

Water Resources

The North Slope is a hydrologically dynamic area that contains a wide variety of water sources. There are a vast number of lakes, ponds, streams, and rivers present throughout the planning area. During summer months, shallow thaw lakes blanket large parts of the coastal plain while a variety of northerly flowing waterbodies originate in the Brooks Range. The planning area also includes nearshore estuarine and marine waters, comprised of a series of bays, lagoons, and a sound enclosed by barrier islands in the central Beaufort Sea. The area is also characterized by expansive wetlands. Wetlands are essential to the regulation and replenishment of stream flow and the maintenance of water quality throughout the region. These waterbodies collectively contribute significantly to the hydrology and ecology of the North Slope.

Snow is the most common form of precipitation in the region and remains on the land surface until it melts during the warmer spring and summer months. The majority of streamflow takes place during a brief two to three-week break-up period typically between late May and early June. Streamflow in all waterbodies, even the largest rivers, throughout the region comes to an almost complete stop during the unforgiving winter months (Sloan 1985). While surface water sources can be found in many places, the region's harsh seasonal climate and the presence of permafrost limits the use of these water sources for freshwater supply. In some locations, groundwater can be obtained from shallow thawed zones in permafrost found adjacent to or under streams and other waterbodies (Sloan 1985).

Major lakes in the planning area include Galbraith, Colleen, Chandler, Itkillik, Shainin, and Toolik lakes, and each support activities by a variety of users. Generally, all rivers and streams within the Plan area flow north from the Brooks Range towards the Arctic Ocean or Beaufort Sea. Major river corridors in the planning area include the Colville, Anaktuvuk, Itkillik, Miluveach, Ugnuravik, Sakonowyak, Kuparuk, Putuligayuk, Sagavanirktok, Kadleroshilik, Shaviovik, Kavik, Staines, and Canning rivers. While all of these river corridors are important to the region, some support frequent use by local residents, industry, subsistence hunters, hunting guides and recreational users. Some of the largest and most important rivers include the Colville, Sagavanirktok, Kuparuk, and Canning Rivers.

The State holds and controls all state water in trust for the use of the people of the state, maintaining legal access to and along waterbodies through easements or rights-of-way. For more information, please see the *Public Trust Doctrine* in the Appendices. Where private property along waterbodies exists, the state will manage any state-owned beds of those waterbodies up to the ordinary high water mark. Because of how the state received title to the lands in this region of the state, only the bed of the lower portion of the Colville River passed to the state under the Submerged Lands Act and equal footing doctrine. The state owns the beds of other waterbodies through conveyance.

Categories of Waterbodies

For the purposes of and within this plan, waterbodies are discussed as Navigable, Public, or Ancillary, as defined below. These definitions, for management purposes, are not necessarily the same as those used for conveyance purposes.

Navigable Waters. Waters that, at the time the state achieved statehood, were used, or were susceptible of being used, in their ordinary condition as highways for commerce over which trade and travel were or could have been conducted in the customary modes of trade and travel on water (“navigable in fact”); the use or potential use does not need to have been without difficulty, extensive, or long and continuous. “Navigable Waters” include rivers, lakes, creeks, streams, sloughs, anabranches, bays, sounds, estuaries, inlets, straits, passages, canals, seas or oceans, or any other body of water or waterway within the territorial limits of the state or subject to its jurisdiction, that is navigable in fact for any useful public purpose, including but not limited to water suitable for commercial navigation, floating of logs, and public boating. “Navigable Waters” include all downstream distributaries, deltas and braided channels containing the flowing waters of any navigable in fact waters. “Navigable Waters” include all waters, within the territorial limits of the state or subject to its jurisdiction, which are subject to the ebb and flow of the tides. Those “Navigable Waters” in their liquid state remain navigable in their frozen state.

Public Waters. Waters that are not included within “Navigable Waters,” but are or could be used for recreational, commercial, mining, trapping, fishing, hunting, landing and takeoff of aircraft, industrial or other public purpose in any season in a frozen or liquid state. “Public Waters” may be meandered or unmeandered and include small lakes, perennial streams, perennial creeks, and small sloughs. “Public Waters” include waters in which anadromous fish species pass and from which fish or shellfish are or could be taken for human consumption. Those “Public Waters” in their liquid state remain public in their frozen state.

Ancillary Waters. Waters that due to their small catchment area, small surface area, small width, small depth, lack of anadromous or other fish population, lack of shellfish population or other limitations render them unsuitable for significant public purposes. “Ancillary Waters” mean isolated small lakes or ponds (normally with a surface area of less than 10 acres), small headwater streams or creeks with small catchment areas, intermittent streams or creeks, ditches, swales, springs, flushes, surface runoff, and ephemeral waters. “Ancillary Waters” include wetlands (areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions such as swamps, marshes, bogs, muskeg, and similar areas).

Uses of Water

People, fish, wildlife, resource development, and oil and gas activities all require the use of water. Communities throughout the North Slope use water resources, such as lakes and rivers, for subsistence resources such as anadromous and resident fish and waterfowl and to supply drinking and potable water. Recreational activities and other public uses on major waterbodies have increased in some parts of the planning area. Oil and gas industry activities

utilize a significant amount of freshwater in order to support operations by allowing for the construction of temporary ice roads, ice pads, and airstrips, for the production of oil and gas resources, and for supplying drinking and potable water. The widespread use and construction of ice roads and pads has become common as their use reduces impacts to the fragile tundra of the North Slope. Although the use of ice infrastructure can be beneficial, the substantial water resources necessary for the use and construction of ice roads and pads coupled with their use being seasonally restricted, can be problematic and can result in a challenging issue for water resource management. Water resources across the North Slope shall be managed in such a way that meets the needs of users while simultaneously maintaining the long-term sustainability of the resource.

The Alaska Water Use Act (AS 46.15) states that the Department of Natural Resources “shall determine and adjudicate rights in the water of the state, and in its appropriation and distribution.” A number of water resource management practices have been established to satisfy this requirement and are also defined in AS 46.15. Basic information related to these water resource management practices can be found in the guidelines below while more specific information can be found in the Alaska Water Use Act and other applicable state statutes and regulations.

This section will consider the water resources within the planning boundary. The Goals, Objectives, and Management Guidelines that follow apply to all state-owned waters throughout the planning area regardless of land classification.

Goals

Water Quality. Protect water quality to support domestic, commercial and industrial uses, fish and wildlife production, and recreational activities. Protect watersheds that supply community drinking water.

Water Dependent and Water Related Uses. Provide for needed water-dependent and water-related uses.

Habitat Protection. Protect fish and wildlife habitats along lakeshores, stream corridors and wetlands.

Recreation. Provide opportunities for a variety of recreational activities within publicly owned stream corridors.

Objectives and Management Guidelines

Objective A. Manage water responsibly and reserve sufficient water to maintain a specified instream flow or level of water on a stream or waterbody to protect and ensure the continuation of other uses of the area.

- **Guideline A-1.** All water-dependent activities requiring the withdrawal of water within the North Slope Oil and Gas Lease Sale Area shall be completed in accordance with the Alaska Water Use Act (AS 46.15) and ADNR North Slope Water Withdrawal Guidelines.
- **Guideline A-2.** ADF&G, ADEC, and ADNR Water Resources Section should be consulted when issuing or approving permits or authorizations within the planning area.
- **Guideline A-3. *Public Trust Doctrine.*** All activities and authorizations should take into consideration and comply with the Public Trust Doctrine. For information on the Public Trust Doctrine, see the Appendices.
- **Guideline A-4.** Proposals for new developments requiring the use of a significant amount of water as defined by 11 AAC 93.035 shall submit to the Department an application for water rights or temporary water use authorizations.
- **Guideline A-5. *Process for Determining Reservations.*** Applications for instream flow reservations are submitted to the Department for adjudication following the procedures identified in 11 AAC 93.141-147.
- **Guideline A-6. *Considerations for Reservations of Water (General).*** Streams, lakes, and other waterbodies may be considered for reservations of water under AS 46.15.145. Such reservations are intended to reserve sufficient water to maintain a specified instream flow or level of water on a stream or body of water for one or a combination of purposes: 1) protection of fish and wildlife habitat, migration, and propagation; 2) recreation and park purposes; 3) sanitary and water quality purposes; and 4) navigation and transportation purposes.
- **Guideline A-7. *Priorities.*** Reservations of Water have been established according to AS 46.15.145 on the Sagavanirktok and Kuparuk Rivers (see DMLW Water Reservations webpage for current information).

Objective B. *Other Guidelines affecting Water Resources.* Nearly all of the resource guidelines found within Chapter 2 either directly or indirectly affect water resources in the planning area. The most commonly affected resource sections include Public Access, Fish and Wildlife, Shorelands and Stream Corridors, Transportation and Infrastructure, Subsurface Resources, and Recreation and Tourism; however other resources addressed in this chapter's sections should also be considered.