mountainous regions with high annual rainfalls. Smaller run-of-river projects—which do not employ dams—produce power in some rural communities. Alaska is also exploring tidal and ocean technologies that could supply renewable energy to coastal communities.

**Alaska's overall energy consumption per person is the fourth highest in the nation.**

## More information

Alaska Energy Authority: [akenergyauthority.org](http://akenergyauthority.org)

Renewable Energy Alaska Project: [alaskarenewableenergy.org](http://alaskarenewableenergy.org)

US Energy Information Administration: [eia.gov/beta/states/states/ak/analysis](http://eia.gov/beta/states/states/ak/analysis)

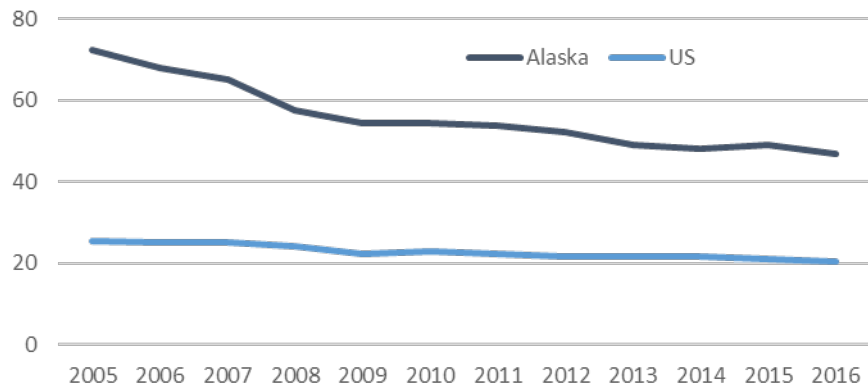
# 27. Waste

Waste management is critical to avoid serious health and environmental problems.

Alaska faces many unique challenges in this area, starting with the fact that so many rural communities have no road or rail access making it necessary for them to maintain a costly local landfill.

Alaskans generate 50% more waste per person than the national average. Reduction, reuse and recycling will all be necessary to meet our future waste management needs.

Alaska ranks low on total carbon dioxide (CO<sub>2</sub>) emissions, but is the fourth-highest state for average per capita CO<sub>2</sub> emissions, in tonnes per person:



Source: EPA

## Solid waste disposal and recycling

Alaska has 324 active solid waste facilities, including 9 class I landfills in major urban areas, 13 class II landfills in hub communities and 184 class III landfills in remote communities. The total number is more than any other state because so many villages, camps, military sites and industrial operations are located off the road network. Most Southeast communities barge their waste to the Port of Tacoma.

In Alaska's urban areas landfills receive an average of just over 2,000 pounds of solid waste per person each year, about a third of it from households. In 2017 the US average was about 1,700 pounds of solid waste per person, roughly 20% less than Alaska, and 25% of that was recycled, versus 7% in Anchorage overall and 16% for Anchorage curbside.

Shrinking the waste stream through reduction, reuse, recycling, composting and energy recovery all have the potential to limit the waste that goes into landfills. The EPA maintains a list of state waste characterization studies that detail these efforts in many states, but Alaska is one of 20 states that have not submitted a report.

## Reduction, reuse and recycling

Recycling has been challenged by falling commodity prices and China's decision to stop importing "foreign garbage." Glass is recycled in Alaska for use in road and pipe beds, while plastic and aluminum generally are shipped out of state. Plastic bag bans have been implemented in over a dozen communities, and the legislature is considering a statewide ban.

## Rural challenges

Solid waste management is a particular challenge in rural Alaska, with many remote small villages, climate extremes and limited funding. Urban landfills have stringent design, operation and monitoring specifications, but Alaska has 184 communities and 11 camps with class III landfills, unique to Alaska and having special exemptions to EPA landfill regulations. They receive hazardous and human waste, often in open and unlined pits, that can cause ecological, safety and health concerns. Studies have shown correlations between low birth weights and developmental problems, and proximity to open dumps and solid waste burning. Efforts are underway by State and tribal entities to improve permitting and operations at class III landfills, a process that will be complicated by the 2021 expiration of EPA authority to use IGAP

**From 2005-2016 Alaskans decreased carbon dioxide emissions by 25.2 tonnes per person, the largest per person decrease of any state.**

funding for landfills.

## Carbon dioxide emissions

Carbon dioxide (CO<sub>2</sub>) is the main driver of global warming. According to the EPA, "Over the past 60 years, the average temperature across Alaska has increased by approximately 3°F. This increase is more than twice the warming seen in the rest of the United States. As the climate continues to warm, average annual temperatures in Alaska are projected to increase an additional 2 to 4°F by the middle of this century." Warming has serious effects on ecosystems, coastal erosion, flooding, wildfire and plant and animal populations.

From 2005-2016 Alaska decreased its CO<sub>2</sub> emissions from 48.2 million tonnes to 34.9, a 27.6 percent decrease, the fourth-highest reduction of all states and the largest per person decrease—25.2 tonnes—of any state.

## More information

Anchorage Solid Waste Services Master Plan: [muni.org/Departments/SWS/Pages/SWSMasterPlan.aspx](http://muni.org/Departments/SWS/Pages/SWSMasterPlan.aspx)  
 US Environmental Protection Agency, Solid Waste: [epa.gov/facts-and-figures-about-materials-waste-and-recycling](http://epa.gov/facts-and-figures-about-materials-waste-and-recycling)  
 US Environmental Protection Agency, Climate: [epa.gov/climate-indicators](http://epa.gov/climate-indicators)