

MAPPING OUR UNDERWATER MARINE RESOURCES

The MapCoast and BayMap Partnerships

MAPCOAST:

CHARTING OUR NEARSHORE ENVIRONMENTS

The MapCoast Partnership is a consortium dedicated to multidisciplinary mapping of coastal underwater resources, including bathymetry, habitat, geology, soils/sediment, and archeological resources in shallow waters. Submerged habitats and the species they support are the “canary in the coal mine” for evaluating the ecological condition of the coast.

However, the coastal resources management community is limited by outdated or inadequate scientific understanding of these environments. The MapCoast consortium - an alliance of local, state and federal agencies - is working to resolve this problem by producing detailed maps of our submerged environments.

MapCoast is developing a readily accessible database of soils and sediment in coastal Rhode Island that meets the variety of needs of the user community, recognizing that these data are essential for management and protection of coastal ecosystems. The initiative strives to create a seamless soils/sediment database of the coastal plain above and five meters below the sea surface. It will map submerged habitats that are crucial to support our fish and shellfish populations. MapCoast will also develop a high resolution, accurate digital terrain model (topography and bathymetry) above and below the sea surface in coastal environments.

The MapCoast partners include the USDA Natural Resources Conservation Service, the University of Rhode Island, the Coastal Resources Management Council, the Narragansett Bay Estuary Program, RI Sea Grant, RI Department of Environmental Management and the Environmental Protection Agency.

BAYMAP:

CHARTING THE BOTTOM OF NARRAGANSETT BAY

The BayMap project will produce a comprehensive series of high resolution seafloor maps and deep water coastal environments. Those maps tell us of the geology, habitats, biological communities and archaeology of the deeper areas of Narragansett Bay

and our southern shore. The main focus of BayMap is on sediment in deeper waters, as a complement to MapCoast’s focus on soils in coastal lands and in shallower waters.

BayMap is designed to provide much-needed insights into bottom-dwelling plants and animals. When the waters of our marine environment are clean, these organisms thrive and are the basis for Narragansett Bay’s rich ecosystem. However they are the first organisms to show signs of stress when our water becomes polluted. And when these bottom-dwelling systems fail, the whole of the Bay environment is impacted.



BayMap uses sophisticated imaging technologies to map the sea floor and the organisms that live there. This information will be assembled into an inventory of sediment types, habitats, biological communities and underwater archaeological sites in a readily accessible GIS format. An interdisciplinary team of geologists, biologists, archaeologists and GIS experts from the University of Rhode Island are collaborating on the BayMap study which has received initial funding from RI Sea Grant.

For more information on MapCoast and other Bay mapping and monitoring projects, go to:
<http://www.mapcoast.org>

WHY IS UNDERWATER MAPPING IMPORTANT?

MAPCOAST: REVEALING AND ANALYZING THE UNSEEN GARDENS

Imagine you are selecting a location for your garden. You might want to look at the soil before you start digging. Is it rich, dark earth that would promote good rooting and productive crops? Or is it hard-crusting gravel, left over from construction that would challenge even the best gardener?

This type of assessment is now underway by the scientists involved in the MapCoast program.

They are using state-of-the-art science to examine the productivity of the submerged soils that lie beneath Narragansett Bay and the salt ponds along the southern shore of the state. The same soils that support verdant gardens and flower beds also provide a rich foundation for underwater plants that are the essential habitat for fish and shellfish. Imagine that fertile garden

running directly into the waters of the Bay from the rose bushes next to the house past the tomato plants in the backyard into the water out to depths of almost 10 feet. These areas of submerged aquatic vegetation (called SAV by scientists) are the basis of our marine fisheries. By examining the underwater soils in our coastal ponds and estuaries, scientists can gauge how healthy these ecosystems are.

The need to increase scientific understanding of submerged (or “subaqueous”) soils is of vital importance in the management of coastal activities such as dredging, fishing, habitat conservation and eelgrass restoration depend on accurate

information on submerged soils. Mapping of the soils and their fertility permits identification of areas that SAV can be planted to increase the habitat for fish and shellfish.

The MapCoast project is developing new methods that can unlock the hidden qualities of our estuarine habitats. It is using cutting-edge techniques to describe and understand soils and sediment that can serve as indicators that tell us where we have healthy estuarine ecosystems, where we need to

focus our restoration efforts, and that can serve as an early warning of estuarine decline. These are signposts that we would be foolish to ignore.

By combining the methods used by soil scientists on land for the past century with state-of-the-art marine sensing technologies, we are creating a new set of

tools that we can use to map our underwater habitats. These are the baseline data that guide the protection, conservation and management of our near coastal waters. They have an affect on the environmental, economic, and even the social impacts of a unique natural resource that is only now being given its proper due for their long-term implications.

So who benefits from this research? Every Rhode Islander who uses Narragansett Bay or the coastal ponds for boating, fishing or swimming. The end result is healthier estuaries, productive fisheries, abundant shellfish and clean water. Everyone is a winner.

