

The Island Trail

THE NEWSLETTER OF THE MAINE ISLAND TRAIL ASSOCIATION WINTER 2008

The Sea Also Rises: Islands Surrounded by Change

BY CATHERINE SCHMITT

Maine islands: the words bring to mind an archipelago of jagged granite, tufted with spruce and fir, surrounded by an indifferent sea.

Such an image is only half correct, as just 50 percent of the Maine coast is rock-bound. The other half is made of softer stuff, sand and mud pushed around by waves and tides. As Maine's climate changes, so too will the landscape and shape of coastal islands. The changes will be most noticeable on areas with soft geology, including many islands, which are vulnerable to the rising seas that accompany a warming planet.

Maine islands lie within the Gulf of Maine, which itself is part of the global ocean. As the planet warms due to an increase in heat-trapping greenhouse gases, the ocean warms and expands, causing the sea level to rise. Ice caps melt and drain into the sea, swelling the ocean even more. The Portland tide gauge recorded a mean sea level rise of 0.6 feet during the 20th century; over the next century, sea level is expected to rise approximately another two feet.

continue page 6

In This Issue

EAGLES DE-LISTED.....	Page 4
TRAIL TALE WINNERS	Page 8
BARMORE ASCENDS	
THE THRONE.....	Page 10
PORT IN A FINANCIAL STORM	Page 11



In Countless Small Acts, Citizen Stewardship Takes Hold

BY BRIAN MARCAURELLE, STEWARDSHIP DIRECTOR

Picture yourself in a boat on a river, only instead of tangerine trees and marmalade skies your gaze is fixed upon a dancing blaze on a nearby island. Going ashore to investigate, you discover several large logs burning unattended in a fire ring in the center of the island. The fire is roaring. You call out; no answer. There are no other boats on the shore, no tents at the campsite, no signs of anyone else on the island other than you and your paddling partner. A closer look reveals that the fire has been burning for some time and has spread beyond the fire ring, scorching the nearby ground. It's clear that this fire needs to be extinguished before it ignites the surrounding duff and tree roots, but how? You are on a day paddle and your tiny water bottles are no match for the raging inferno before you. Nevertheless, it's all that you have, so you get to work.

After several minutes you manage to douse a small area extending a few feet from the fire ring when, serendipitously, you spy a large group of paddlers within shouting distance. You hail them and they join you in the firefighting effort. Someone in the group astutely points out that using dry bags to carry water to the fire would be much more effective than water bottles. Heads nod in agreement and dry bags are emptied of their contents and filled with sea water. After dozens of trips between the shore and campsite, the fire is finally out.

continue page 12

The Sea Also Rises:

continued from page 1

Impact on Trail Islands

Rising seas will isolate islands connected to the mainland via bars or sandy beaches. Low islands like Bar in Casco Bay could disappear altogether, while larger islands are split as seawater floods low areas.

“Names can offer clues,” said Dr. Joseph Kelley, a marine geologist at the University of Maine. “Anything with ‘bar’ or ‘carry’ in the title is likely to be affected,” because these place-names indicate low elevations and soft earth. Many islands contain freshwater wetlands or bogs, fed only by rain and contained by peat cliffs or gravel berm beaches, such as on Bois Bubert Island. If these protective features erode, saltwater would inundate the freshwater areas. In a similar way, gravel beaches could progress across islands, covering wetlands. According to Kelley, even islands that seem high and dry are at risk.

“People see a high area and think it is safe, but if it isn’t made of rock, it’s not safe,” he said. That tall island could be a bluff, a pile of sand and gravel left behind by the glaciers. Many bluffs sit on top of mud. When waves attack the bases of the bluffs, the mud erodes and the bluff collapses. Kelley and the Maine Geological Survey have mapped 17% of Maine’s coastal bluffs as unstable.

Of course, erosion is a natural process. A glance at old topographical maps shows that Maine has lost some islands over

the last century: Strawberry Island near Kennebunkport is gone, as are some islands in Holmes Bay near Machias. But humans tinker with natural processes; sea level rise is speeding up.

Kelley estimates that at the current rate of sea level rise, which is the fastest sea level has risen in 6,000 years, exposed bluffs wash away at a rate of two feet per year, and beaches as much as half a foot a year.

Storm-Driven Change

“All of this activity is driven by storms,” he explained. “We can’t predict storms on a yearly basis, so we average erosion over longer periods of time. But one big storm can cause major erosion.” Some regional climate models predict an increase in “storminess,” with more precipitation in winter and spring, more intense rain, and more frequent extreme storm surges in the coming decades.

Rocky islands will slowly drown, leaving seabirds who nest on low-lying islands with shrinking habitat. According to Dr. Stephen Kress of Project Puffin, the 30-foot waves and high tides of the 2007 Patriots Day storm washed over most of Eastern Egg Rock, which is only 17 feet above the average high tide. If the storm had occurred a month later, it would have flooded most puffin-nesting burrows. As it turned out, the storm actually improved tern nesting habitat by washing away invasive grasses and exposing the underlying beds of gravel, proving that climate changes have unexpected consequences.

A Transformed Environment

In a warmer climate, different plants and animals could colonize the islands. Some forest ecologists predict the pointed evergreens that so characterize the “spruce-clad” Maine coast will remain on a narrow strip Downeast while inland forests will change more drastically. This is because the ocean has a tempering effect on coastal zone climate, moderating extremes of heat and cold.

Repeat visitors to islands will notice changes, however. As the atmosphere warms, so does the sea. Regional sea surface temperatures have increased almost 2°F since 1970, and could rise another 6-8°F by century’s end. Certain types of toxic “red tide” algae thrive in warmer waters, as do pathogens and pollutants that affect oysters, mussels, and clams. Invasive species likely will become a bigger nuisance, both on land and underwater. Ticks that carry Lyme disease could spread.

Of course, warmer temperatures could extend the boating season, but paddlers will be traveling through very different waters. The rockbound coast is not as steadfast as it seems; Maine islands are surrounded by change.

Catherine Schmitt is Communications Coordinator with the Maine Sea Grant program at the University of Maine. Their mission is to play a leadership role in marine science and education and to promote the sustainable development, management, and stewardship of marine and coastal resources.



Owner and Adopter Make a Joint Island Visit

Island Owner John Loyd (left) and Adopter Peter File approach Little Birch island off Harpswell. Their visit personifies MITA’s goal of bringing property owners and visitors together in support of island stewardship.