The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

DEVAL L. PATRICK
GOVERNOR

TIMOTHY P. MURRAY
LIEUTENANT GOVERNOR

RICHARD K. SULLIVAN, JR.
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1018
http://www.mass.gov/envir

October 4, 2012

Elaine Stanley
U.S. Environmental Protection Agency
New England Region
5 Post Office Square, Suite 100
Boston, MA 02190

Re: Response to National Oceanic and Atmospheric Administration – National Marine Fisheries Service, Northeast Region Comments on the Draft Determination for the Proposed South Terminal Project, New Bedford, Massachusetts

Dear Ms. Stanley:

Following an August 21, 2012 comment letter to EPA from the National Marine Fisheries Service (NMFS) on the Draft Determination for South Terminal in New Bedford, MA, the Commonwealth convened our team, including our fisheries experts at the Massachusetts Division of Marine Fisheries and project engineers, to meet with NOAA's Regional Administrator John Bullard and NMFS staff to provide a full briefing of the project and detail the project's significant environmental benefits to New Bedford Harbor. At the meeting, we explained the extensive mitigation that the Commonwealth has committed to conduct in the areas of winter flounder habitat, salt marsh restoration, and shellfish reseeding. Additionally, we had the opportunity to clarify and address NMFS concerns regarding impact to fisheries. This letter serves to summarize the Commonwealth's conversation with NMFS and detail the collective approach that has been devised that allows the project to be completed in a manner that protects the potentially impacted resources while maintaining the critical project elements to meet the intended project purpose.

At the meetings, which took place at the Massachusetts Executive Office of Energy and Environmental Affairs on September 21 and 28, 2012, we discussed three main points relative to impacts on fishery resources regarding the South Terminal project: mitigating potential impacts to the endangered Atlantic sturgeon, designing engineering controls to protect winter flounder and anadromous fish species, and refining the Commonwealth's proposed shellfish mitigation plan.

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Atlantic Sturgeon

Atlantic sturgeon (*Acipenser oxyrinchus*) is a migratory anadromous species, migrating from the open ocean to coastal rivers to spawn in the spring. All coastal waters along the East Coast, including Buzzards Bay and New Bedford Harbor, are *potential* habitat for Atlantic sturgeon. However, according to NMFS, Atlantic sturgeon are only currently present in approximately 32 rivers from from St. Croix, ME to the Saint Johns River, FL. In Massachusetts, Atlantic sturgeon have been observed along the coast, but have not been observed spawning in the Taunton River (the closest historical spawning river to New Bedford Harbor) for over 15 years (NMFS letter to EPA dated 6-19-12). Additionally, DMF has never spotted the species at or near New Bedford Harbor. In fact, according to NOAA's Distribution and Abundance of Fishes and Invertebrates in Mid-Atlantic estuaries, Atlantic sturgeon have not been observed in Buzzards Bay, and furthermore are listed as rare in Buzzard's Bay under the basis of "reasonable inference" (Stone et al. 1994).

DMF assesses the potential for spawning and forage habitat in all waterbodies for species of concern with respect to impacts from construction projects, including Atlantic sturgeon (Evans et al. 2011). However, New Bedford Harbor has several important characteristics that make it an unlikely environment for Atlantic sturgeon including: a severely restricted entrance (the hurricane barrier) that is constantly monitored, a large amount of vessel traffic, a large seafaring population surrounding the harbor, an extensive Superfund dredging project, frequent navigational dredging conducted under EPA authority, and an anadromous fish restoration project in the Achushnet River. And despite the vulnerability of Atlantic sturgeon to vessel strikes and the relative ease with which these large fish are seen compared to other fish, there have been no reported incidents of vessel strikes to Atlantic sturgeon near or within the New Bedford Harbor.

Furthermore, no Atlantic sturgeon were caught in monthly surveys conducted in New Bedford Harbor for Dredge Material Management Planning (DMMP, Normandeau 1999). Therefore, DMF concluded that Atlantic sturgeon were not present in New Bedford Harbor. Accordingly, we do not make recommendations pertaining to Atlantic sturgeon during our environmental review of the large number of federal and state projects that occur in the harbor. However, we recognize the importance of the Endangered Species Act (ESA) listing and offer the following information and mitigation strategies based on guidance provided by NMFS.

As background, the project calls for the installation of a 1,000 lineal foot coffer-dam style bulkhead with an overhanging pile-supported concrete deck along the quay-side. In order to do this, the Commonwealth will be installing flat sheet piles (to create the coffer-dam structure), z-shaped sheet piles (for the southern return wall) and pipe piles (to support the overhanging concrete deck). The sheet pile installation and pipe pile installation

information can be divided into three categories including cofferdam, return wall area, and concrete decking.

For the cofferdam, the Commonwealth will be installing approximately 3,034 thin flat steel sheets that are approximately 19" long and approximately 0.5" thick. These will be installed to form the cellular structure of the cofferdams.

For the return wall area, the Commonwealth will be driving approximately 175 z-shaped steel sheet piles that are approximately 30" long and approximately 3/8" thick. These sheets will be installed along the southern end of the facility in association with the return wall.

For support of the concrete decking, the Commonwealth will be installing three different types of pipe pilings. The first set will include 65 pipe piles that are 24" diameter and have 5/8" wall thickness. These will be installed after the cofferdams are installed and will be installed outside of the cofferdams. However, these pilings will be installed by drilling a "rock socket" in place, placing the piling in the hole, and then grouting it in place. This first set of pilings will not require driving and will be installed in accordance with the "drill and pin to ledge" criteria that NMFS has already stated would be acceptable for installation at all times of the year.

The second set will include 22 pipe piles that are 30" diameter and have 3/4" wall thickness. These will be installed after the cofferdams are installed and will be installed outside of the cofferdams. These pilings will also be installed by drilling a "rock socket" in place, placing the piling in the hole, and then grouting it in place. Similar to the first set, the second set of pilings will not require driving and will be installed in accordance with the "drill and pin to ledge" criteria that NMFS has already stated would be acceptable for installation at all times of the year.

The third set will include 94 pipe piles that are 30" diameter and have ¾" wall thickness. These will be installed after the cofferdams are installed and filled, and will be installed inside of the footprint of the completed cofferdams. These pilings will be vibrated and/or driven, however, because the cofferdams will be completed and filled with earth by the time these piles are installed, the pilings will be driven into earth above the water surface (i.e. – dry land), and as an upland activity this work will not contribute to noise impacts to fisheries resources.

The project also requires the removal of a relatively small quantity of rock from some of the deeper dredge areas near the quay-side portion of the future vessel berth area.

NMFS has expressed concern that acoustic and vibrational energy from the installation of the piles and the bedrock removal methods may adversely impact ESA listed Atlantic

sturgeon within their normal migratory ranges. NMFS offered the following guidance to promote mitigation of potential impacts to that species: install piles between November 15th and March 15th; or institute engineering controls to ameliorate vibrational energy in the water column if pile driving must occur outside the recommended time frame. Additionally, NMFS provided additional specifications regarding noise impacts to Sturgeon from vibration-causing activities during a teleconference held on October 2, 2012 as follows:

- Threshold for onset of injury – peak measurement: Peak SPL of any strike that exceeds 206 dB re: 1uPa.
- Threshold for onset of injury – cumulative measurement: cumulative SEL (cSEL), accumulated over all pile strikes, exceeds 187 dB re 1 uPa•s. Note: for vibratory hammer pile advancement, assessment of cSEL may be completed using one of two methods: either equating the number of vibratory periods to the number of pile strikes or using the duration of vibration in the calculation.
- Threshold for behavioral effects: 150 dB_{RMS}

The construction methods anticipated for the various activities noted above include:

- Sheet pile driving activities utilizing a vibratory pile driving system (pipe piles are not currently anticipated to contribute to noise impacts, as discussed above);
- Drilling activities associated with "rock-socketing" of pipe piles drilled into rock;
- Mechanical fracturing of shallow rock patches within the dredge footprint where rock may be encountered (either utilizing a bucket dredge , a "hoe-ram", or hydraulic dredge capable of removing rock); and
- Drilling of small holes into small patches of shallow rock outcroppings in the dredge areas and the injection of expanding grout into those holes for the fracturing of rock so that it can be dredged by traditional means.

Because the critical path nature of the project timeline anticipates the potential for work during the March to November timeframe, the Commonwealth proposes to implement the following engineering controls to mitigate the potential for the noted construction activities impacting the resource:

- "Rock-socketing", or drilling the pipe piles into bedrock;
- Limiting the installation methods to the use of vibratory hammers for the installation of piles to the extent practicable;
- If impact hammers are necessary, attempt to, if practicable, limit the use to one hammer and no more that 50 piles installed per day.

Additionally, prior to the start of construction, the Commonwealth will conduct acoustical modeling of the potential noise-generating pile installation activities noted

above to demonstrate that in-water noise levels will not exceed thresholds for physiological impacts or mortality (as noted above) at the zone of passage. Should modeling indicate that acoustical noise levels will exceed the levels indicated above, then additional engineering controls in the form of noise attenuating bubble curtains between the work area and the zone of passage would be employed for work that would occur outside the November to March timeframe.

On the potential impacts to Atlantic sturgeon from blasting, the project may need to utilize blasting for a small quantity of rock from the deep dredge area near the quay-side portion of the vessel berth area. The Commonwealth restates that blasting would only be utilized as a measure of last resort if other methods of rock removal are ineffective. Based upon drilling information from test borings installed within the project site, the Commonwealth anticipates that most of the rock that requires removal from the dredge footprint of the project can be removed using conventional dredging methods or through non-blasting rock removal techniques. However, the possibility does exist that some small volume of rock may need to be removed using blasting techniques. The blasting technique the Commonwealth anticipates utilizing involves the drilling of a series of small blast holes into the rock surface to the depth of desired removal at regular intervals (approximately every 8-15 feet). A small amount of explosive material would then be installed into the blast holes, tamped and covered, and detonated to fracture the rock so that it could be removed using conventional dredging methods.

NMFS recommends that blasting activities occur between November and January 15 to avoid impacts to the various noted species, or to implement engineering controls if blasting is to occur outside that window to mitigate the potential for the noted blasting activities impacting the resource. Because the critical path for this project timeline precludes the Commonwealth from ruling out blasting activities (should they be needed) outside the blasting window, the Commonwealth proposes to implement the following engineering controls to mitigate the potential for the noted blasting activities impacting the Atlantic Sturgeon resource:

- Prior to any potential blasting, the Commonwealth will conduct acoustical modeling to demonstrate that in-water noise levels at the zone of passage will not exceed peak pressure and impulse pressure thresholds for physiological impacts or mortality (less than or equal to 75.6 psi peak pressure levels and less than or equal to 18.4 psi-msec impulse pressure levels).

- Should modeling indicate that acoustical noise levels from blasting activities will exceed the levels indicated above at the zone of passage, then additional engineering controls in the form of noise attenuating bubble curtains between the blast work area and the zone of passage would be employed for work that would occur outside the November to March timeframe.

Shellfish

NMFS has correctly noted that multiple shellfish species in New Bedford Harbor are impacted by the proposed project but that the mitigation plan focuses on quahogs only. There are a couple of reasons for this approach. First, the project area was sampled for shellfish and the dominant species captured was quahog (*Mercenaria mercenaria*). Second, a goal of the mitigation proposed was to be as on-site as possible, so all mitigation activity was targeted in the City of New Bedford. Typically once a transplant is conducted, there is a period of time during which the restoration site is closed to shellfishing to protect the newly planted shellfish. The city already has large, permanent shellfish closures due to poor water quality and relatively little water space, so the mitigation strategy was designed to minimize additional closures while maximizing the number of shellfish planted.

Third, mono-specific quahog transplanting was the most efficient approach since quahogs can tolerate a wide range of depth, sediment type, and water quality conditions. Fourth, another goal of the proposed mitigation is to implement the plan in a timely fashion to limit time lag (the time period between the original loss of ecosystem function and the restoration of ecosystem function). Because of the resilience of quahogs, the transplant success rate is more predictable than with other species.

Finally, the infrastructure to culture and grow-out seed at the scale of this project (millions of seed each year) is not commonplace. With substantial capital investment, the Commonwealth has repurposed its former lobster hatchery to accommodate the anticipated culture of quahogs. The existing infrastructure will be fully utilized focusing on a single species.

However, at the recommendation of NMFS, the Commonwealth has committed to include oyster reseeding outside the New Bedford Hurricane Barrier. It is envisioned that an "oyster reef" will be created in order to mitigate for the lost oyster habitat at South Terminal. A technical team from the Commonwealth's Division of Marine Fisheries and NMFS will meet and collaborate on the establishment and design of the oyster mitigation plan.

Winter Flounder

Winter flounder spawn in shallow estuarine waters in the late winter and early spring. The eggs are demersal and adhesive, and have well-recognized vulnerability to sedimentation (Berry et al. 2003). The Commonwealth has had significant experience with the use of engineering controls in New Bedford Harbor through the work that has previously been conducted as part of the Superfund State Enhanced Remedy (SER) for navigational dredging. As part of the SER dredging program, the Commonwealth and

the USEPA established a set of SER "Performance Standards" (detailed in the Commonwealth's restated application to USEPA) that guide all work under the SER process in the Harbor. The SER Performance Standards prescribe a set of activities that must be implemented when necessary beneficial cleanup dredging occurs during a time of year restriction period. These standards include the actions recommended by NMFS in its August 21, 2012 letter to EPA:

- The use of an environmental bucket for dredging of fine grained materials;
- The use of silt curtains (or equivalent) combined with turbidity monitoring with action levels.

The Commonwealth is aware that NMFS has raised concerns that the mitigation efforts that would be undertaken through the SER process for this project would not fully take into account impacts to demersal eggs from Winter Flounder that might stray into pending dredge work zones during the spawning season (January 15 through May 31) and lay eggs in the portions of the work zone that are at the spawning depth range (generally shallower than 16-feet).

The Commonwealth notes that for projects of relatively short incursion into the "no-dredge window," the likelihood that this scenario would produce significant impact to the species in the area is low. However, in recognition of the special circumstances associated with this project, the Commonwealth is proposing to adopt a series of enhanced engineering controls that consist of:

- Cordoning off the entire depth-relevant time-critical construction areas noted above during the time of year that Winter Flounder could potentially be spawning (January 15 through May 31) to make those areas unavailable to spawning fish through the spawning period. The areas would be cordoned off by installing a subsurface curtain wall consisting of a combination of silt curtains (which would be installed and held into place by anchors to assure effectiveness) and bubble curtains (in areas where navigational servitude will need to be maintained). The silt and bubble curtain equipment will be weighted along their entire length (at the benthic end) to ensure that the deterrent curtain extends the full range of the water column throughout the full tidal range, and does not allow fish to pass under it. A mid-curtain positive buoyancy system will be added to the silt curtain system to hold curtain folds off the bottom during low tidal ranges to reduce the potential for the silt curtains causing siltation issues.
- Use of an acoustic fish "startle" deterrent system (EFSS by Sonalysts or similar) within the time-critical work area prior to the January 15 cordoning-off date to remove existing fish from the zone prior to installing the curtain wall. Additionally, a "tactile fish startle system" (TFSS) will be utilized to remove benthic demersal fish from the work zone prior to cordoning off the work zone.

The tactile fish startle system will utilize a curtain of streamers that reach to the benthic surface deployed from a floating boom pulled from a set of moving vessels to encourage benthic demersal fish (such as winter flounder) to move out of the area prior to it being cordoned off. Both the EFSS and TFSS equipment will be deployed from shallow draft vessels roving through the area to be cordoned off along a grid pattern with 25-foot line spacing.

- Conducting periodic weekly camera and diving inspections of the silt curtain/bubble curtain wall to ensure its integrity, and completing necessary repairs in a timely fashion for damage or entanglement of the curtain wall that would impeded its effectiveness.
- Conducting periodic weekly camera and acoustic fish detection system (AFDS) surveys of the enclosed work area (on a 20-foot grid pattern) to determine if fish remain in the area after the EFSS and TFSS systems have been employed. If the results of the camera and AFDS survey indicate that fish remain within the work zone, a second set of EFSS and TFSS transits will be completed.
- The Commonwealth recognizes that the activities proposed herein will constitute a pilot program to evaluate whether these techniques will be successful on future projects. As such, the Commonwealth commits to filing information concerning the fish deterrent activities described in this section, including: documentation of curtain wall and fish detection survey monitoring activities in a weekly report to the EPA, the SER committee, and NMFS; and preparation of a report of the activities at the conclusion of the project that describes the activities undertaken, the effectiveness of the activities, and any modifications made to the activities during the work period.

The above noted enhanced engineering controls would be utilized concurrently with the typical SER Performance Standard actions of water quality monitoring (both inside and outside the curtained area), and use of the environmental bucket for the dredging of fine grained sediments that can be dredged with the environmental bucket – to ensure that silt suspension from the dredging process is minimized to the extent practicable. The Commonwealth believes that the use of this combined set of engineering controls would effectively mitigate the impacts from dredging during sensitive time periods for Winter Flounder. The enhanced engineering controls would also have the added benefit of mitigating impacts of dredging on anadromous fish species that might be present in the Harbor, as the controls would deter fish from entering the work area and reduce the potential for siltation in the water column.

Finally, the Commonwealth commits to work with NMFS on the creation of a technical working group that would finalize the details of the pilot monitoring regime proposed, to ensure the integrity of the winter flounder protection program.

Conclusion

The Commonwealth believes that the measures proposed will allow the project to advance along a timeline that meets the project's intended purpose and need while protecting and minimizing any temporary impacts the construction might have on the fisheries resources found in New Bedford Harbor. The Commonwealth believes that the extensive clean-up, coupled with the mitigation and engineering controls, provides the best long term benefits to the fisheries resources present in New Bedford Harbor.

The Commonwealth's Natural Resource agencies, including the Division of Marine Fisheries, shares a common mission and goal as both EPA and NMFS, and we are committed to a constructive collaboration with you to protect the natural resources of New Bedford Harbor as we construct this historic project. We request for EPA to concur with the information and analysis contained in this letter that was developed in partnership with the National Marine Fisheries Service.

As always, the Commonwealth is available to discuss any aspect of the project approach presented herein, and we look forward to working with you and your staff to advance the Final Decision for the project in the near future.

Sincerely,

Richard K. Sullivan Jr.
Secretary

Paul J Diodati

Paul Diodati
Director, MA Division of Marine Fisheries

cc: John Bullard, NOAA's Northeast Regional Administrator

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