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MEMORANDUM
To: Matt Schweisberg, Phil Colarusso
Cc: Gary Davis, Jay Borkland, Chet Myers
From: Mike Hickey, Tom Shields, Kathryn Ford
Date: July 25 2011

Re: Shellfish mitigation options for South Terminal bulkhead construction project

There are three options for the shellfish mitigation project associated with South Terminal construction. The three are described below. *MarineFisheries* favors the first option.

1. Transplant shellfish from Palmer's Cove to deeper waters south of Fort Taber in New Bedford waters. The transplant location would be closed for the period of time until the shellfish naturally depurated (1-1.5 years). Shellfish were collected for population density and PCB analysis in March 2011 (Figure 1). The concentration of PCBs was measured in the shellfish edible portion (wet weight). The mean of two samples, each sample a composite of twelve quahogs, was 0.27 ppm, the maximum was 0.33 ppm, and the minimum was 0.21 ppm. The PCB concentration is below the FDA tolerance of 2.00 ppm. The depuration period recommended is to ensure that bacteria levels in the shellfish, which are also high, return to levels fit for human consumption. The deep water planting site limits access to commercial harvest by dredge boats. Any balance of funds after transplant activities would be used to support seeding efforts in New Bedford waters.

2. Transplant shellfish from Palmer's Cove to another location within New Bedford Harbor (inside of the hurricane barrier), thereby retaining their ecosystem functional role in New Bedford, but ensuring they remain outside the fishery. This is not a preferred option since *MarineFisheries* is concerned that there is not enough suitable habitat in New Bedford Harbor for this amount of shellfish. Further, *MarineFisheries* is required to follow NSSP guidelines, which do not encourage transplanting or restoration of shellfish in Prohibited waters. A high profile transplantation program creates an attractive nuisance in waters with easy access to shellfishermen. Planting further out at sea reduces access.

3. Do not do any transplanting and conduct a seeding program. *MarineFisheries* is not in favor of this type of program as a standalone for 2 reasons: 1) There is potentially high mortality associated with seeding. The adult clams are much more likely to survive a transplanting program, whereas a seeding program has many unknowns and may not be successful. 2) At the scale of this mitigation program, there are serious logistical difficulties. It has been stated that the program needs to be carried out in New Bedford waters, which we agree is optimal. In order to grow seed to adult (harvestable) size, the seeding area needs to be closed for up to 3 years. Since there are already several closures in New Bedford, a large seeding program would need to involve a multi-year, rotational-closure, seeding and management program that adds several levels of complexity to the program.

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Figure 1. Tow locations for density (Tows 1-3) and PCB sampling (Tows 1 and 2).

Tow#	Depth	Species	Number of quahogs
1	10-20 ft	quahogs, oysters	358
2	10-20 ft	quahogs	1530
3	6-20 ft	quahogs	1183