



Stratum code: TMCW

Number of plots sampled: 19

Physiography: coastal (Coastal Zone physiographic unit)

Geomorphology: ocean shore

Landform: deltas, breached lake basins and low-lying polygonal tundra

Hydrology: hydric to hygric, flooded

Classification: A tidally- influenced herbaceous wetland type. Average cover of bare ground is 19.7%. Average cover of obligate wetland plants is 49.1%. Aquatic mosses contribute an average cover of 5.0%. Average shrub cover is 5.9%.

Site characteristics: Occurring at sea level within the range of tidal influence. Typically, low gradient sites with ice-rich permafrost. Due to the proximity of flowing water, the depth of seasonal thaw is relatively deep, averaging 57.9 cm. Along stable coastlines, vegetation pattern is zonal with plants establishing at distance from the waterline according to their tolerance to salinity and inundation. Along coastlines experiencing subsidence and erosion due to thermokarst, vegetation pattern is relict of the preexisting, non-tidal type.

Soil characteristics: Due to the removal of detritus by tidal waters the cumulative thickness of moss and duff is insignificant. Organic material, often relict of sedge and/or Sphagnum peat accumulated in a tundra environment, averages 21.5 cm in depth. Organic soil material overlies mineral soil comprised of silt and sand. Buried organic horizons may be present at sites subject to storm surge. Soils

on non-vegetated surfaces are composed of layered silts and sands. Average soil water pH measured at 10 cm is 6.8.

Vegetation: The halophytic graminoids *Puccinellia phryganodes* and *Carex subspathacea* both dominate and indicate the type. Additional indicator species include the salt-tolerant forb *Stellaria humifusa*. The salt- tolerant graminoids *Dupontia fisheri* and *Carex aquatilis*, and the dwarf shrub, *Salix ovalifolia* show relatively high cover and frequency. Mean vascular plant richness is 13 taxa.

Dominant Species (greater than 25% average cover):

- Puccinellia phryganodes
- Carex raminskii
- Carex subspathacea
- Equisetum variegatum
- algae

Indicator species Taxa with significant potential (p<0.0002) to indicate the Tide Marsh Coastal Wetland stratum (listed in decreasing order of indication) include:

- Puccinellia phryganodes
- Stellaria humifusa
- Carex subspathacea

Succession and disturbance: An early successional type subject to regular tidal disturbance, seasonal storm surge, and thermokarst-related subsidence and erosion.

Indicators of change: Change in species composition (resulting from increased salinity, or storm surge inundation), coastal erosion, and permafrost subsidence.





Table 12. Cover and constancy of plant taxa occurring in the Tidal Marsh Coastal Wetland stratum. Species listed by habit, in decreasing order of percent cover.

| Habit | Scientific Name | Average Cover (%) | Standard Deviation (%) | Minimum Cover (%) | Maximum Cover (%) | Constancy (%) |
|-------------|-------------------------------|----------------------|---------------------------|----------------------|----------------------|------------------|
| tall shrub | Salix richardsonii | 6.7 | na | 6.7 | 6.7 | 5 |
| | Salix pulchra | 4.0 | na | 4.0 | 4.0 | 5 |
| low shrub | Salix arctica | 7.8 | 5.2 | 2.0 | 12.0 | 16 |
| | Salix fuscescens | 3.3 | na | 3.3 | 3.3 | 5 |
| dwarf shrub | Salix phlebophylla | 11.3 | na | 11.3 | 11.3 | 5 |
| | Dryas integrifolia | 6.0 | na | 6.0 | 6.0 | 5 |
| | Salix polaris | 6.0 | na | 6.0 | 6.0 | 5 |
| | Salix ovalifolia | 4.7 | 3.5 | 1.3 | 11.3 | 32 |
| | Puccinellia phryganodes | 32.5 | 29.3 | 2.7 | 92.0 | 68 |
| graminoid | Carex raminskii | 30.0 | na | 30.0 | 30.0 | 5 |
| | Carex subspathacea | 29.9 | 25.8 | 7.3 | 68.0 | 26 |
| | graminoid | 24.7 | na | 24.7 | 24.7 | 5 |
| | Dupontia fisheri | 21.7 | 16.2 | 4.7 | 48.7 | 32 |
| | Carex aquatilis | 21.2 | 13.8 | 6.0 | 40.7 | 32 |
| | Calamagrostis deschampsioides | 20.7 | 12.7 | 6.0 | 28.7 | 16 |
| | Poa arctica | 18.0 | 11.2 | 9.3 | 30.7 | 16 |
| | Carex ursina | 15.7 | 1.4 | 14.7 | 16.7 | 11 |
| | Eriophorum angustifolium | 15.1 | 12.4 | 6.0 | 35.3 | 26 |
| | Eriophorum russeolum | 11.3 | na | 11.3 | 11.3 | 5 |
| | Eriophorum chamissonis | 8.7 | na | 8.7 | 8.7 | 5 |
| | Puccinellia vaginata | 6.7 | na | 6.7 | 6.7 | 5 |
| | Carex rotundata | 6.0 | na | 6.0 | 6.0 | 5 |
| | Arctophila fulva | 4.7 | 4.7 | 1.3 | 8.0 | 11 |
| | Carex glareosa | 4.7 | 3.7 | 2.0 | 7.3 | 11 |
| | Eriophorum scheuchzeri | 4.0 | na | 4.0 | 4.0 | 5 |
| | Luzula arcuata | 4.0 | na | 4.0 | 4.0 | 5 |

| Habit | Scientific Name | Average Cover (%) | Standard Deviation (%) | Minimum Cover (%) | Maximum Cover (%) | Constancy (%) |
|-----------|-------------------------|----------------------|---------------------------|----------------------|----------------------|------------------|
| | Carex maritima | 2.0 | na | 2.0 | 2.0 | 5 |
| | Carex saxatilis | 2.0 | na | 2.0 | 2.0 | 5 |
| forb | Stellaria humifusa | 8.7 | 6.9 | 1.3 | 18.0 | 53 |
| | Cochlearia groenlandica | 2.7 | na | 2.7 | 2.7 | 5 |
| | Astragalus alpinus | 1.3 | na | 1.3 | 1.3 | 5 |
| | Bistorta vivipara | 1.3 | na | 1.3 | 1.3 | 5 |
| | Coptidium lapponicum | 1.3 | na | 1.3 | 1.3 | 5 |
| spore- | Equisetum variegatum | 38.7 | na | 38.7 | 38.7 | 5 |
| | Equisetum arvense | 8.7 | na | 8.7 | 8.7 | 5 |
| | Equisetum scirpoides | 5.3 | na | 5.3 | 5.3 | 5 |
| | Bryum | 17.1 | 18.2 | 2.0 | 37.3 | 16 |
| | Hamatocaulis | 12.7 | na | 12.7 | 12.7 | 5 |
| | Straminergon | 12.7 | 16.1 | 1.3 | 24.0 | 11 |
| | Oncophorus | 12.3 | 12.7 | 3.3 | 21.3 | 11 |
| | Campylium | 12.0 | 6.6 | 7.3 | 16.7 | 11 |
| | Scorpidium | 9.5 | 9.5 | 1.3 | 20.0 | 16 |
| | Tomentypnum | 9.0 | 7.1 | 4.0 | 14.0 | 11 |
| | moss | 8.7 | na | 8.7 | 8.7 | 5 |
| 11033 | Ptychostomum | 4.7 | na | 4.7 | 4.7 | 5 |
| | Dicranum | 4.7 | 3.7 | 2.0 | 7.3 | 11 |
| | Distichium | 3.3 | na | 3.3 | 3.3 | 5 |
| | Pseudocalliergon | 2.7 | na | 2.7 | 2.7 | 5 |
| | Aulacomnium | 2.4 | 0.8 | 2.0 | 3.3 | 16 |
| | Polytrichum | 2.0 | na | 2.0 | 2.0 | 5 |
| | Drepanocladus | 1.3 | na | 1.3 | 1.3 | 5 |
| | Pohlia | 1.3 | na | 1.3 | 1.3 | 5 |
| lichen | Peltigera | 2.0 | na | 2.0 | 2.0 | 5 |
| liverwort | liverwort | 7.0 | 2.0 | 4.7 | 8.7 | 21 |

| Habit | Scientific Name | Average | Standard | Minimum Cover (%) | Maximum Cover (%) | Constancy (%) |
|-------|-----------------|---------|----------|----------------------|----------------------|------------------|
| | Blepharostoma | 1.3 | na | 1.3 | 1.3 | 5 |
| | algae | 32.7 | 44.3 | 1.3 | 64.0 | 11 |