

## Appendix E

### COASTAL WETLAND TYPES

**Aquatic Beds:** These wetlands form in sub-tidal areas of both marine and estuarine waters. Along the coast, aquatic beds are areas of seaweed that grow below the low tide level. In the estuarine waters of the state the most important aquatic beds are eelgrass (*Zoster marina*) found in protected bays and the major tidal rivers. Eelgrass beds are important as nursery and feeding areas for fish, as feeding areas for geese, ducks and wading birds, and for trapping and accreting suspended sediments in the water column. Within some of the larger tidal marshes along the Maine coast aquatic beds of widgeon grass (*Ruppia maritima*) can add to the diversity of the tidal marshes.

**Brackish Marshes:** In areas where average salinities range from 0.5 ppt. to 18 ppt., a wide variety of plant communities can grow which represent the transition from salt marsh to freshwater marsh. These marshes can be found along the major tidal rivers and bays and along the smaller freshwater tributaries flowing into salt marshes. Plants that can be found in brackish areas include black grass (*Juncus gerardii*), narrow-leaved cattail (*Typha angustifolia*), and salt marsh bulrush (*Scirpus robustus*).

**Cobble, Gravel, and Sand Beaches:** These are high-energy coastal wetlands formed by the sorting of sediment material moved by wind and wave energy. The intertidal zone of these wetlands is nearly devoid of visible plants or animals. The higher reaches of these wetlands, where the wave energy only reaches during storm events, may form sand dunes. Maine has few remaining dune fields, but all of these areas are presently protected by law. Dunes support a specialized plant community that is very susceptible to damage during the dune overwash that accompanies large storms.

**Freshwater Tidal Marshes:** In areas where the tides still affect the flow of waters but where the average salinity is below 0.5 ppt. freshwater tidal marshes can form. Vegetation in these marshes is extremely diverse. In the regularly flooded areas one may find pickerel weed (*Pontederia cordata*) and wild rice (*Zizania aquatica*). In areas that are irregularly flooded sweet flag (*Acorus calamus*) and river bulrush (*Scirpus fluviatillis*) are common. Freshwater tidal marshes are predominantly associated with the Kennebec River above Bath.

**Rocky Shores:** This type of coastal wetland is very common in northern New England. It can be found in areas where bedrock is exposed by nearly continuous wind and water driven energy. These wetlands can be divided into three zones: the salt spray zone - rarely flooded but influenced by waves; the intertidal zone - regularly flooded and exposed by the tides; and the sub-tidal zone - rarely exposed and underwater most of the time. Plants and animals such as seaweeds, barnacles, and periwinkles can be easily found.

**Salt Marshes:** These vegetated tidal wetlands, where salinities range from 18 ppt. to 34 ppt. (the latter is that of seawater), are dominated by *Spartina* grasses. In low marsh areas that are flooded twice daily, saltwater cordgrass (*Spartina alterniflora*) forms nearly mono-specific stands that vary in height from a few inches to five feet in height. On the high marsh salt meadow grass (*Spartina patens*) is the dominant plant, but it is usually found in association with numerous other plants that can tolerate high salinity levels (halophytes).

**Tidal or Mud Flats:** These wetlands are unvegetated, low relief environments particularly common in protected coastal environments. They are of critical importance for the production of numerous invertebrate species which are a food source for many bird and fish species. When flooded, the mud flats are scoured by fish feeding on the worm and mollusk population found in the muddy substrate. As the tide recedes, wading birds feed on the same food source. Mudflats can also be found in the larger tidal marshes providing diverse habitat within the marsh.