ENVIRONMENTAL
Fact Sheet

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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WMB-CP-07 2004

Functions and Values of a Salt Marsh

Salt marshes are important transitional habitat between the ocean and the land; they are estuaries where fresh and salt water mix. Salt marsh plants (halophytes) are salt tolerant and adapted to water levels that fluctuate with the tide. Tides carry in nutrients that stimulate plant growth in the marsh and carry out organic material that feeds fish and other coastal organisms. Over time, salt marshes accumulate organic material, forming into a dense layer called peat.

Salt marshes are among the most productive ecosystems on earth, rivaling that of an Iowa cornfield. The position of salt marshes on the landscape and their productivity makes them important not only as a part of the natural world but also to humans. There are about 6,200 acres of salt marsh in New Hampshire, many of which have been damaged by management actions that have had unintentional consequences: restricted tidal flow, filling, ditching, and increased freshwater flows. Due to degradation, restoration is often necessary to improve the following functions that salt marshes provide.

Nursery Area for Fish, Crustacea, and Insects

We know that the productivity of a corn field goes to feed humans and livestock, so who benefits from salt marshes? Research increasingly points to aquatic wildlife as the main recipient of marsh production. Little vegetation is consumed directly, but is broken down by bacteria and small insects. The decaying plants and microbes are eaten by larger crustaceans, insects, fish, and mussels that reside in the marsh soils, ditches, and pools where they are protected from predators. That is, until the tide comes in and predators are able to locate and eat the smaller critters. Thus, the salt marsh provides the food for larger fish that are important to the New England fishing industry. Over the past decade, fishery stocks in New England have seriously declined. There is evidence that restoring marshes, along with improved fishing management, will help to restore these fish stocks.

Protection Against Waves and Sea Level Rise

Over the past 6,000 years, the ocean has risen many feet in elevation. It is not uncommon to dig in a salt marsh and find the stumps of cedar trees preserved underneath. Because salt marshes trap nutrients and sediment, and build organic matter to form peat, they are able to grow and keep pace with the rising ocean. Current forecasts call for the sea level to rise at least another foot in the next 100 years. The salt marshes will keep pace with this rise if we let them. The

marshes also slow the velocity of waves before they reach land and mitigate storm surges. In places where marshes have been destroyed, winter storms are more damaging.

Mosquito Control

Historically, people have drained marshes, by creating ditches, to both harvest salt marsh "hay" for cattle, and to control mosquitoes. In many areas, the practice of ditching for mosquito control is ineffective and counterproductive. When marshes are drained, mosquito habitat remains in the panes and pockets of water but their main predator, the mummichog, loses its habitat. Over time, the ditches fill back in causing more stagnant water. The introduction of tide gates does not eliminate mosquitoes either because it results in freshwater ponding, which simply causes freshwater mosquitoes to replace the saltwater species. Restoring marshes can dramatically increase fish populations that control the mosquitoes.