MEMORANDUM FOR: Jolie Harrison,  
Chief, Permits and Conservation Division  
Office of Protected Resources

FROM: Jennifer Anderson  
Assistant Regional Administrator  
For Protected Resources

SUBJECT: Endangered Species Act consultation for Transco’s Northeast Supply Enhancement Project

On May 23, 2019, you received a complete application from Transco for the taking of marine mammals incidental to planned pile driving and removal to support their Northeast Supply Enhancement Project in state waters of New York and New Jersey. You published a notice making preliminary determinations and proposing to issue an Incidental Harassment Authorization (IHA) on September 3, 2019, (84 Federal Register 36054) and requested consultation, pursuant to section 7 of the ESA, with us at that time.

Enclosed is our letter to the Federal Energy Regulatory Commission (FERC) concluding section 7 consultation. This letter considers effects of all proposed Federal actions, inclusive of your proposed issuance of an IHA to Transco. As explained in our letter, we concluded that no take, as defined by the ESA, is anticipated to occur and that the proposed action is not likely to adversely affect any species listed by us under the ESA.

If you have any questions regarding this, please contact Julie Crocker at (978)282-8480 or Julie.Crocker@Noaa.gov.

Enclosure

ec: Carduner, F/PR1

ECO: GAR-2019-04022  
File Code: Sec 7 Informal FERC Transco’s Northeast Supply Enhancement Project
Re: Endangered Species Act consultation for the Northeast Supply Enhancement Project

Dear Mr. Howard:

On August 27, 2019, the Federal Energy Regulatory Commission (FERC), as the lead Federal agency, requested consultation pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended, regarding Transco’s proposed Northeast Supply Enhancement Project. In addition to FERC’s Certificate Order for Public Convenience and Necessity, Transco has applied for permits and authorizations from the U.S. Army Corps of Engineers for in-water construction and dredge-disposal activities and has applied for an Incidental Harassment Authorization (IHA) pursuant to section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) from the National Marine Fisheries Service’s Office of Protected Resources (OPR). The proposed IHA published in the Federal Register on September 3, 2019 (84 Federal Register 45955). In addition to preparing an Environmental Impact Statement (EIS), pursuant to the National Environmental Policy Act (NEPA), FERC prepared a Biological Assessment (BA) considering effects of the proposed action on ESA listed species.

In the BA, FERC concludes that the proposed action may affect, but is not likely to adversely affect, ESA listed sea turtles and shortnose sturgeon. Based on our knowledge, expertise, and the materials you submitted, we concur with your conclusion that the proposed action is not likely to adversely affect leatherback, Kemp’s ridley, the Northwest Atlantic distinct population segment (DPS) of loggerhead sea turtles, the North Atlantic DPS of green sea turtles, or shortnose sturgeon. We agree with your description of listed species and your conclusion that there is no critical habitat in the action area. We agree with your rationale in making the “not likely to adversely affect” determination for these species and agree that your analysis of the effects of the action when added to baseline conditions supports your “not likely to adversely affect” determination. We agree that you based your determinations on the best available scientific and commercial information.

In the BA, you concluded that the project may adversely affect Atlantic sturgeon (from any of the five listed DPSs), North Atlantic right whales, and fin whales. The adverse effects to these
species identified were expected to result from exposure to pile driving/removal noise. You concluded that all other effects identified in the BA would be insignificant or extremely unlikely; we agree with your conclusions regarding effects other than pile driving/removal noise.

During the consultation, and in consideration of clarifying information received from the applicant in December 2019 specific to noise modeling and expected species exposure, we determined in cooperation with staff from the Office of Protected Resources' (OPR) Permits and Conservation Division and FERC that all effects to right and fin whales of exposure to pile driving noise will be insignificant. This consideration was based on an evaluation of the extent of the anticipated underwater noise, the expected exposure of listed marine mammals to that noise and the best available information on the expected responses to that exposure and whether those anticipated responses met NMFS’ interim definition of harassment under the ESA. We also disagree with your “likely to adversely affect” conclusion for Atlantic sturgeon as we have determined that effects of exposure to pile driving noise will be insignificant. We present the rationale for those conclusions here.

**Pile Driving/Removal Noise**

Here, we present a summary of available information on noise anticipated as a result of installation and removal of temporary piles. More detailed information is presented in the EIS\(^1\), the IHA application\(^2\), the notice of proposed IHA, and FERC’s BA.

Based on FERC’s description of the proposed action, Transco proposes to install a total of 163 temporary steel piles, ranging in size from 10 to 60 inches in diameter. Of the 163 piles, 34 piles would be installed via a combination of diesel impact hammer and vibratory device. The remaining 129 piles would be installed with a vibratory device. Transco anticipates that the time needed to install one pile via vibratory device is approximately 15 minutes of continuous vibration. For impact hammer-driven piles, the anticipated driving time is approximately 38 to 62 minutes per pile. Transco estimates a total of 72 non-continuous hours for pile installation, of which about 31 hours would be impact pile driving and about 41 hours would be vibratory pile driving. As the piles are temporary and needed only to facilitate pipeline installation, they will all be removed in the same year as they are installed. Transco estimates a total duration of 46 non-continuous hours for pile removal, which would be accomplished with a vibratory device. As described in the BA, installation and removal of all piles was expected to be completed during summer 2020 (June–August); however, pile removal could shift to fall (September, October, and/or November). We note that in January 2020, Transco and FERC informed us that the project would be delayed and that pile installation and removal would not occur until 2021. The seasonality of the work is not expected to change.

As described in the BA and notice of proposed IHA, modeling was carried out to predict the underwater noise that would be generated during driving of the various sizes of piles with impact and vibratory methods and removal with vibratory methods. This modeling was used to

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determine the size of isopleths that exceed various thresholds used by us to assess effects of underwater noise on ESA listed species as described below.

**Consideration of Pile Driving Noise – Fin and Right Whales**

A full description of the use of the action area by fin whales and North Atlantic right whales is provided in the BA and notice of proposed IHA and is incorporated by reference. It is important to note that neither fin nor right whales occur in the area where the piles will be installed and that individuals are only likely to occasionally occur in the furthest offshore extent of the areas ensonified above thresholds that may result in behavioral disturbance (120 dB re 1uPa rms) during vibratory pile driving and removal.

NMFS *Technical Guidance for Assessing the Effects of Anthropogenic Noise on Marine Mammal Hearing* compiles, interprets, and synthesizes scientific literature to produce updated acoustic thresholds to assess how anthropogenic, or human-caused, sound affects the hearing of all marine mammals under NMFS jurisdiction (NMFS 2018). Specifically, it identifies the received levels, or thresholds, at which individual marine mammals are predicted to experience temporary or permanent changes in their hearing sensitivity for acute, incidental exposure to underwater anthropogenic sound sources. As explained in the document, these thresholds represent the best available scientific information. These acoustic thresholds cover the onset of both temporary (TTS) and permanent hearing threshold shifts (PTS).

**Table 1.** Impulsive acoustic thresholds identifying the onset of permanent threshold shift and temporary threshold shift for the marine mammal species groups considered in this consultation (NMFS 2018). North Atlantic right whales and fin whales are considered low-frequency cetaceans.

<table>
<thead>
<tr>
<th>Hearing Group</th>
<th>Generalized Hearing Range(^4)</th>
<th>Permanent Threshold Shift Onset(^5)</th>
<th>Temporary Threshold Shift Onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Frequency Cetaceans (LF: baleen whales)</td>
<td>7 Hz to 35 kHz</td>
<td>(L_{pk,\text{flat}}): 219 dB</td>
<td>(L_{pk,\text{flat}}): 213 dB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(L_{E,\text{LF,24h}}): 183 dB</td>
<td>(L_{E,\text{LF,24h}}): 168 dB</td>
</tr>
</tbody>
</table>

These thresholds are a dual metric for impulsive sounds, with one threshold based on peak sound pressure level (0-pk SPL) that does not incorporate the duration of exposure, and another based on cumulative sound exposure level (SEL\(_{\text{cum}}\)) that does incorporate exposure duration. The two metrics also differ in regard to considering information on species hearing. The

\(^3\) See [www.nmfs.noaa.gov/pr/acoustics/guidelines.htm](http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm) for more information.

\(^4\) Represents the generalized hearing range for the entire group as a composite (i.e., all species within the group), where individual species’ hearing ranges are typically not as broad. Generalized hearing range chosen based on approximately 65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall et al. 2007).

\(^5\) \(L_{pk,\text{flat}}\): unweighted (flat) peak sound pressure level (L\(_{pk}\)) with a reference value of 1 \(\mu\text{Pa}\); \(L_{E,\text{LF,24h}}\): weighted (by species group; LF: Low Frequency, or MF: Mid-Frequency) cumulative sound exposure level (L\(_E\)) with a reference value of 1 \(\mu\text{Pa}^2\cdot\text{s}\) and a recommended accumulation period of 24 hours (24h)
cumulative sound exposure criteria incorporate auditory weighting functions, which estimate a species group’s hearing sensitivity, and thus susceptibility to TTS and PTS, over the exposed frequency range, whereas peak sound exposure level criteria do not incorporate any frequency dependent auditory weighting functions.

In using these thresholds to estimate the number of individuals that may experience auditory injury in the context of the MMPA, NMFS classifies any exposure equal to or above the threshold for the onset of PTS as auditory injury (and thus MMPA Level A harassment). NMFS has established Level B harassment thresholds of 160 dB re1μPa (rms) for impulsive sounds (e.g., impact pile driving) and 120 dB re1μPa (rms) for non-impulsive sounds (e.g., vibratory driving and removal).

Under the MMPA (16 U.S.C. §1361 et seq.), take is defined as “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal” and is further defined by regulation (50 C.F.R. §216.3). Harassment is defined under the MMPA as any act of pursuit, torment, or annoyance which: has the potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B Harassment). Under NMFS regulation, Level B harassment does not include an act that has the potential to injure a marine mammal or marine mammal stock in the wild. As described below, OPR is proposing to issue an IHA authorizing Level B harassment of five fin whales and two right whales. No level A harassment is anticipated or proposed for authorization.

Under the ESA, take is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct.” Harm is defined by regulation (50 C.F.R. §222.102) as “an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding, or sheltering.” NMFS does not have an ESA regulatory definition of “harass.” However, on December 21, 2016, NMFS issued interim guidance\(^6\) on the term “harass,” under the ESA, defining it as to “create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.” The NMFS interim ESA definition of “harass” is not equivalent to MMPA Level A or Level B harassment; as a result, there will be situations in which effects to a marine mammal meet the definitions of both MMPA harassment and ESA harassment, and situations in which effects meet the definition of MMPA harassment but not ESA harassment. This is because to qualify as MMPA harassment there only has to be the potential for disturbance to an individual due to the disruption of behavioral patterns, but for ESA harassment, it must be reasonably certain that there is a likelihood of injury due to a significant disruption of normal behavior patterns.

For this consultation, we considered NMFS’ interim guidance on the term “harass” under the ESA when evaluating whether the proposed activities are likely to harass ESA-listed species,

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and we considered the available scientific evidence to determine the likely nature of the behavioral responses and their fitness consequences. As we explain below, we determined that the effects to ESA listed marine mammals resulting from noise exposure would be insignificant and not result in harassment per NMFS' interim guidance on harassment under the ESA.

Noise producing activities may temporarily impact marine mammals that are exposed to elevated in-water sound levels. Marine mammals are continually exposed to many sources of sound. Naturally occurring sounds such as lightning, rain, sub-sea earthquakes, and biological sounds (e.g., snapping shrimp, whale songs) are widespread throughout the world’s oceans. Marine mammals produce sounds in various contexts and use sound for various biological functions including, but not limited to: (1) social interactions; (2) foraging; (3) orientation; and, (4) predator detection. Interference with producing or receiving these sounds may result in adverse impacts. Audible distance, or received levels of sound depend on the nature of the sound source, ambient noise conditions, and the sensitivity of the receptor to the sound (Richardson et al. 1995). Type and significance of marine mammal reactions to sound are likely dependent on a variety of factors including, but not limited to: (1) the behavioral state of the animal (e.g., feeding, traveling, etc.); (2) frequency of the sound; (3) distance between the animal and the source; and, (4) the level of the sound relative to ambient conditions (Southall et al. 2007).

Installation of piles with an impact hammer will result in underwater noise above the MMPA Level A and Level B harassment thresholds; however, the geographic area where this increase in underwater noise will be experienced is limited to the nearshore area where construction will take place and where we do not anticipate whales to occur. Modeling conducted by Transco, confirmed by OPR, and reviewed by us, indicates that no right or fin whales will be exposed to increased underwater noise above the Level A or B harassment thresholds during impact pile driving. The Permits and Conservation Division has determined take by Level A harassment is not an expected outcome of the proposed activity; and, thus, is not proposing to authorize under the MMPA the take of any marine mammals by Level A harassment. FERC will require Transco to adhere to a number of conditions designed to minimize the potential of exposure of marine mammals to pile driving noise. It is important to note that the exposure estimates were developed with none of these conditions in place. These measures therefore provide an additional level of certainty that right or fin whales will not be exposed to noise above the Level A or Level B thresholds during pile installation with an impact hammer. These measures require use of protected species observers to maintain clearance of a zone extending 1,000 m from the pile to be installed or removed for at least 30 minutes prior to start up and maintenance of a 500 m exclusion zone once pile driving has begun. Given the small size of the clearance and exclusion zones we expect that protected species observers will readily be able to detect any large whales approaching the zones. We also note that, as mentioned above, we do not anticipated any large whales to occur in the area where pile driving/ removal will occur or to occur within several kilometers of the pile driving/removal.

Modeling does predict that right and fin whales may be exposed to noise above the Level B harassment threshold during the installation and removal of piles with a vibratory device. The area ensonified above the Level B harassment threshold during these activities is significantly larger than during impact pile installation because the Level B threshold for continuous noise
sources (120 dB re: 1 µPa rms) is significantly lower than the Level B threshold for impulsive noise sources (160 dB re: 1 µPa rms). While the duration of pile installation and removal with a vibratory devise is short (no more than 15 minutes), the area ensonified is large (extending out approximately 21.5 km from the pile) and extends into the offshore area where right and fin whales may occur.

As described in the notice of proposed IHA, a custom Python script was developed to calculate exposure estimates during pile installation and removal activities. The modeling calculates the anticipated exposure of five fin whales and two North Atlantic right whales to noise above the Level B harassment (120 dB re: 1 µPa rms). It is important to note that modeling estimated the number of fin and right whales that could be exposed to pile driving and removal noise on a daily basis. The exposure numbers for each day (factoring in the time for driving/removing individual piles and the number of piles to be removed or installed that day) were all small fractions of right or fin whales (i.e., no more than 0.3 fin whales and 0.05 right whales per day for installation and 0.1 fin whales and 0.06 right whales per day for removal). The calculated exposures per day were then added up over the total duration of the project and then rounded to the nearest whole individual. As the construction schedule has not yet been finalized, the exposure calculations described above were performed for two scenarios: (1) all construction activities occurring during summer and, (2) installation occurring during the summer and removal in fall. To be conservative, the higher exposure estimates calculated between the two scenarios were then carried forward in the analysis. Consistent with the findings by OPR, we consider these exposure estimates conservative because the density estimates are largely derived from adjacent grid-cells that likely overestimate density in the action area. Therefore, the potential for exposure of any fin or right whales to noise that may result in behavioral effects is low. The potential for behavioral effects to whales exposed to this noise is considered below.

We have determined that, in this case, the exposure of these right and fin whales to noise above the MMPA Level B harassment threshold will result in effects that are insignificant. This is because, consistent with the analysis presented in the proposed IHA, we expect that effects to fin and right whales will be limited to temporary avoidance of the immediate area of construction, a reaction that is considered to be of low severity and with no lasting biological consequences (e.g., Ellison et al. 2007). That is, given that exposure will be short (no more than 15 minutes, the time it takes to install or remove a single pile) and that the reaction to exposure is expected to be limited to changing course and swimming away from the noise source only far/long enough to get out of the ensonified area (a behavior that would be limited to no more than the duration of the increase in noise, therefore, no longer than 15 minutes), and that no animals are expected to be exposed to the noise source more than once, the effect of this exposure and resulting response will be so small that it will not be able to be meaningfully detected, measured or evaluated and, therefore, is insignificant. Our determination that exposure of a single whale to more than one pile driving/removal event is extremely unlikely is based on the exposure modeling, which indicates that even considering all pile driving/removal events for a single day, the anticipated exposure is less than one individual. Further, right and fin whales in the area where disturbing levels of noise are predicted to occur are transient and moving through the area on coastal migrations; thus, we do not expect them to remain in the area for any longer than it takes to swim through.
Additionally, in nearly all instances there will be at least 45 minutes between pile driving and removal events each day, with the shortest interval being 15 minutes in a small number of cases, even considering a 15 minute quiet interval, we expect that whales would be outside of the ensonified area before the next noise producing event begins. The action area is not a known breeding or feeding area for right or fin whales and the most likely activity in this area is migration/travel and we do not expect brief (no more than 15 minutes) interruptions of this behavior to have any lasting effects. Because these behavioral changes are so minor, it is not reasonable to expect that, under the NMFS’ interim ESA definition of harassment, they are equivalent to an act that would “create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.”

Consideration of Pile Driving Noise – Atlantic sturgeon

FERC will require compliance with a time of year restriction for pile driving activities that was designed to minimize exposure of Atlantic sturgeon to pile driving noise and to prevent pile driving when pre-spawn adults may move through the action area on their way to spawn in the Hudson River. When considering effects of pile driving noise on Atlantic sturgeon, we use criteria developed by the Fisheries Hydroacoustic Working Group (FHWG). The FHWG was formed in 2004 and consists of biologists from NMFS, U.S. Fish and Wildlife Service, the Federal Highway Administration, USACE, and the California, Washington and Oregon Department of Transportations, supported by national experts on underwater sound producing activities that affect fish and wildlife species of concern. In June 2008, the agencies signed an MOA documenting criteria for assessing physiological effects of impact pile driving on fish. The criteria were developed for the acoustic levels at which physiological effects to fish could be expected. It should be noted, that these are onset of physiological effects (Stadler and Woodbury, 2009), and not levels at which fish are necessarily mortally damaged. These criteria were developed to apply to all fish species, including listed green sturgeon, which are biologically similar to shortnose and Atlantic sturgeon and for these purposes can be considered a surrogate. The interim criteria are:

- Peak SPL: 206 dB re: 1 µPa
- SELcum: 187 B re: 1µPa²-s for fishes 2 grams or larger (0.07 ounces).
- SELcum: 183 dB re: 1µPa²-s for fishes less than 2 grams (0.07 ounces).

At this time, these criteria represent the best available information on the thresholds at which physiological effects to sturgeon are likely to occur.

We use 150 dB re: 1 µPa rms as a threshold for examining the potential for behavioral responses by individual listed fish to noise with frequency less than 1 kHz. This is supported by information provided in a number of studies (Andersson et al. 2007, Purser and Radford 2011, Wysocki et al. 2007). Responses to temporary exposure of noise of this level is expected to be a range of responses indicating that a fish detects the sound; these can be brief startle responses or, in the worst case, we expect that Atlantic sturgeon would completely avoid the area ensonified above 150 dB re: 1 µPa rms while the noise level is elevated.

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Considering even the largest piles to be installed (60-inch diameter), a sturgeon would need to be within approximately 18.5 meters from the pile to be exposed to noise above the peak injury threshold. We agree with your conclusion that this is extremely unlikely to occur. In the BA, you initially conclude that injury of Atlantic sturgeon due to exposure to noise above the cumulative noise threshold is extremely unlikely, but later in the BA modify that conclusion because of the size of the area considered and conclude that adverse effects (injury) are likely due to exposure to noise above the cumulative threshold. We have considered the information and disagree with that conclusion as the best available information supports your initial conclusion that injury is extremely unlikely and therefore injury is not reasonably certain to occur. In order for a sturgeon to be injured, it would need to stay within the area ensonified for the entirety of the duration of pile installation/removal. Given the size of the area ensonified, the duration of pile driving/removal, the swim speed of Atlantic sturgeon, and the lack of any obstructions that would prevent sturgeon from escaping the noisy area, we do not anticipate any case where an Atlantic sturgeon would not be able to swim out of the noisy area prior to completion of pile driving/removal activity. This means that, consistent with your preliminary conclusion, it is extremely unlikely that any Atlantic sturgeon will be exposed to injurious levels of noise and that injury is not reasonably certain to occur.

We also agree that due to the short duration (less than 62 minutes, but more typically 15-30 minutes) of potential exposure to disturbing (but not injurious) levels of noise (above 150 dB re: µPa rms) and the anticipated response of temporary displacement from noisy areas, effects of exposure to those disturbing levels of noise will be insignificant. Given the time of year that pile driving and removal will occur, sturgeon in the action area are likely to be transient and present while moving between other areas. It is possible that sturgeon could be resting or foraging in the area; however, pile driving and removal will take place outside the time of year that sturgeon would be migrating into the Hudson River for spawning and outside of the time of year that portions of the action area could be used for overwintering. Pile driving and removal will produce noise over a total of 118 hours over at least a three month period (assuming that installation and removal occur in the same season), with noise generated over approximately 5.5% of this time. Given the intermittent nature of the pile driving and removal activities (i.e., each pile driving or removal event will be separated by 45 minutes in most cases with some removal events only 15 minutes apart; total pile driving), and the minor behavioral response anticipated by any sturgeon exposed to the noise, and that the behaviors that will be disrupted can be quickly resumed without any consequence, we expect any effects of these responses to be insignificant. As such, we conclude that all effects to Atlantic sturgeon are insignificant or extremely unlikely and the proposed action is not likely to adversely affect any DPS of Atlantic sturgeon.

Conclusions
We have determined that the proposed action is not likely to adversely affect any species listed by us under the ESA; as there is no critical habitat in the action area, none will be affected by the proposed action. No further consultation is necessary at this time. Reinitiation of consultation is required and shall be requested by you or by us, 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 this consultation; or (c) If a new species is listed or critical
habitat designated that may be affected by the identified action. If there is any incidental take
of a listed species, reinitiation would be required. Should you have any questions about this
correspondence please contact Julie Crocker at (978)282-8480 or Julie.Crocker@noaa.gov.

Sincerely,

[Signature]

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

cc: Carduner, F/PR
    Crocker - F/GAR
    Casey, GCNE

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File Code: Sec 7 Informal FERC Transco’s Northeast Supply Enhancement Project