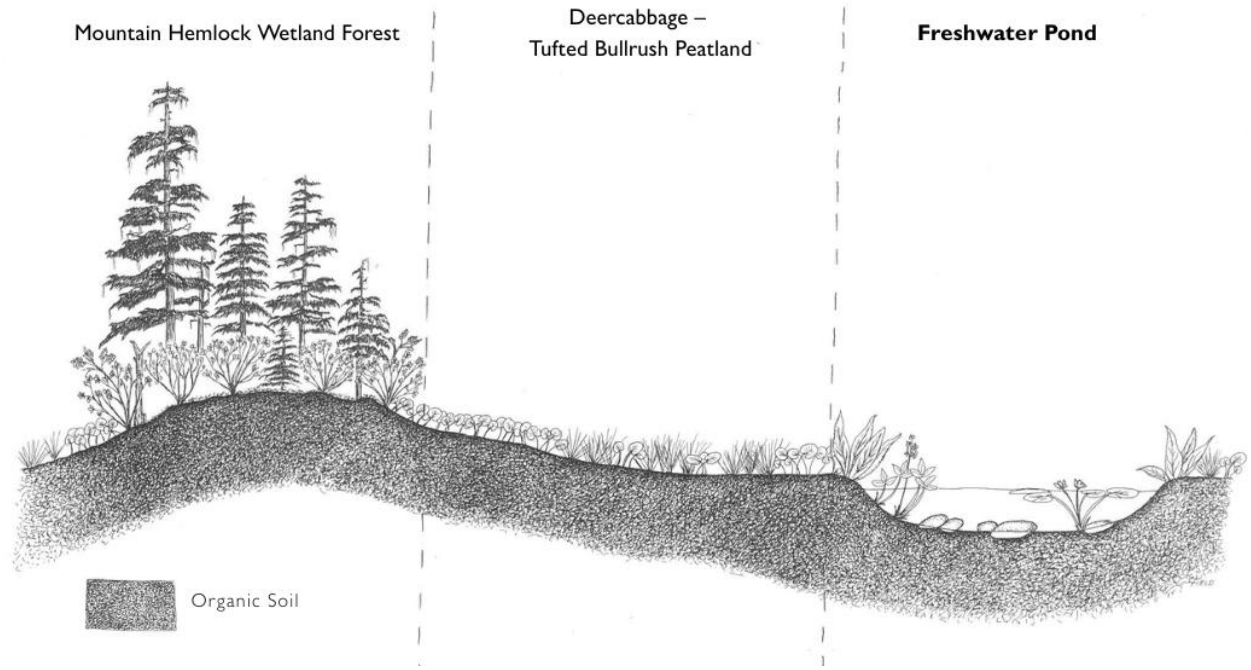
Freshwater Lake, Pond, Aquatic Bed, and Stream



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Lakes and ponds are permanent freshwater bodies occupying basins and depressions on the landscape. Only five lakes occur in the project area; four are natural and one is a reservoir above the Village of Chenega on Evans Island. Ponds differ from lakes in their size and depth. Ponds typically occupy less than 20 acres and are less than six feet deep. Both lakes and ponds tend to be underlain by bedrock in the alpine and unconsolidated sediments in the lowlands. Where shorelines are protected and fetch is limited, aquatic vegetation may develop. Commonly occurring aquatic plant species are: Rocky Mountain pondlily (*Nuphar lutea* ssp. *polysepala*) and buckbean (*Menyanthes trifoliata*); species of pondweed (*Potamogeton* spp.) are occasionally present.

Freshwater Stream

Freshwater streams are defined as flowing water contained within a channel. Such streams differ in the source of their water, the permanence of their flow, the gradient they traverse, and their substrate material. Moving from headwater to ocean, intermittent streams occupy the highest elevation and steepest reaches of the watershed; water flows only part of the year and is sourced from snow melt, seeps, or direct precipitation. The downgradient transition from intermittent to

upper perennial stream is typically marked by an inflection in terrain slope, for example at the transition from alpine headwall to basin. Perennial streams occupy the reach between intermittent stream and ocean waters. Gradients are typically high and flow is fast with obvious riffles in upper reaches with flow slowing where streams transect wetlands, lakes, and ponds. Floodplains can develop in alpine basins and where the slope is low and melt-driven flows can be seasonally high or along stream banks where flow is slowed by terrain or entrance to a lake or pond. Where streams meet the ocean, a portion of the reach can be affected by the tides. As the Chenega region is characterized by steep terrain, tidally-influenced riverine habitat is uncommon. Where tidal rivers do occur, the gradient is low and water level fluctuates under tidal influence. The transition from dunegrass (*Leymus mollis*) to blue joint reedgrass (*Calamagrostis canadensis*) or Sitka spruce (*Picea sitchensis*) along streams serves as a reliable proxy for the upstream extent of tidal influence.

The nonglacial, or clearwater streams that characterize the Chenega region exhibit low turbidity, high clarity, and flow derived primarily from groundwater and precipitation. Clearwater systems have less variable interannual flow, relatively narrower channel widths, stable and well-defined beds and banks, low sediment loads, and increased habitat complexity in the form of pools, riffles, and large woody debris. Streams support numerous aquatic species, including both anadromous and resident fish. Mainstems and tributaries provide critical spawning, rearing, and overwintering habitats, with the type and ratio of substrate materials determining habitat suitability for aquatic species during differing life stages.

Environment:

The occurrence of aquatic vegetation tends to be limited in spatial extent and patchy or linear in spatial pattern. Stands develop in lakes, ponds, and slow-moving portions of rivers and streams. In large bodies of water, aquatic vegetation tends to be restricted to the littoral region where the penetration of light does not limit growth. Sediment is typically fine-grained, organic-rich muck.

Disturbance:

Shallow lakes and small ponds freeze to the bottom in the winter; vegetation in larger lakes with sufficient fetch may be damaged by scour of wind-blown and rafted ice. Increase in nutrients, such as nitrogen and phosphorus, may prompt a shift from oligotrophic or mesotrophic to eutrophic conditions and a subsequent change in plant community composition towards fast-growing plant and algal species. Such lakes are particularly susceptible to the establishment of the invasive aquatic waterweed, *Elodea canadensis,* and Northern Pike (*Esox lucius*).

Animal Species Supported:

Mammals:

Moose (*Alces alces*) – **Tunturpak, Teqliq** [Chenega], **Teggliq** [NW, PG]

Beaver (*Castor canadensis*) – **Paluqtaq** [NW, PG], **Shniq** [Chenega]

River otter (*Lutra canadensis*) – **Aaquyaq** [NW, PG], **Kep'akag** [Chenega]

Birds:

Northern pintail duck (*Anus acuta*) – **Pamyurtuliq** [Kodiak], **Eteqsurtuliq** [NW, PG], **Amutaarualek**

Mallard duck (*Anas platyrhynchos*) – **Nillqitaq** [NW, PG, Kodiak], **Seqtaq** [PWS]

Scaup (*Aythya marila, A. affinis*) – **Anguletgwalek** [NW, PG], **Alungutgwalek** [Kodiak]

Canvasback (*Aythya valisineria*) – **Tengyuq** [PWS], **Egtuk** [PWS]

Cackling goose (*Branta hutchinsii*) – **Lagiq** [Kodiak], **Neqlleq** [NW, PG]

Bufflehead (*Bucephala albeola*) – **Nacallngaayak**

Goldeneye (*Bucephala clangula, B. islandica*) – **Nasqurtuliq, Qapugnaq**

Long-tailed duck (*Clangula hyemalis*) – **Aarrangiiq** [NW, PG, Kodiak], **Arrangkiluk**

Loon (*Gavia* spp.*)* – **Uyaqurtuliq, Tuullek** [Kodiak, Chenega], **Kakaraq** [NW, PG]

Sandhill crane (*Grus canadensis*) – **Tatellgaq** [NW, PG]

Bald eagle (*Haliacetus leucocephalus*) – **Kuckalaq** [Chenega], **Kum'agyak** [NW, PG]

Harlequin duck (*Histrionicus histrionicus*) – **Qaingiaq** [PWS], **Lluuyulinguaq** [NW, PG], **Qainiaq** [Kodiak]

Common merganser (*Mergus merganser*) – **Paiq** [NW, PG]

Red-breasted merganser (*Mergus serrator*) – **Iisuuteklek** [PWS], **Pairpak** [Kodiak]

Red-necked phalarope (*Phalaropus lobatus*) – **Uqui'aq**

Fish:

Pink salmon (*Oncorhynchus gorbuscha*) – **Amartuq, Amaqaayak, Amartupiaq** [Chenega], **Luuqaanak** [NW, PG]

Chum salmon (*Oncorhynchus keta*) – **Alimaq, Kangitneq, Algnartuliq** [Chenega], **Alima** [NW,

PG]

Silver salmon (*Oncorhynchus kisutch*) – **Qakiiyaq, Caayuaq, Caiyuq** [Chenega]

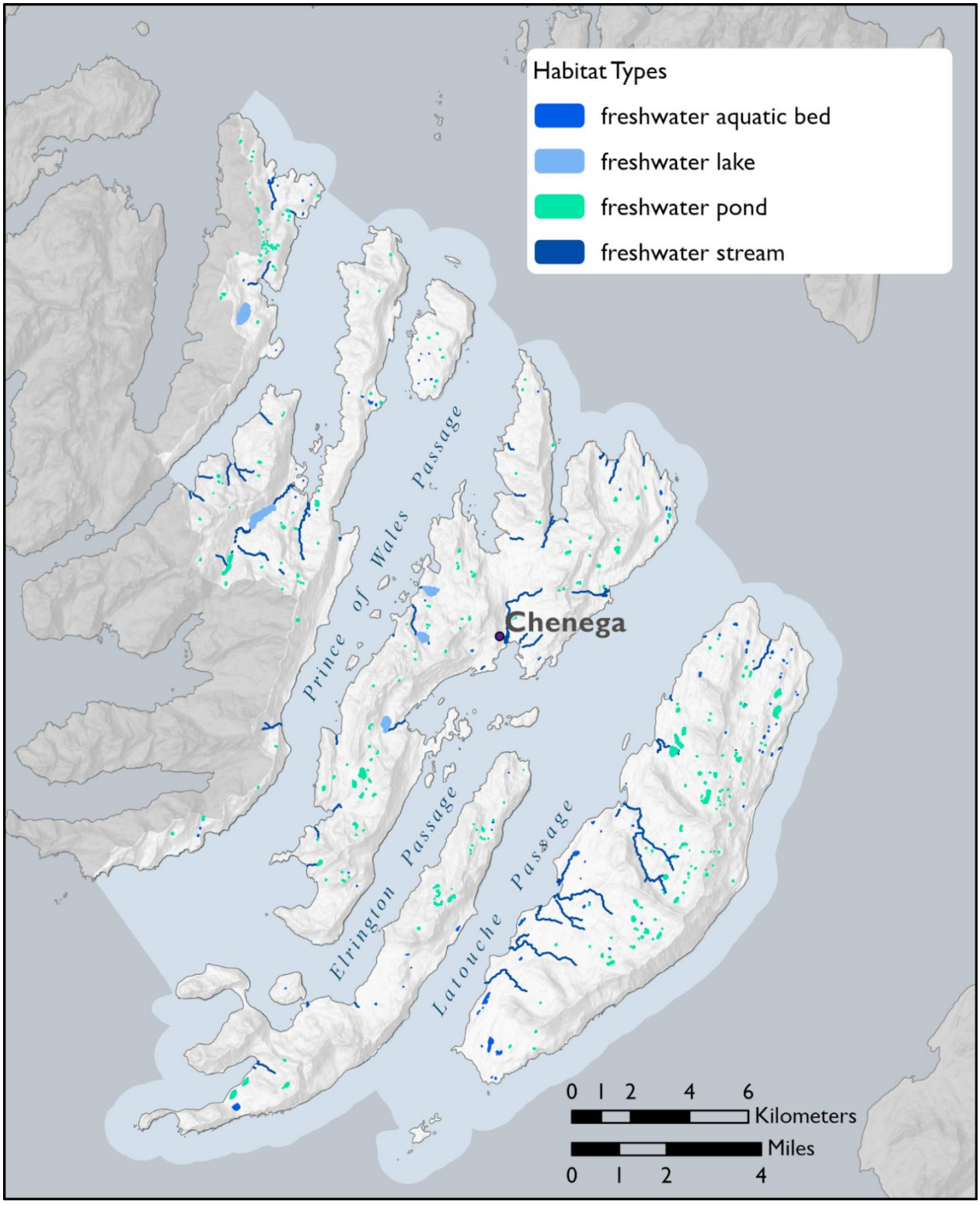
Rainbow trout (*Oncorhynchus mykiss*) – **Anciq**

Steelhead trout (*Oncorhynchus mykiss*) – **Mayuwartaq** [NW, PG]

Sockeye salmon (*Oncorhynchus nerka*) – **Nikllig** [Chenega], **Sayak** [NW, PG]

Chinook salmon (*Oncorhynchus tshawytscha*) – **Aamasuuk, Iiliksak, Iigallupaq** [Chenega], **Lluq'akaaq** [NW, PG]

Dolly Varden trout (*Salvelinus malma*) – **Nanwam Ancia, Iqallugpik** [NW, PG]

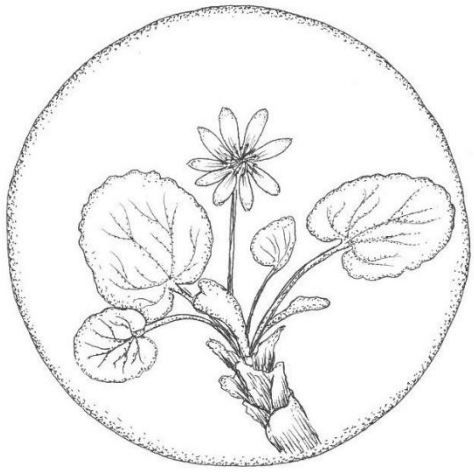

Habitat Types
freshwater aquatic bed
freshwater lake
freshwater pond
freshwater stream
Prince of Wales Passage
Chenega
Elrington Passage
Latouche Passage
0 1 2 4 6
Kilometers
Miles
0 1 2 4

Subsistence Plants:

Species: Common name (*Scientific name*) - **Alutiiq name** [if known]
[NW = Nanwalek; PG = Port Graham; PWS = Prince William Sound]

Pond lily (*Nuphar polysepala*) – **Qaruluk**, **Qalltaruaq** [PWS], **Qaltuusaaq** [PG]: Whole plants (root, stalk, leaves, flower) can be burnt to ash powder and applied to wounds and skin conditions. Roots can be boiled and used for upper respiratory issues and tuberculosis. Leaves can be boiled and applied as a poultice to wounds for pain relief. Seeds can be roasted and eaten or ground into flour. **CAUTION:** plant must be cooked to detoxify potentially dangerous alkaloids, not recommended as a food source.

Buckbean (*Menyanthes trifoliata*): No documented use by Alutiiq, however other regional groups used leaves as a poultice for infected sores. Leaves can also be boiled into a tea to treat digestive tract issues or to relieve fever and headaches.



Marsh marigold (*Caltha leptosepala*): No documented use by Alutiiq, however other regional groups ate leaves and flower buds raw, cooked or pickled. Roots can be eaten, but must be well cooked. Sap can irritate sensitive skin. Leaves can be used as a poultice to remove warts and treat inflamed wounds.

Skunk cabbage (*Lysichiton americanus)* – **Qaugcaaguaq** [PWS]: No documented use by Alutiiq. However, other regional groups used stem and leaves as an infusion for stomach issues or used as an antibiotic poultice for infections or inflammation. Large leaves have a number of domestic uses, including the lining of delivery bed for childbirth. **CAUTION**: contains calcium oxidate crystals and can cause burning of the mouth unless thoroughly dried; even when properly prepared can still cause nausea and vomiting.

An example of a freshwater pond with aquatic forbs (PC: ACCS – Chenega region)