PART II. PERFORMANCE STANDARDS FOR RESOURCE AREAS

Resource Area definitions and performance standards for work proposed in Resource Areas protected under the Town of Duxbury Wetland Bylaw (Bylaw) are described in this section of the Duxbury Wetland Regulations (DWR).

17.0. LAND UNDER WATER BODIES

17.1. Land Under the Ocean

a) Preamble. Land under the ocean provides feeding areas, spawning and nursery grounds and shelter for many coastal organisms related to marine fisheries and wildlife. Eelgrass is important for the prevention of pollution, protection of water quality, as well as fisheries and fish/shellfish habitat. Nearshore areas, and in some cases offshore areas of land under the ocean help reduce storm damage, erosion, and flooding by diminishing and buffering the high-energy effects of storms. Submerged sand bars dissipate wave energy. Such areas provide a source of sediment for seasonal rebuilding of coastal beaches and dunes. The bottom topography and sediment type of nearshore areas of land under the ocean are critical to erosion control, prevention of storm damage, and flood control. Water circulation and flushing rates, distribution of sediment grain size, water quality (including but not limited to turbidity, temperature, nutrients, pollutants, salinity, and dissolved oxygen), and the habitat of wildlife, finfish, and shellfish, including rare species when they occur, are all factors critical to the protection of wildlife and marine finfish and shellfish fisheries.

Land under the ocean in an unobstructed state is important for the protection of recreational swimming, fishing, shellfishing, boating and sailing, commercial fishing and shellfishing, and aesthetics. Land under the ocean is important for aquaculture. Land within 100 feet of land under the ocean is significant to the protection and maintenance of land under the ocean and therefore to the wetland values which this land serves to protect.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon land under the ocean, the Commission shall presume that such land is significant to the protection of the following wetland values: flood control, erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation; protection of aquaculture; and protection of aesthetics.

These presumptions may be overcome only upon a clear showing that the land under the ocean does not play a role in protecting one or more of the wetland values given above.

c) Definitions – same as 310 CMR 10.25(2).

d) Performance Standards. When Land Under the Ocean, or land within a minimum distance of 100 feet of Land Under the Ocean is determined to be significant to a protected value, the following regulations shall apply:

(1) Proposed work shall not have any significant adverse effect or cumulative adverse effect on the wetland values of Land Under the Ocean.
(2) Proposed work shall not destroy any portion of eelgrass beds and shall not have any adverse effect or cumulative adverse effect on eelgrass beds.
(3) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.
(4) Refer to DWR 23.0 et seq. for additional project-specific performance standards;
(5) Performance standards for proposed work or activities within the buffer zone to Land Under the Ocean are specified in DWR 22.0.
(6) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

17.2. Land Under Salt Ponds

a) Preamble. Salt Ponds provide excellent habitat for marine fisheries and shellfish. The high productivity of plants and phytoplankton in salt ponds provides food for shellfish, crustaceans, and juvenile fish. Bottom sediments and shallow water are excellent areas for many bivalves. The ponds also serve as spawning and nursery areas for crabs and fish. The productivity of salt ponds and the food web they support provide ideal habitat for many types of wildlife, particularly ducks and shore birds, and for rare species of plants and animals where they occur. Salt ponds may provide suitable habitat for aquaculture. The enclosed nature of the ponds also provides shelter for wildlife. Salt ponds and the area around them are important aesthetically and provide the public with many recreational opportunities including: shellfishing, fishing, sailing, swimming, hunting, and wildlife observation. Because of their semi-enclosed nature, salt ponds are sensitive to pollution or nutrient inputs. These inputs can change the plant and animal species composition of the pond, and thus can be detrimental to fish, shellfish, and wildlife. Bioaccumulation through food webs can also create dangerous levels of pollutants or toxins for wildlife and humans.

Characteristics of salt ponds which are critical to various wetland values include, but are not limited to, water circulation, distribution of sediment grain size, amount of freshwater and saltwater inflow, productivity of plants, and water quality (including but not limited to amounts of dissolved oxygen, nutrients, temperature, turbidity, pollutants, pH, and/or salinity). Land within 100 feet of a salt pond is considered to be significant to the

protection and maintenance of a salt pond and the land beneath it and therefore to the protection of the wetland values of the salt pond.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon a Salt Pond or land within a minimum distance of 100 feet from a salt pond, the Commission shall presume that the salt pond is significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the salt pond does not play a role in protecting one or more of the wetland values stated above.

c) Definition – Same as 310 CMR 10.33(2).

d) Performance Standards. When a Salt Pond or land within a minimum distance of 100 feet of a Salt Pond is determined to be significant to a wetland value, the following regulations shall apply:

(1) Proposed work shall have no significant adverse effect or cumulative adverse effect upon the wetland values of a Salt Pond.
(2) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.
(3) Refer to DWR 23.0 et seq. for additional project-specific performance standards.
(4) Performance standards for proposed work or activities within the buffer zone to a Salt Pond are specified in DWR 22.0.
(5) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.

17.3. Land Under Inland Water Bodies and Waterways - Rivers, Creeks, Streams, Ponds, Lakes, Ditches or Flats

a) Preamble. Where land under water bodies is composed of pervious material, such land represents a point of exchange between surface and groundwater. Depending upon the hydrological conditions and water levels at a given time, these areas may serve as recharge or discharge points, or both, with groundwater. An area may serve as recharge area at one season and a discharge point at another time. This allows pollutants and nutrients easy access into private wells or the general groundwater supply. The physical nature of land under water bodies is highly variable, ranging from deep organic and fine sedimentary deposits to gravel and large rocks. The organic soils and sediments play an important role in the process of detaining and removing dissolved and particulate nutrients from the surface water above. These also serve as traps for toxic substances (such as heavy metal compounds).

Land under water bodies in conjunction with banks serves to confine floodwater within a definite channel during the most frequent storms. Filling within this channel blocks flows which in turn causes backwater and overbank flooding during such storms. An alteration of land under water bodies that causes water to frequently spread out over a larger area at lower depth increases flooding. Additionally, it results in an elevation of water temperatures and decrease in habitat in the main channel, both of which are detrimental to fisheries and shellfish, particularly during periods of warm weather and low flows. It may also flood waterfowl nesting sites which otherwise would not be disturbed. Land under ponds and lakes is vital to a large assortment of warm water fish during spawning periods. Species such as large-mouth bass (*Micropterus salomoides*), small-mouth bass (*Micropterus dolomieui*), blue gills (*Lepomis macrochirus*), pumpkinseeds (*Lepomis gibbosus*), black crappie (*Pomoxis nigromaculatus*), and rock bass (*Ambloplites rupestris*) build nests on the lake and bottom substrates within which they shed and fertilize their eggs. Land within 100 feet of any bank abutting land under a water body is significant to the protection of the values which these water bodies serve to protect.

Characteristics of water bodies which are critical to protection of wildlife and fisheries include water circulation and flushing rates, distribution of sediment grain size, water quality (including concentrations of dissolved oxygen, turbidity, nutrients, temperature, and pollutants). Leaving ponds and the land bordering ponds in an unobstructed state may be important to recreational swimming, fishing, and boating. Water bodies and the area around them also provide other recreational opportunities such as hunting and wildlife observation. Vegetated borders of large ponds are important in reducing shoreline erosion and storm damage by dissipating the high energy of storm waves and by anchoring the sediments. Water bodies provide important feeding and/or drinking areas for many types of aquatic wildlife, birds and animals. Ponds and other water bodies provide habitat for insects which serve as food by several species of birds, particularly swallows. Ducks, geese, swans, and herons all use water bodies and surrounding borders for feeding, shelter, and/or nesting areas. Many other birds, animals, reptiles and amphibians use land under water bodies, water bodies, and the borders of water bodies

for parts of their life cycles. Such areas may be suitable for aquaculture of fresh or brackish aquatic plants or animals. Changes in sediments, water quality, water level, or species composition of food sources or ground cover may be detrimental to any of the above wildlife and to any rare species of plants or animals which occur in water bodies.

Ponds and the land surrounding them often provide important aesthetic wetland scenic views, particularly when they are in a natural condition. Ponds provide recreational swimming, boating, fishing, shellfishing, and sightseeing opportunities. The enclosed area and limited size of most fresh water bodies in the Town of Duxbury make them particularly sensitive to pollution or nutrient inputs. These inputs can change the plant and animal species composition of the water body and thus can be detrimental to fish and wildlife. Bioaccumulation of pollutants through food webs can also create dangerous levels of pollutants or toxins for wildlife and humans.

b) Wetland Values and Presumption of Significance. Whenever a proposed project involves removing, filling, dredging, altering or building upon water bodies or the land beneath them or land within a minimum distance of 100 feet from such land, the Commission shall presume that the water bodies and the land beneath them are significant to the protection of the following wetland values: protection of public or private water supply; protection of groundwater; flood control; erosion and sedimentation control; storm damage prevention, including coastal storm flowage; prevention of water pollution; protection of fisheries; protection of shellfish; protection of wildlife and wildlife habitat; protection of rare species habitat, including rare plant and animal species; protection of recreation; protection of aquaculture; and protection of aesthetics. These presumptions may be overcome only upon a clear showing that the water body or the land beneath it does not play a role in protecting one or more of the wetland values given above.

c) Definition – Same as 310 CMR 10.56(2) with the following addition:

The term ”pond” shall include any open body of fresh water with a surface area observed or recorded within the last ten years of at least 5,000 square feet. Ponds shall contain standing water except for periods of extended drought.

d) Performance Standards. When Land Under an Inland Water Body or land within a minimum distance of 100 feet of Land Under an Inland Water Body is determined to be significant to a wetland value, the following regulations shall apply:

(1) Proposed work shall not cause a significant adverse effect or cumulative adverse effect upon the wetland values of Land Under an Inland Water Body.
(2) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.59.
(3) Refer to DWR 23.0 et seq. for additional project-specific performance standards.

(4) Performance standards for proposed work or activities within the buffer zone to Land Under an Inland Water Body are specified in DWR 22.0.
(5) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.