



Background:

Marine Fisheries is enhancing key bottom sediments in Massachusetts Bay to mitigate for biological impacts from the Hubline pipeline construction. A substantial amount of the impacted sediment along the pipeline footprint consists of gravel, cobble, and boulders. This type of habitat is critical to several life stages of commercially important species such as American lobster, winter flounder, sea scallops, sea urchins, and Atlantic cod, as well as numerous other species of fish and invertebrates. This substrate type provides the relief and interstitial spaces necessary to shelter cryptic species such as lobster and juvenile finfish. Numerous other species of fish and shellfish such as Atlantic herring, ocean pout, and



Atlantic wolffish also find refuge in cobble/gravel habitat during vulnerable early life stages. Sessile invertebrates, important to the productivity and diversity of an area, are dependent on complex hard bottom.

Marine Fisheries will be constructing a naturalistic reef in close proximity to the pipeline to create/enhance habitat for these benthic organisms. The reef design comprises an array of six rectangular reefs and three impact area control sites within a total footprint of 7000m².

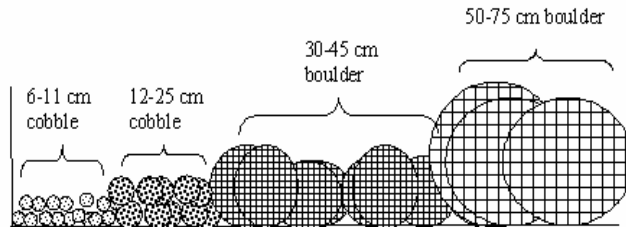
The actual reef area is twice the size of successful cobble reefs deployed in Boston Harbor, MA and in Narragansett Bay, RI . Each of the six reef structures contains



variable rock sizes in order to best accommodate multiple life stages of lobsters, finfish, and other benthic organisms. Reef placement is intended for the corridor of substrate impacted by the Hubline project, provided that all other site selection criteria are met. These criteria include: adequate depth, sediment type, bottom slope, current, post larval lobster settlement, water quality, and user conflicts.

Varied stone sizes to be used in reef construction

Four prime areas for potential reef sites were identified and 24 sites within these areas were selected for their proximity to the HubLine pathway. These sites are receiving



further monitoring to verify site selection criteria.

To evaluate the success of this reef project *Marine Fisheries* will conduct a structured monitoring program designed to characterize and track post larval settlement and development of populations of benthic invertebrates and finfish. Control sites on impacted and non-impacted substrates will also be monitored for comparison.

Commonwealth of Massachusetts
Mitt Romney, Governor

Kerry Healey, Lieutenant Governor

Stephen Pritchard, Secretary
 Executive Office of Environmental Affairs

David M. Peters, Commissioner
 Department of Fish & Game

Paul J. Diodati, Director
 Division of Marine Fisheries



For more information and project updates visit our website at www.mass.gov/marinefisheries and click on the "HubLine" link