

**FISH DETERRENT SYSTEM  
FIELD INSPECTION and SURVEY REPORT:  
WEEK OF 6/5/2013-6/11/2013**

**In Accordance With The:  
FISH DETERRENT PLAN**

**New Bedford Marine Commerce Terminal,  
New Bedford South Terminal, New Bedford, MA**



*Prepared on behalf of:*



Massachusetts Clean Energy Center  
as Part of Regulatory Compliance

*Prepared by:*



1213 Purchase Street, Rm. 206, New Bedford, MA 02740  
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**OPERATIONS REPORT:  
REGULATORY COMPLIANCE ACTIVITIES  
OR-RC-FDP-FISR01-061113**

Version: 01

Date: 6/11/13

# Fish Deterrent System

## Field Inspection and Survey Report

Week: 06-05-13 through 06-11-13  
New Bedford Marine Commerce Terminal (NBMCT)

This Field Inspection and Survey Report was prepared as part of the implementation of the “Fish Deterrent Plan”, which is part of “Water Quality Performance Standards” for the NBMCT (South Terminal Project) referenced in the USEPA “EPA Final Determination for the South Terminal Project” (November, 2012).

### **1. Introduction:**

The Water Quality Standards included in the USEPA Final Determination for the South Terminal Project includes a “Fish Deterrent Plan” (FDP) that describes fish deterrent activities and fish barrier systems that the project proponent (the Commonwealth of Massachusetts) agreed to install and operate (in certain portions of the Harbor) in order to reduce the potential impact to fish (i.e. a “Fish Deterrent System,” or FDS). The FDP indicates that fish deterrent activities shall be conducted during the period from January 15 through June 15 of any year if there is to be construction related to the New Bedford Marine Commerce Terminal (NBMCT) during that period in those areas. The purpose of the FDS is “to reduce the impact to fish by excluding them from a proposed area”; in this case the work areas associated with the construction of CAD Cell #3 and the area around the proposed South Terminal bulkhead extension and berthing channel at the NBMCT. The deployment and operation of the Fish Deterrent System (FDS) is to take place between January 15 and June 15 of any year within areas shallower than –5 meters MLLW if any work that could disrupt spawning or other activities associated with certain fish species is undertaken. The FDP also calls for regular weekly inspections of the system and an assessment as to the presence or absence of fish within the FDS work areas, coupled with actions that should be taken to remove fish from the FDS work areas if they are encountered (using a “Fish Startle System”).

This Field Inspection Report represents the twenty-first Report associated with the installation, inspections, and maintenance of the “Fish Deterrent System” that has been deployed in New Bedford Harbor to meet the 2013 Water Quality Performance Standards in the EPA Final Determination for this Project. This twenty-first Report for the Fish Deterrent Plan activities includes:

- Field Inspection Form for the Fish Monitoring Survey undertaken during the week of June 5, through June 11, 2013; including Fish Startle Activities undertaken; and
- Field Inspection Form for the weekly inspection of the Fish Deterrent System for the week of June 5, through June 11, 2013; and
- Field Maintenance Form for activities that have been undertaken to maintain and improve the FDS system during the week of June 5, through June 11, 2013.

Form : **FDS-FIF-02**  
Inspection Completion  
Date: 6/10

**NBMCT**  
**SOUTH TERMINAL**  
**CONSTRUCTION**  
**MONITORING SURVEY**  
**FORM (MSF)**



Doc #: RCF-FDS-04

**Location of Inspection:**

CAD Cell

**Work Performed:**

Standard Weekly Inspection  
 Special Inspection

**Personnel:**

Jonathan Potts  
David Cangarl  
Erin Grenert  
Scott Magilton  
Ward McIntyre

**Description of Inspection Work Performed Today (List any activities associated with work inspection):**

All transect surveys in the CAD Cell location are performed via surface-supplied-air dive operations. The reason for this survey mode is the result of the ongoing 24 hour, 7 day a week dredging operations. This dredging activity limits underwater visibility and increases the levels of suspended and potentially contaminated sediments in the water column. The dive survey utilizes a 250-Ft long umbilical consisting of an airline, hard wired topside to diver communications and video and light members. The diver is outfitted with a KM57 dive helmet, mated to a volcanized rubber dry suit, which eliminates any possible exposure to sediment and water column contaminants. In effort to maximize underwater visibility, the dive survey operation utilize tidal flow ebb and flood cycles to enhance underwater visibility.

Unless a tidal change occurs at mid-day, the surveys are performed over a two day period. Day one of the two day survey period utilizes an outgoing tide and surveys the northern portion of the CAD Cell, day two of the survey utilizes an incoming tide and surveys the southern portion of the CAD Cell. Utilizing the tide cycles in this manner enhances the underwater visibility of the dive operations by flushing the suspended sediments away from the underwater dive surveyor. The average range of underwater visibility is from 3 inches to 3 feet.

**CAD Cell #3 Area Tasks Completed:**

Monitoring Survey: ~~Yes~~ / No, Sonar: ~~Yes~~ / No, Video: ~~Yes~~ / No

**Results of Inspection:**

**1. Flat Fish Observations:**

None Encountered  
 Flat Fish Encountered (please note # below)

2 Number of Individuals  
0 Number of Schools (3 or more fish)

**2. Fin Fish Observations:**

None Encountered  
 Fin Fish Encountered (please note # below)

0 Number of Individuals  
1 Number of Schools (3 or more fish)

**3. CAD CELL #3 Observed Fish Locations:**

Northwestern Cell Locations

**4. Survey Notes:**

The ability to make an exact count of individual fish viewed during the survey was hampered due to the poor visibility in the Cad Cell. Individual fish scatter away from the underwater surveyor and the only sign of possible fish in the vicinity, is the remaining suspended sediment trail, left behind by a startled fish. However, two positive juvenile flat fish sitings were observed. The school of fin fish viewed by the survey team are believed to be Atlantic menhaden (Brevoortia tyrannus), six-to-twelve inches in length with a school size of +/- 20 fish.

## **Recommendations**

Recs. to Improve Survey Methodology:  
(Description)

Recs. to Improve Service System:  
(Description)

Recs. to Improve General System Performance:  
(Description)

Other (Description)

Form : **FDS-FIF-02**  
Inspection Completion  
Date: 6/10 - A

**NBMCT**  
**SOUTH TERMINAL**  
**CONSTRUCTION**  
**MONITORING SURVEY**  
**FORM (MSF)**



Doc #: **RCF-FDS-04**

**Location of Inspection:**

CAD Cell

**Work Performed:**

Standard Weekly Inspection  
 Special Inspection

**Personnel:**

Jonathan Potts  
David Cangarl  
Erin Grenert  
Scott Magilton  
Ward McIntyre

**Description of Inspection Work Performed Today (List any activities associated with work inspection):**

All transect surveys in the CAD Cell location are performed via surface-supplied-air dive operations. The reason for this survey mode is the result of the ongoing 24 hour, 7 day a week dredging operations. This dredging activity limits underwater visibility and increases the levels of suspended and potentially contaminated sediments in the water column. The dive survey utilizes a 250-Ft long umbilical consisting of an airline, hard wired topside to diver communications and video and light members. The diver is outfitted with a KM57 dive helmet, mated to a volcanized rubber dry suit, which eliminates any possible exposure to sediment and water column contaminants. In effort to maximize underwater visibility, the dive survey operation utilize tidal flow ebb and flood cycles to enhance underwater visibility.

Unless a tidal change occurs at mid-day, the surveys are performed over a two day period. Day one of the two day survey period utilizes an outgoing tide and surveys the northern portion of the CAD Cell, day two of the survey utilizes an incoming tide and surveys the southern portion of the CAD Cell. Utilizing the tide cycles in this manner enhances the underwater visibility of the dive operations by flushing the suspended sediments away from the underwater dive surveyor. The average range of underwater visibility is from 3 inches to 3 feet.

**CAD Cell #3 Area Tasks Completed:**

Monitoring Survey: ~~Yes~~ / No, Sonar: ~~Yes~~ / No, Video: ~~Yes~~ / No

**Results of Inspection:**

**1. Flat Fish Observations:**

None Encountered  
 Flat Fish Encountered (please note # below)

1 Number of Individuals  
0 Number of Schools (3 or more fish)

**2. Fin Fish Observations:**

None Encountered  
 Fin Fish Encountered (please note # below)

0 Number of Individuals  
0 Number of Schools (3 or more fish)

**3. CAD CELL #3 Observed Fish Locations:**

Northeastern Cell Location

**4. Survey Notes:**

The ability to make an exact count of individual fish viewed during the survey was hampered due to the poor visibility in the CAD Cell. Individual fish scatter away from the underwater surveyor and the only sign of possible fish in the vicinity, is the remaining suspended sediment trail, left behind by a startled fish. However, one positive juvenile flat fish siting was observed.

## **Recommendations**

Recs. to Improve Survey Methodology:  
(Description)

Recs. to Improve Service System:  
(Description)

Recs. to Improve General System Performance:  
(Description)

Other (Description)

Form : **FDS-FIF-02**  
Inspection Completion  
Date: 6/11 - B

**NBMCT**  
**SOUTH TERMINAL**  
**CONSTRUCTION**  
**MONITORING SURVEY**  
**FORM (MSF)**



Doc #: **RCF-FDS-04**

**Location of Inspection:**

CAD Cell

**Work Performed:**

Standard Weekly Inspection  
 Special Inspection

**Personnel:**

Jonathan Potts  
David Cangarl  
Erin Grenert  
Scott Magilton  
Ward McIntyre

**Description of Inspection Work Performed Today (List any activities associated with work inspection):**

All transect surveys in the CAD Cell location are performed via surface-supplied-air dive operations. The reason for this survey mode is the result of the ongoing 24 hour, 7 day a week dredging operations. This dredging activity limits underwater visibility and increases the levels of suspended and potentially contaminated sediments in the water column. The dive survey utilizes a 250-Ft long umbilical consisting of an airline, hard wired topside to diver communications and video and light members. The diver is outfitted with a KM57 dive helmet, mated to a volcanized rubber dry suit, which eliminates any possible exposure to sediment and water column contaminants. In effort to maximize underwater visibility, the dive survey operation utilize tidal flow ebb and flood cycles to enhance underwater visibility.

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**CAD Cell #3 Area Tasks Completed:**

Monitoring Survey: ~~Yes~~ / No, Sonar: ~~Yes~~ / No, Video: ~~Yes~~ / No

**Results of Inspection:**

**1. Flat Fish Observations:**

None Encountered  
 Flat Fish Encountered (please note # below)

0 Number of Individuals  
0 Number of Schools (3 or more fish)

**2. Fin Fish Observations:**

None Encountered  
 Fin Fish Encountered (please note # below)

0 Number of Individuals  
1 Number of Schools (3 or more fish)

**3. CAD CELL #3 Observed Fish Locations:**

Northwestern and Southwestern Cell Locations

**4. Survey Notes:**

The ability to make an exact count of individual fish viewed during the survey was hampered due to the poor visibility in the Cad Cell. Individual fish scatter away from the underwater surveyor and the only sign of possible fish in the vicinity, is the remaining suspended sediment trail, left behind by a startled fish. The school of fin fish viewed by the survey team are believed to be Atlantic menhaden (Brevoortia tyrannus), six-to-twelve inches in length with a school size of +/- 15 fish.

## **Recommendations**

Recs. to Improve Survey Methodology:  
(Description)

Recs. to Improve Service System:  
(Description)

Recs. to Improve General System Performance:  
(Description)

Other (Description)

Form : FDS-FIF-03

Date: 6/11/13

Doc #: RCF-FDS-03

# NBMCT SOUTH TERMINAL CONSTRUCTION FIELD INSPECTION FORM (FIF)



**Location of Inspection:**

- CAD Cell
- S. Terminal Area
- Other

**Work Performed:**

- Weekly Inspection Silt Barrier
- Weekly Inspection Fish Weir
- Special Inspection:

**Personnel:**

Josh Ray  
Chris Stillman  
Kaios Ryan

**Description of Inspection Work Performed Today (List any activities associated with work inspection):**

Completed field inspection of South Terminal and CAD Cell #3 exclusion area's fish weir and silt barrier using a pole mounted underwater camera with a remote display on board the survey vessel. The survey vessel navigated along the length of fish deterrent system looking for damages to anchor lines, silt barrier brackets, and silt barrier sewn grommets. The vessel navigated along the fish weir as inspectors looked for anchor tears, tightness (which affects weir height), and bottom chain/weir separation. The fish deterrent curtain is working properly as designed.

**Tasks Completed:**

**CAD Cell #3 Area**

- Weir Inspection
- Silt Barrier Inspection

**South Terminal Area**

- Offline
- Silt Barrier Inspection

**Silt Barrier and Weir Inspection:**

**CAD Cell #3 Area**

Section#	G	S	L	C	A	W	D	Section#	G	S	L	C	A	W	D
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	21	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	22	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	24	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26	<input checked="" type="checkbox"/>	<input type="checkbox"/>										

**G= Good S=Split Seam L=Lifted From Bottom C=Cut / Ripped A=Anchor Lost**  
**W=Weir Misaligned / Damaged D=Anchor Dragged**

**South Terminal Area**

Section#	O	S	L	C	A	W	D	Section#	O	S	L	C	A	W	D
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
7	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
8	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
9	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
10	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
11	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
12	<input checked="" type="checkbox"/>	<input type="checkbox"/>													
13	<input checked="" type="checkbox"/>	<input type="checkbox"/>													

**O= Offline S=Split Seam L=Lifted From Bottom C=Cut / Ripped A=Anchor Lost**  
**W=Weir Misaligned / Damaged D=Anchor Dragged**

**Recommendations**

Recs. to Improve Survey Methodology (**CAD Cell / South Terminal** [circle one/both] ): (Description)

Recs. to Improve Service / System (**CAD Cell / South Terminal** [circle one/both] ): (Description)

Recs. to Improve General System Performance (**CAD Cell / South Terminal** [circle one/both] ): (Description)

None

Other (Description) \_\_\_\_\_ South\_Terminal\_bubble\_curtain\_has\_been\_taken\_offline.\_\_\_\_

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Form : FDS-FMF-01

Date:  
6/11/2013

**NBMCT**  
**SOUTH TERMINAL**  
**CONSTRUCTION**  
**FIELD MAINTENANCE FORM**  
**(FMF)**



Doc #: RCF-FDS-02

**Location of Maintenance:**

- CAD Cell
- S. Terminal Area
- Other

**Work Performed:**

- Silt Barrier Maintenance
- Fish Weir Maintenance:
- Bubble Curtain Maintenance:

**Personnel:**

Cashman/Weeks NB  
Apex Companies

**Description of Maintenance Work Performed During this Maintenance Period (List any activities associated with maintenance).**

Fish Deterrent system is working properly as designed.

**Tasks Completed:**

**CAD Cell #3 Area**

- Weir Realignment / Maintenance
- Silt Barrier Realignment/ Maintenance
- Anchor Alignment / Maintenance

**South Terminal Area**

- Weir Realignment / Maintenance
- Silt Barrier Realignment/ Maintenance
- Anchor Alignment / Maintenance
- Bubble Curtain Maintenance

**Summary of Maintenance Performed (Cad Cell #3 Area):**

\_\_\_ Fish species found in the fish dive inspections warranted fish startle surveys. Fish exclusion efforts completed on 6/10/13 from 1230 to 1400. Fish species found in fish clearance survey. Due to lack of daylight fish exclusion efforts were completed the following morning 6/11/13 from 0830 to 1300. Resulting fish clearance surveys were clear of flatfish species, and need no further fish exclusion efforts.

**Summary of Maintenance Performed (South Terminal Area):**

\_\_\_ No maintenance completed.

**Silt Barrier and Weir Maintenance:**

**CAD Cell #3 Area**

Section#	S	B	R	A	W	P	Section#	S	B	R	A	W	P
1	<input type="checkbox"/>	14	<input type="checkbox"/>										
2	<input type="checkbox"/>	15	<input type="checkbox"/>										
3	<input type="checkbox"/>	16	<input type="checkbox"/>										
4	<input type="checkbox"/>	17	<input type="checkbox"/>										
5	<input type="checkbox"/>	18	<input type="checkbox"/>										
6	<input type="checkbox"/>	19	<input type="checkbox"/>										
7	<input type="checkbox"/>	20	<input type="checkbox"/>										
8	<input type="checkbox"/>	21	<input type="checkbox"/>										
9	<input type="checkbox"/>	22	<input type="checkbox"/>										
10	<input type="checkbox"/>	23	<input type="checkbox"/>										
11	<input type="checkbox"/>	24	<input type="checkbox"/>										
12	<input type="checkbox"/>	25	<input type="checkbox"/>										
13	<input type="checkbox"/>	26	<input type="checkbox"/>										

**S=Seam Laced B=Ballast Added/Corrected R=Repaired/Replaced A=Anchor Added  
W=Weir Repaired / Realigned P=Dragged Anchor Placed in Correct Location**

**South Terminal Area**

Section#	O	B	R	A	W	P	Section#	O	B	R	A	W	P
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18	<input checked="" type="checkbox"/>	<input type="checkbox"/>								
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
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9	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
10	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
11	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
12	<input checked="" type="checkbox"/>	<input type="checkbox"/>											
13	<input checked="" type="checkbox"/>	<input type="checkbox"/>											

**O=Offline B=Ballast Added/Corrected R=Repaired/Replaced  
A=Anchor Added W=Weir Repaired / Realigned P=Dragged Anchor Placed in Correct Location**