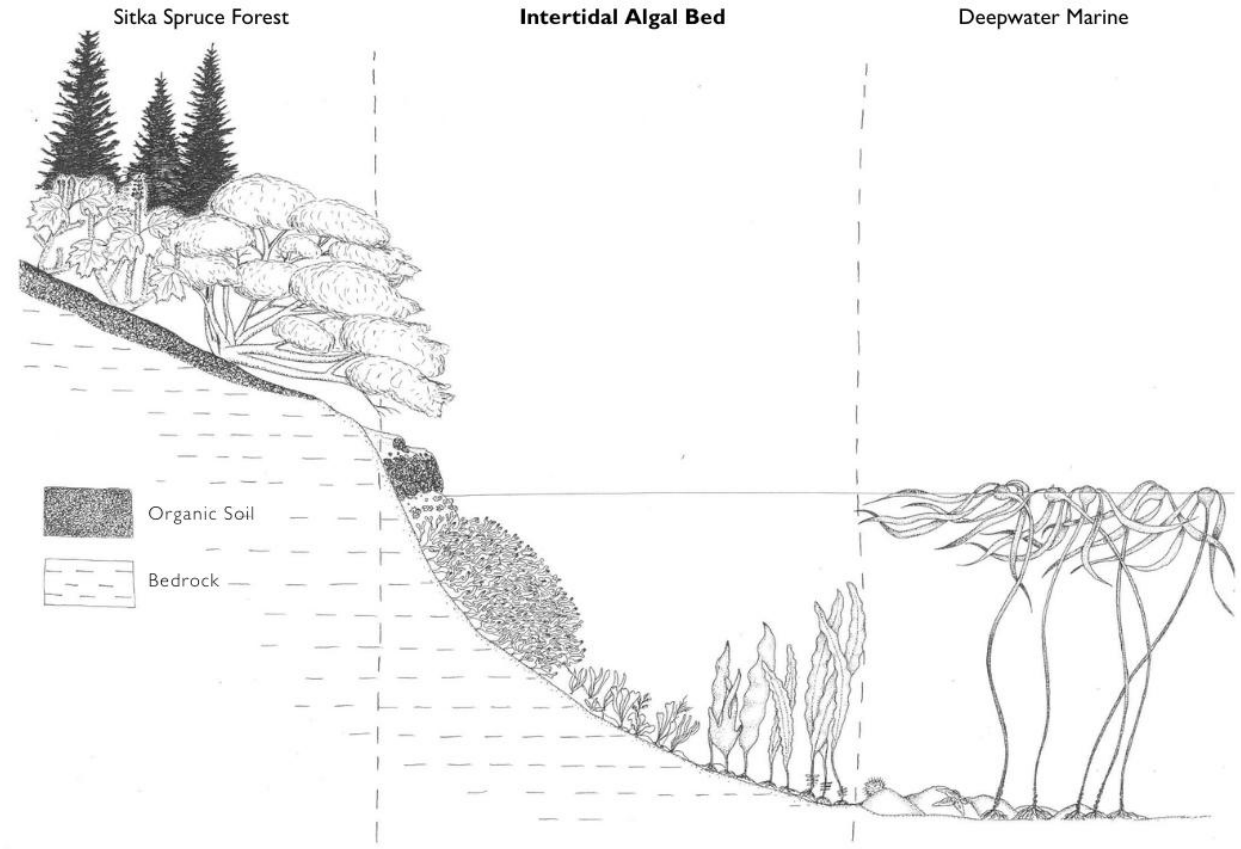
Intertidal Algal Bed and Rocky Barrens



Intertidal Algal Bed

Intertidal algal beds establish as linear bands of low-statured macroalgae (seaweed), and vascular and lichen species tolerant of periodic inundation by brackish or saltwater. The vertical distribution of intertidal vegetation is influenced by tidal regime with species establishing in relation to their tolerance to inundation and salinity. The width and number of bands of vegetation is related to substrate mobility and exposure to wave action with numerous and wide bands developing across high-energy, bedrock or rubble beaches where tidal reach is large and substrates are competent. A typical sequence of species, listed from the low to high intertidal begins with the flowering plant, scouler's surfgrass (*Phyllospadix scouleri*) at the water's edge, followed by wide bands of ribbon kelp (*Alaria marginata*), or dark brown alga in the *Laminaria* genus with patchy red seaweeds in the *Porphyra* genus. Rockweed (*Fucus distichus*) is the dominant mid-intertidal species and defines the reach of twice-daily inundation. A barnacle band intermixed with red sea moss (*Endocladia muricata*) may develop in the high intertidal zone. Salt-tolerant lichens often form bands in the supratidal zone. Black seaside lichen (*Hydropunctaria*

maura) forms the lowest band, indicating the wave break zone and seaside lichens may form bands in the higher, supratidal zone that is exposed to storm surge and salt spray. White seaside lichens (*Coccotrema maritimum*) are common on north-facing granitic rocks or shaded by overhanging trees. Orange seaside lichens in the *Caloplaca* and *Xanthoria* genera form supratidal bands in areas of high nutrient input, such as seabird rookeries.

Rocky Barren

Rocky barrens are common in the Chenega region and typically occupy the zone of daily tidal influence above the bands of rockweed and marine lichens. The absence of vegetation relates to both the estimated 3 m of uplift experienced by the region during the 1964 Good Friday Earthquake as well as the generally high exposure and energy of the coastline, which precludes the retention of finer sediment.

Environment:

Intertidal vegetation establishes where land is regularly inundated by brackish or salt waters. This dynamic environment supports life adapted to inundation and saline conditions with the type of species present largely dependent on shoreline substrate and exposure. Rocky barrens occur on fractured bedrock or rubble associated with promontories, headlands, and cliffs.

Disturbance:

Intertidal vegetation is subject to the twice daily inundation of saline water, wave action, and during periods of exposure, wind and extreme cold. Herbivory by echinoderms, crustaceans, and mollusks can strongly influence the community structure of seaweed beds. As an extreme example, sea urchin grazing on kelp may produce an 'urchin barren' devoid of macroalgae. Subsistence harvest targeting wakame (*Alaria marginata*), rockweed (*Fucus distichus*), sea lettuce (*Ulva lactuca*), dulse (*Palmaria mollis*), and species of brown algae (*Laminaria*) and nori (*Porphyra*) may have minor impact. Mariculture of oysters and kelp typically occurs in the subtidal, but may impact the adjacent intertidal zone. Due to their topographic location, intertidal zones are highly susceptible to damage from oil spills, sea level rise, and earthquake-induced slides and tsunamis.

Animal Species Supported:

Mammals:

Northern fur seal (*Callorhinus ursinus*) – **Aatak** [NW, PG], **Isuwiq, Qaigyak** [Chenega]

Sea otter (*Enhydra lutris*) – **Arhnaq, Igam'aq** [Chenega]

Steller sea lion (*Eumetopias jubatus*) – **Wiinaq** [Chenega, NW, PG]

Harbor seal (*Phoca vitulina*) – **Isuwiq**

Black bear (*Ursus americanus*) – **Tan'erliq**

Birds:

Puffins (*Fratercula cirrhata, F. corniculata*) – **Tunngat** [Kodiak], **Ngaq'ngaq** [Chenega], **Ngaqngaaq** [NW, PG]

Black oystercatcher (*Haematopus bachmani*) – **Kiggwikiaq**

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

Gull (*Larus* spp.) – **Naruyaq, Qatayaq** [Kodiak], **Naahqwaq** [Chenega], Qukiswa'aq [NW, PG]

Cormorant (*Phalacrocorax* spp.*)* - **Agasuuq** [Chenega], **Uyalek** [NW, PG]

Red-legged kittiwake (*Rissa brevirostris*) - **Kiuksaa'aq**

Black-legged kittiwake (*Rissa tridactyla*) - **Qay'aqaaq** [PWS]

Arctic tern (*Sterna paradisea*) – **Ayusaq**

Fish:

Tomcod (*Microgadus proximus*) – **Saakelaq, Taaqatak**

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]

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

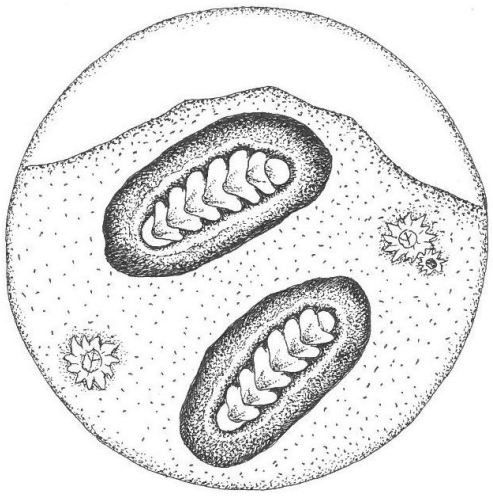
Sockeye salmon (*Oncorhynchus nerka*) – **Nikliq** [Chenega], **Sayak** [NW, PG]

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

Starry flounder (*Platichthys stellatus*) – **Waa'uq, Ggagtuliq**

Eulachon (*Thaleichthys pacificus*) – **Cikeq, Qusuuk** [NW, PG]

Marine Invertebrates



Cockle (*Clinocardium nuttallii*) – **Qamaquq** [NW, PG]

Gumboot chiton (Cryptochiton stelleri) – **Uuqiituk** [Chenega], **Uhitaq** [NW, PG]

Giant Pacific octopus (*Enteroctopus dofleini*) – **Amikuq** [N Alutiiq], **Utguiq** [S Alutiiq]

Black chiton (*Katherina tunicata*) – **Uriitaq**

Pacific littleneck clam (*Leukoma staminea*) – **Gasqaq**, **Taugtaaq**

Limpet (*Lottia* spp.) – **Sawak'iitaq**, **Spuungqulaq**

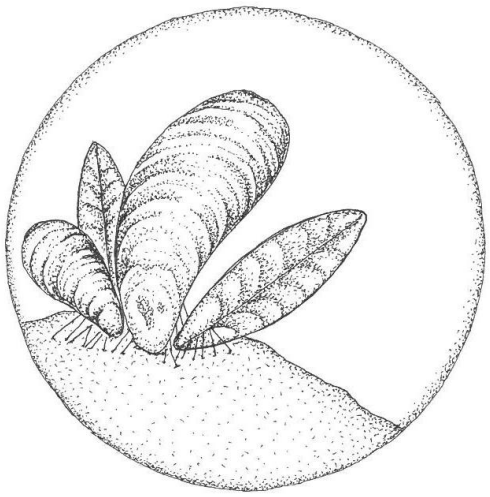
Pinkneck clam (*Spisula polynyma*) – **Kawailnguq** [NW, PG]

Sea urchin (*Strongylocentrotus franciscanus*, S. *droebachiensis*) – **Uutuk** [Chenega, NW, PG]

Butter clam (*Saxidomus gigantea*) – **Salat, Mamaayaq** [NW, PG]

Pacific razor clam (*Siliqua patula*) – **Cingtaataq** [NW, PG]

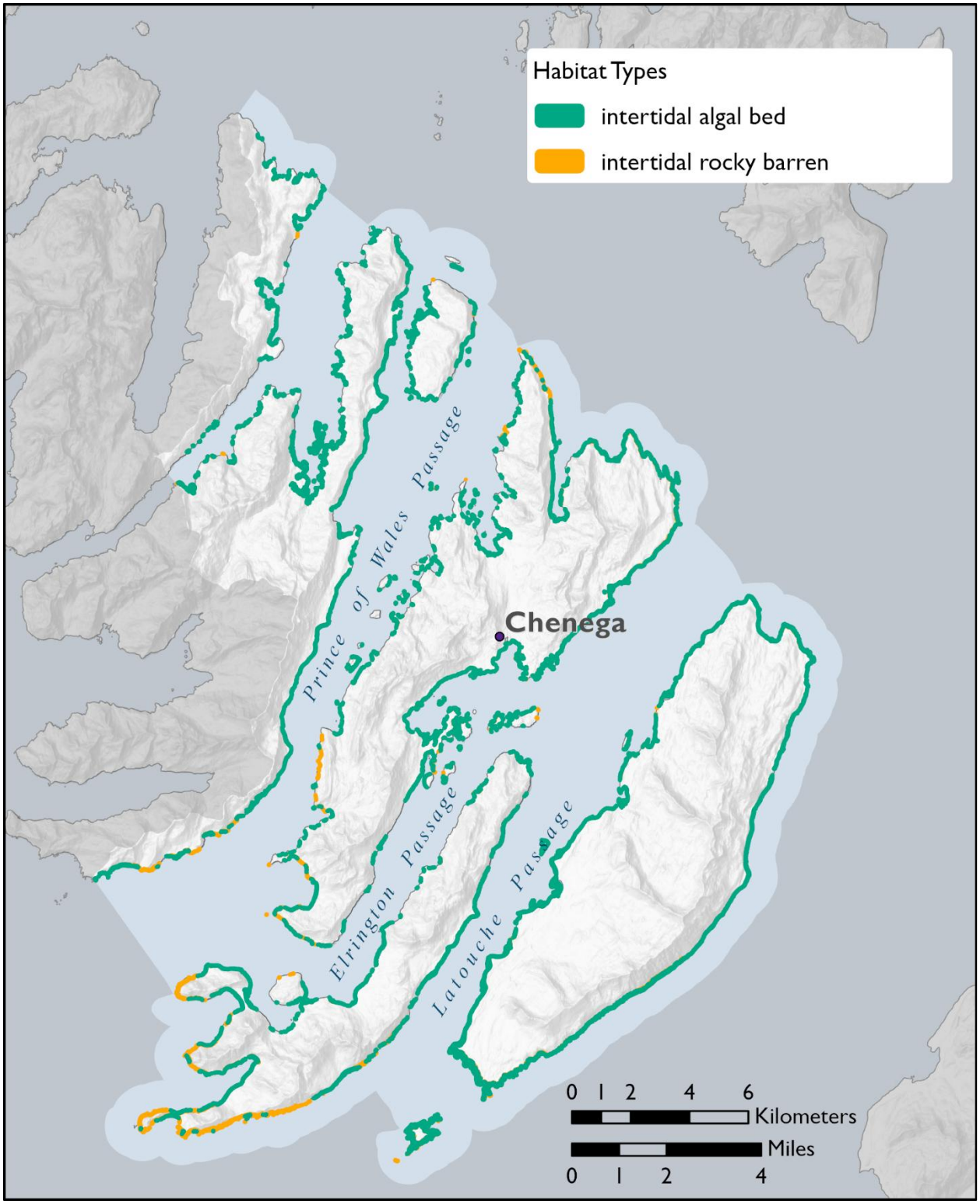
Dungeness crab (*Metacarcinus magister*) – **Iwalrayak** [N Alutiiq], **Sakuuq**



Blue mussel (*Mylitus trossulus*) – **Qapilaq**

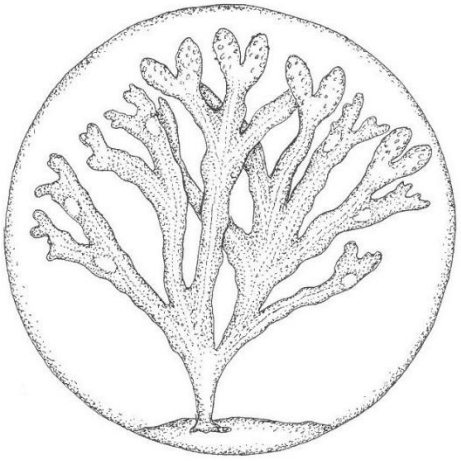
Alaska spot prawn (*Pandalus platyceros*) – **Kumitgarpak**

Red sea cucumber (*Parastichopus californicus*) – **Anaquiitaq**


Habitat Types
intertidal algal bed
intertidal rocky barren
Prince of Wales Passage
Chenega
Elrington Passage
Latouche Passage
0 1 2 4 6
Kilometers
Miles
0 1 2 4

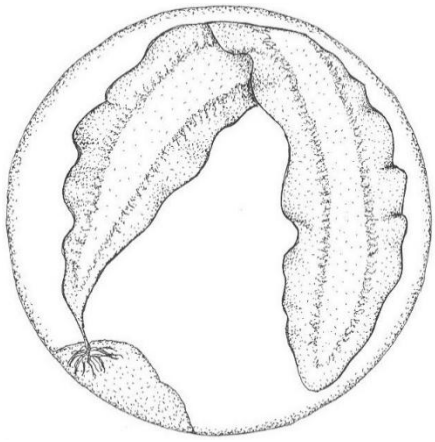
Subsistence Plants:

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



Rockweed (*Fucus distichus*) – **Caritet** [Kodiak]: Rockweed is one of the more popular seaweeds to harvest. People eat it raw, dipped in seal oil, or with sea urchin eggs, often on site where collected. Blades can be stir-fried, cooked with shellfish to add flavor, or as a thickening agent for soups and stews. Blades are high in iodine and used as a remedy for join and bone issues in children. Rockweed is considered good for digestion and prevents vomiting.

Brown algae (*Laminaria spp.*) – **Sel'aq, Cimyaruaq** (*L. bongardiana*) [NW, PG]: Grows on rocks in lower intertidal zone, but often harvested along the high tide line after bleaching and exposure to the elements. Blades are wrapped around extremities to soothe burning or itching feet.



Ribbon kelp (*Alaria marginata*) – **Kapuustat, Nuya'it**: Harvested from rocks in the mid to low intertidal zone, generally from late spring to early summer. Blades can be boiled to soak arthritic joints or heated as a poultice to wrap around problem areas. Blades can also be used to wrap fish for baking or as a garden fertilizer.

Sugar kelp (*Saccharina latissima*): No documented use by Alutiiq, but other regional groups collected and dried leaves for consumption. Contemporarily grown as an important maricultural species.

Dulse (*Palmaria palmata*): No documented use by Alutiiq, but other regional groups collected and dried leaves for consumption. Contemporarily grown as an important maricultural species.

Sieve kelp (*Agarum clathratum*) – **Iituk**: Collected along the low intertidal to subtidal zone. Blades can be boiled into decoction and mixed with seal oil to treat colds.

Purple laver (*Pyropia perforata*) – **Caquallqaq**: Harvested in late spring to early fall from rocks in the mid intertidal zone. Chewing blades is reported to help prevent goiter.

Sea lettuce (*Ulva lactuca*) – **Kapuustaq**: Harvested from rocks in the mid to low intertidal zone. Blades can be dried and eaten as chips or added to soups and stews.

Red seaweed (*Rhodoglossum latissimum*) – **Nepuaq, Sal'aq**: Blades can be harvested, dried and given to mothers to promote lactation.

An aerial example of intertidal algal bed & rocky barren habitat (PC: ShoreZone – Elrington Island, Chenega region)

An example of intertidal algal bed & rocky barren habitat with rockweed (*Fucus distichus*) (PC: ACCS – Seldovia, AK)