UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

SEP 16 2013

Carl Dierker
US Environmental Protection Agency
Region I
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Re: New Bedford South Terminal Project in New Bedford, MA—No Re-initiation Necessary

Dear Mr. Dierker,

We have received the request from the Environmental Protection Agency (EPA), dated September 6, 2013, to re-initiate informal consultation under section 7 of the Endangered Species Act (ESA) of 1973, as amended. On May 6, 2013, we completed section 7 consultation on the effects of the Commonwealth of Massachusetts' South Terminal Project in New Bedford, MA on species listed by NOAA's National Marine Fisheries Service (NMFS). The only NMFS-listed species potentially present near the action area is Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Our May 6, 2013, consultation considered the effects of dredging, blasting, and other non-explosive rock removal methods to NMFS-listed species, and concurred with your determination that the proposed action was not likely to adversely affect Atlantic sturgeon. In your September 6, 2013, letter you have determined that the proposed project modifications, (*i.e.*, an increase in blasting area and blast charge) are minimal, and any effects to Atlantic sturgeon will be insignificant and/or discountable. You have concluded that the project, as modified, is not likely to adversely affect Atlantic sturgeon. We concur, and for the reasons provided below conclude that re-initiation is not triggered and therefore no further consultation at this time is necessary.

Proposed Action and Consultation History

The original project description reviewed by NMFS included a blasting plan indicating that 7,500 cubic yards of rock would need to be removed via explosives using a maximum of 50 pound charges. The rock was estimated to be 5 feet thick. As a result of additional sediment borings, the Commonwealth of Massachusetts has discovered that additional rock will need to be removed and that 50 pound charges are insufficient to remove the newly estimated total volume of 23,200 cubic yards of rock. The rock area is approximately 15 feet thick and 150 pound charges are necessary to

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remove the newly calculated volume. Blasting at one site may occur between September 15 and January 15, while blasting at the other two locations may occur between November 15 and January 15.

Two scenarios, one using a peak pressure threshold of 75.6 pounds per square inch (psi) and one using an impulse level threshold of 18.4 psi-msec, were modeled to determine if adequate fish passage will be available in New Bedford Harbor if Atlantic sturgeon are present. Currently, we have no acoustic guidelines or criteria for effects of blasting on listed species of fish. However, lethal threshold peak pressure levels for a variety of marine fish species exposed to open water (unconfined) dynamite blasts have been suggested by Hubbs and Rechnitzer (1952). These thresholds varied from 40 psi to 70 psi, the former being the more conservative in estimating mortality in fishes (Hempen et al., 2007; Keevin, 1995; ACOE, 2004) since this estimate was established from an open-water testing program and not from confined shots, which are known to reduce the pressure waves of detonations. Keevin (1995) found no mortality or internal damage to bluegill exposed to high explosives at pressures at or below 60 psi.

Although effects of blasting on Atlantic sturgeon have never been studied, effects of blasting on shortnose sturgeon have been examined and will serve as the best available information on potential effects of blasting on Atlantic sturgeon. Test blasting was conducted in Wilmington Harbor, North Carolina, in December 1998 and January 1999 in order to adequately assess the impacts of blasting on shortnose sturgeon and the size of the LDI area (defined as the lethal distance from the blast where 1% of the fish died). As explained in Moser (1999), the test blasting consisted of 32-33 blasts (3 rows of 10 to 11 blast holes per row with each hole and row 10 feet apart), about 24 to 28 kg (52 to 61 pounds) of explosives per hole, stemming each hole with angular rock, and an approximate 25 msec delay after each blast. During test blasting, 50 hatchery reared juvenile striped bass and shortnose sturgeon were placed in 0.25" plastic mesh cylinder cages (2 feet in diameter by 3 feet long) 3 feet from the bottom (worst case scenario for blast pressure as confirmed by test blast pressure results) at 35, 70, 140, 280, and 560 feet upstream and downstream of the blast location.

Results of the study indicated that there was a low survival rate for both species of fish located 35 feet from the detonation site; however, at distances of 70 feet, caged fish showed no sign of hemorrhage or swim bladder damage, although two fish exhibited extended intestines, which may have been caused by the blast. At distances at, and beyond 140 feet, there was no difference in survival or impulse pressure. In addition, necropsy results indicated that shortnose sturgeon juveniles were less seriously impacted by test blasting than were the juvenile striped bass. It is believed, therefore, that survival rates for shortnose sturgeon would have been higher than striped bass following blasting treatments, even within the 35-foot distance of the blast area (*i.e.*, 88% of shortnose sturgeon would have survived versus 34 % of the striped bass; Moser, 1999). Therefore, although fish located at 140 feet from the blast area were never necropsied, based on the above information, the 100% survival rate of shortnose observed 140 feet from the blast area was expected to continue even 24 hours or more after the blast. Average peak pressure and peak impulse pressure levels at 140 feet were 75.6 psi and 18.4 psi-msec, respectively, with peak impulse pressure being a better indicator of blast impacts than peak pressure (Moser 1999). Moser (1999) stipulated that shortnose sturgeon may be less susceptible and less sensitive to blasting effects due to the fact that

the swim bladder in shortnose sturgeon is connected to the esophagus, allowing gas to be expelled rapidly without damage to the swimbladder (*i.e.*, physostomus). Atlantic sturgeon have a similar physiology and are expected to react similarly to blasting events.

Based on the Moser (1999) studies, peak pressure levels at, or below 75.6 psi, and peak impulse levels at or below18.4 psi, will cause no injury or mortality to species of sturgeon, including Atlantic sturgeon. The model for the original South Terminal Project indicate that blasting at these pressures and at charge sizes between 10 and 50 pounds, still provides ample passage for Atlantic sturgeon in and out of New Bedford Harbor. Under the 75.6 psi modeling, approximately 3,000 feet of passage exists throughout the waterway, and under the 18.4 psi-msec scenario, approximately 2,400 feet of passage exists. The models have been adjusted to reflect the changes in blast volume (*i.e.*, an increase from 7,500 to 23,200 cubic yards of rock), and in the charge weight (*i.e.*, increase from a maximum of 50 pounds to 150 pounds), and the blast radius and distances to the two injury criteria has only increased by approximately a maximum of 200 to 300 feet. Sound attenuates from blasting at an angle, and thus distances are not necessarily linear extents. As you have indicated, an estimated 2/3 of the waterway is still available for fish passage. Furthermore, your conditions will apply to the modified action and include the following precautions applicable to Atlantic sturgeon:

1) Any blasting prior to November 15 will require a silt curtain to be placed north of the blast angle to direct any migrating fish from the Acushnet River to the ocean;
2) An adequate fish deterrent system must be in place and functioning at least 24 hours prior to the start of blasting;
3) Pre-blast monitoring for the presence of fish in the impact zone must be completed prior to blasting.

NMFS Listed Species in the Action Area

The Atlantic sturgeon is a subspecies of sturgeon distributed along the eastern coast of North America from Hamilton Inlet, Labrador, Canada to Cape Canaveral, Florida, USA (Scott and Scott, 1988; ASSRT, 2007; T. Savoy, CT DEP, pers. comm.). NMFS has designated Atlantic sturgeon as a listed species under the ESA into five Distinct Population Segments (DPSs) (77 FR 5880 and 77 FR 5914) on February 6, 2012. The five DPSs are: Gulf of Maine—threatened, and New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs—endangered. Atlantic sturgeon are long lived (approximately 60 years), late maturing, estuarine dependent, anadromous fish (Bigelow and Schroeder, 1953; Vladykov and Greeley, 1963; Mangin, 1964; Pikitch *et al.*, 2005; Dadswell, 2006; ASSRT, 2007). Atlantic sturgeons are bottom feeders that suck food into a ventrally-located protruding mouth (Bigelow and Schroeder, 1953). Diets of adult and migrant subadult Atlantic sturgeon include mollusks, gastropods, amphipods, annelids, decapods, isopods, and fish such as sand lance (Bigelow and Schroeder, 1953; ASSRT, 2007; Guilbard *et al.*, 2007; Savoy, 2007). Juvenile Atlantic sturgeon feed on aquatic insects, insect larvae, and other invertebrates (Bigelow and Schroeder, 1953; ASSRT, 2007; Guilbard *et al.*, 2007).

Currently we have no records of any listed species, including Atlantic sturgeon, in New Bedford Harbor. However, Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) are known to use the nearby Taunton River as part of their estuarine/riverine habitat, and could be present anywhere

within coastal waters as part of their marine habitat. Atlantic sturgeon in the area of New Bedford Harbor could belong to any of the five distinct population segments. Eggs, larvae, and juveniles are not expected to be in or near the action area; only sub-adult or adult sturgeon undertaking marine migrations could potentially be present in the vicinity of New Bedford Harbor, during March through November.

Section 7 Conclusions

Re-initiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) If a new species is listed or critical habitat designated that may be affected by the identified action. We have reviewed the proposed project changes to determine if any of these reinitiation triggers have been met.

Our previous concurrence letter dated May 6, 2013, includes an effects analysis of noise levels associated with the blasting, and zones of passage within New Bedford Harbor that would allow passage for Atlantic sturgeon while not interrupting any vital behaviors such as foraging, resting, and/or migrating. Your analysis indicated that the deep channel areas, located approximately 2,000 feet away from the South Terminal construction site, are most likely to support migrating Atlantic sturgeon if they are present in New Bedford Harbor. We analyzed the probability of effects from blasting, (*i.e.*, behavioral avoidance, injury, or mortality), and the areal extent of where those effects may be experienced by sturgeon if they are present, and were able to concur with your determination that the action was not likely to adversely affect Atlantic sturgeon. Based on your blast schedule, only one potential blast location, where explosive may be detonated between September 15 and January 15, would temporally overlap with the potential presence of Atlantic sturgeon.

Under the modified project design, where blast area and charge weight are slightly increased, the potential for any effects to Atlantic sturgeon (i.e., risk of injury, behavioral changes, etc.) remain the same (insignificant and/or discountable) as previously determined in our May 6, 2013 consultation. Although the blast radius has increased slightly, the usage of a turbidity curtain to exclude fish from the blast zone where pressure levels may reach injurious levels is still in place, as is the usage of fish deterrent systems, and pre-blast monitoring to ensure that fish are not present within the impact zone (*i.e.*, the 75.6 psi peak pressure and 18.4 psi peak impulse radius boundaries). Furthermore, 2/3 of the waterway will still be available for passage, similar to the availability for passage under the original project design. Based on this analysis of the re-initiation triggers, NMFS has determined that re-initiation of consultation is not necessary because the minimal project changes do not create effects to NMFS-listed species in a manner or an extent not previously considered. As such, the conclusions reached in our May 6, 2013, letter remain valid and no further consultation is necessary at this time.

Should you have any questions regarding the previous section 7 consultation or this letter, please contact Chris Vaccaro at 978-281-9167 or at Christine.Vaccaro@noaa.gov.

Sincerely,

for John K. Bullard
Regional Administrator

EC: Vaccaro, F/NER3
Boelke, F/NER4
Colarusso, EPA

File Code: H:\Section 7 Team\Section 7\Non-Fisheries\EPA\Informal\2012\New Bedford_South Terminal Project
PCTS: NER-2012-9219

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