Response to USEPA Questions
Commonwealth of Massachusetts
March 14, 2013
New Bedford Marine Commerce Terminal (NBMCT)

Introduction

Thank you for this opportunity to provide USEPA additional information related to the development of the NBMCT. Development of this facility represents an important opportunity to deliver lasting environmental benefits to the New Bedford region, as well as accelerate economic development throughout the region.

This document provides responses to some of the USEPA's comments and requests for information regarding the Fish Deterrent Plan Monitoring Reports that were the subject of a meeting on March 6, 2013.

The format of the document will follow a comment–and-response outline, where each of the USEPA Comments will be listed in the order in which they were presented in the USEPA's Memoranda with the Commonwealths Response to each Comment presented immediately thereafter.

Comment 1: EPA needs to see positive confirmation test of the fish detection system well before any work in water commences. This may be satisfied by a literature demonstration. However, if supporting literature is not available, the Commonwealth needs to take undertake demonstration project to show that fish detection system works and that fish are not entering the closed area.

Response:

In response to the EPA's request for a literature review of the fish survey methodology utilized during fish monitoring surveys for the New Bedford Marine Commerce Terminal project, Apex has conducted research of readily available literature to support the validity of scuba diver and underwater video camera transects for surveys of both flatfish and finfish. The Commonwealth is currently conducting diver and video surveys, and the following are examples of previously completed projects which successfully utilized similar methodologies for the surveying of fish in comparable environments.

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Massachusetts Water Resources Authority and Outfall monitoring project:

This project was conducted within Massachusetts Bay using a remotely operated vehicle (ROV) to characterize marine life around a diffuser cap corridor at the end of and outfall. Transects were divided into 50 meter subsections and the surveys largely were conducted at water depths less than 30 meters. During the survey periods over eight hours of color video was collected, these results showed presence of both finfish such as haddock and cod with moderate accuracy, and flatfish such as winter flounder with a high level of accuracy. The results of this project proves that video transects are a good method in quantifying many different fish species in the survey area.

A towed camera sled for estimating abundance of juvenile flatfishes and habitat characteristics: Comparison with beam trawls and divers:

A project was conducted in 2002 in which utilized cameras for surveying flatfish was conducted in Yaquina Bay, Oregon, and in bays of Kodiak Island, Alaska. During this project a sled mounted camera was towed behind a 3 meter long skiff along transect lines for quantifying juvenile flatfish in these areas. Two sleds were used, one had a tickling chain on it and the other did not. Parallel surveys were also done with diver swims and beam trawls over the same areas. Utilizing the camera sled with chain method, it was found that juvenile flatfish density estimates were equivalent or exceeded the results from the other survey methods. The video sled without chain also was successful in recording the flatfish but with a lesser density than the sled with the chain. It is also noted that a tickler chain made no appreciable difference in seeing flatfish which were noted as 1 year or older. The results found that the video sled and diver swim transect methods were most accurate in quantifying flatfish.

Population estimates of Pacific coast groundfishes from video transects and swept-area trawls:

A study was done in 1995 off the central California coast to compare video transects to trawls in population estimates of demersal fish. An ROV mounted camera system was compared directly to swept-area trawl abundance estimates. For benthic fishes the ROV method not only yielded higher species estimates, but also had a much lower coefficient of variation than did the trawl method. The results show that both methods are valid for fish population density surveying, but the ROV method was much better at estimating skates and flatfish, or any other small or round shaped bottom dwelling fishes.

Nearshore Marine Biological Survey and Assessment Pinellas County Share Protection Project Comprehensive Borrow Area Study:

In 2002 the U.S. Army Corps of Engineers did a marine biological survey and assessment of the of the Pinellas County shore line in central Florida. Because of the shoreline erosion and lowered beach profiles caused by the forces of nature in this area, these areas were evaluated for occurrence and quality of the marine habitats. To identify marine resources an ROV with a video camera was used running transects at 100-foot intervals over 160 nautical miles of transect lines. Diver characterizations were used as supplements to the video survey for identifying corals and algae. During these surveys a total of 22 species from 16 families were observed, mostly including small demersal fish but also pelagic species as well.

An Assessment of the Abundance and Species Composition of Dominican Reef Fishes:

In 2002 a study was done in Dominica to qualify and quantify reef fishes at 8 survey sites off the western coastline of Dominica using roving diver fish survey techniques. Scuba divers and snorkelers were used to visually observe fish species and record their findings with a number scale which was later entered into Microsoft Excel and analyzed. The results showed 115 different fish species were observed, and abundance data was collected for 87 species. The study was successful in documenting various species and it was found that belt transects would be more accurate in determining population densities than random rover dive surveying.

The following is a Bibliography of Literature Examined including the five summarized above:

Adams B. Peter, *et al* (1995). Population estimates of Pacific coast groundfishes from video transects and swept-area trawls. Fishery Bulletin 93:446-455 (1995).

Coats, Douglas A., Imamura, Eiji, Campbell, James F. (1995). Hard-Substrate Reconnaissance Survey S9404 Final Analysis Report. Massachusetts Water Resources Authority, Environmental Quality Department Technical Report Series No. 95-1.

Dial Cordy and Associates, Inc. (2002). Nearshore Marine Biological Survey and Assessment Pinellas County Share Protection Project Comprehensive Borrow Area Study. Prepared for U.S. Army Corps of Engineers, Jacksonville District, Jacksonville Florida.

Green, Dillon M. (2002). Dominica Reef Fish Status 2002: An Assessment of the Abundance and Species Composition of Dominican Reef Fishes. Institute for Tropical Marine Ecology Inc. ITME Research report – Number 13.

Hollingsworth. Lea (04/21/2008). Digital Camera Transects. In Coral Reef Assessment and Monitoring Program Hawaii. . Retrieved 3/7/2013, from http://cramp.wcc.hawaii.edu/LT_Montoring_files/lt_digital_camera_transects.htm.

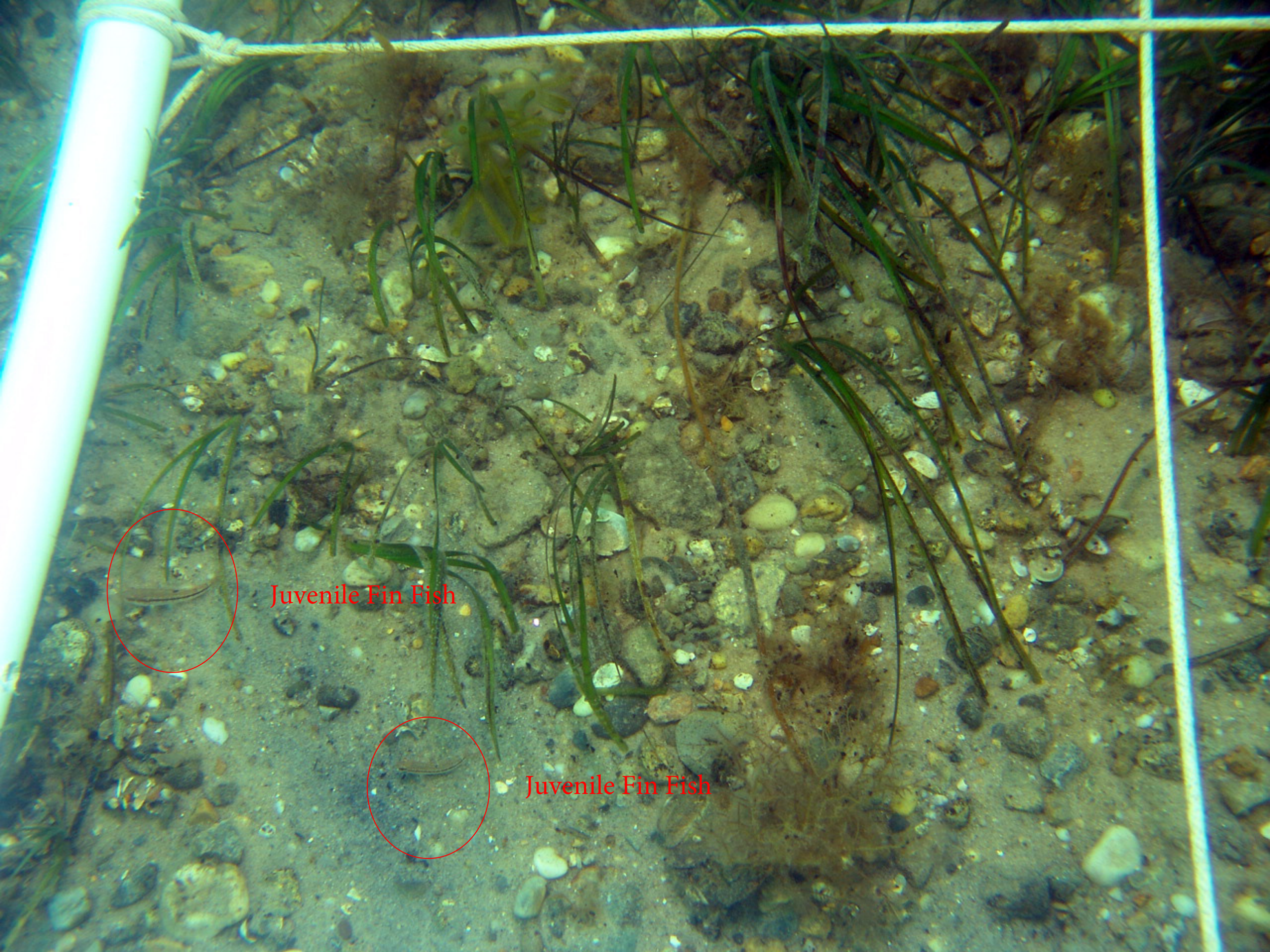
Messing, Charles G. *et al* (2006). Calypso LNG Deepwater Port Project, Florida Marine Benthic Video Survey. National Coral Reef Institute, Nova Southeastern University Oceanographic Center 8000 North Ocean Drive, Dania Beach, FL 33004. Submitted to: Ecology and Environment, Inc. & SUEZ Energy North America, Inc.

Palka, Debbie (1991). Abundance Estimate of the Gulf of Maine Harbor Porpoise. NOAA/NMFS, Northeast Fisheries Science Center, Woods Hole, MA 02543.

Schmitt, E.F., Sluka, R.D., Sullivan- Sealey, K.M. (2002). Evaluating the use of roving diver and transect surveys to assess the coral reef fish assemblage off southeastern Hispaniola. Coral Reefs (2002(21: 216-223.

Spencer M.L., Stoner A.W., Ryer C.H., Munk E.J. (2005). A towed camera sled for estimating abundance of juvenile flatfishes and habitat characteristics: Comparison with beam trawls and divers. Estuarine, Coastal and Shelf Science 64 (2005) 497-503.

Additionally, the Commonwealth has contacted It's subcontractor to provide documentation of fin and flat fish species encountered during similar underwater resource mapping and survey activities that the subcontractor has completed utilizing diver or towed camera techniques. The subcontractor (Fathom Research LLC.) has looked through their library of past surveys where similar methodologies were utilized and provided a small sample of captured underwater images. Attached are the provided sample photographs from a resource survey conducted near the Town of Oak Bluffs, Massachusetts, where juvenile fish are clearly visible and relatively unaffected by the presence of the diver and equipment. Additional information, including video survey data collected by Fathom Research from other Southern New England harbors can be made available to the U.S. EPA if necessary.


Juvenile Fin Fish
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