

## Monthly Pile Driving Summary and Underwater Noise Monitoring Results

Pile Driving Period: November 27, 2016 – December 24, 2016

DOC Reference: TA\_FHWA\_03180\_RPT\_ENV



### Summary:

Production pile driving for steel piles [REDACTED] was completed on June 5, 2015 and no impact pile driving of [REDACTED] was conducted during this reporting period. Therefore, no sturgeon were severely injured or killed as a result of underwater noise from pile driving during this reporting period.

Future impact pile-driving activities are scheduled for [REDACTED] piles as indicated in Table 8 of the NMFS BO, dated June 20, 2016. This monthly summary will allow the continued tracking of sturgeon take associated with those piles.

### Pile Installation and Underwater Noise Monitoring:

During the monthly period from November 27 through December 24, 2016, no piles were driven.

#### *Anticipated Sturgeon Take from Table 8 of the NMFS BO*

For the purposes of tracking take associated with the subset of piles from the groups of piles shown in Table 8<sup>1</sup> (i.e., Anticipated Sturgeon Take), total take for each time period was divided by the number of piles scheduled to be driven during the time period. This value is compared with the Calculated Sturgeon Take (described in the next section) to determine whether or not take has been exceeded during the reporting period.

#### *Calculated Sturgeon Take to Date*

Following the same method used to estimate incidental sturgeon take for Table 8, the product of pile driving time, number of gill nets to span the width of the 206 dB isopleth, and sturgeon encounter rate of 0.033 sturgeon per net per hour was used to calculate sturgeon take for the piles driven during this reporting period (i.e., Calculated Sturgeon Take). For previous piles that have been monitored for underwater noise, the diameter of the 206 dB peak SPL isopleth was measured based on the maximum peak SPL recorded during pile driving. For the unmonitored piles, the maximum recorded isopleth diameter was assigned based on noise monitoring from the test pile program or from noise monitoring of piles at each pier. Actual pile driving times for each of the piles were used in the calculations.

Based on the recorded pile-driving times and isopleth widths documented thus far:

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<sup>1</sup> Anticipated take was calculated in Table 8 of the NMFS BO as the product of the number of piles, number of hours to drive a pile, number of gill nets to span the 206 dB peak SPL isopleth, and the sturgeon encounter rate of 0.033 sturgeon per net per hour.

- the cumulative incidental take for the [REDACTED] piles<sup>1</sup> driven as anticipated in Table 8 of the June 2016 NMFS BO was calculated as 0.87 sturgeon, which is less than the anticipated take of 3.25 sturgeon for the same [REDACTED] piles in Table 8.

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<sup>1</sup> The [REDACTED] piles driven [REDACTED] were driven prior to the issuance of the June 2016 BO and were therefore included in previous monthly reports (April 17, 2016 – May 09, 2016 and May 15, 2016 – June 11, 2016) as part of the monthly and cumulative anticipated take calculations. Because those piles are also included in Table 8 of the June 2016 BO, the anticipated take for those piles will also be included as part of the cumulative take estimates reported in future monthly reports. The incidental take associated [REDACTED] has therefore essentially been “counted twice.”

Report Period: 11/27/2016 to 12/24/2016

Date	Year	Week	Pile diameter (feet)	Pier-Pile Number	Net Impact Pile Driving Duration (hrs/pile)	Pile driving time from Table 8 of the NMFS BO (hrs/pile)	Average width of isopleth for 206-dB peak SPL (feet)	Maximum width of isopleth for 206-dB peak SPL (feet)	Number of gill nets to span the 206-dB peak SPL isopleth	Sturgeon encounter rate (fish/net/hour)	Sturgeon take
<b>No piles were impact driven during the reporting period</b>											
<b>Monthly sturgeon take (Calculated based on pile-driving data/Anticipated from Table 8 of the June 2016 NMFS BO)</b>											-
<b>Cumulative sturgeon take (Calculated based on pile-driving data/Anticipated from Table 8 of the June 2016 NMFS BO)*</b>											<b>0.87/3.25</b>

\* As of the September 2014 NMFS BO, the exempted incidental take for sturgeon as a result of exposure to underwater noise during impact pile driving was 37 Atlantic sturgeon and 37 shortnose sturgeon. With the issuance of the June 2016 BO, the exempted take was reduced to 6 Atlantic sturgeon and 6 shortnose sturgeon in order to reflect the anticipated incidental take for the remaining piles that will be installed (i.e., the piles associated with the first 31 sturgeon had been driven, and the take accounted for, as of the issuance of the June 2016 BO). To allow tracking of incidental take with respect to Table 8 of the June 2016 BO, the cumulative take reported in the table above will be with reference to 6 sturgeon. Note that previous monthly reports submitted prior to the issuance of the June 2016 BO accounted for estimates of anticipated sturgeon take for piles driven [redacted] April 17, 2016 – May 09, 2016 and [redacted] May 15, 2016 – June 11, 2016. Because the piles [redacted] are also included in Table 8 of the June 2016 BO, the anticipated take for those piles will also be included as part of the cumulative take estimate reported in future monthly reports.