

From: [Garcia, Carlos A](#)
To: [Chris Sweeney](#); [EndangeredSpecies Resource](#); incidental.take@noaa.gov; msanza@gw.dec.state.ny.us
Subject: [External_Sender] 2019 Sturgeon Impingement Report
Date: Thursday, January 30, 2020 6:38:39 AM
Attachments: [IPEC Sturgeon Impingement Report 28Jan2020.pdf](#)

Good afternoon,

This report is being submitted in accordance with Term & Condition 14 in the 2013 Entergy Indian Point Biological Opinion and Incidental Take Statement, as amended February 9, 2018. Attached you will find the 2019 Annual Sturgeon Impingement Report.

If you have any questions, please contact me at 914.254.8468, or Chris Sweeney of Normandeau at 631.410.3164.

Carlos A. Garcia
Environmental Staff Specialist

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January 28, 2020

Mr. Carlos Garcia
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway
Buchanan, NY 10511

Re: 2019 Sturgeon Impingement Report

Dear Mr. Garcia,

On 30 January, 2013, the National Marine Fisheries Service (“NMFS”) issued a final Biological Opinion and Incidental Take Statement relating to Atlantic and Shortnose Sturgeon (collectively, “sturgeon”) during the continued operation of the Indian Point Energy Center (“IPEC”), as that authorization was amended on 9 February 2018 (the “BiOp/ITS”). In accordance with and pursuant to the BiOp/ITS, Normandeau Associates, Inc. (“Normandeau”) conducted impingement monitoring for sturgeon at IPEC Units 2 and 3 in April, May, September and October of 2019. The following represents and fulfills the reporting requirements for this monitoring.

In connection with that BiOp/ITS, Normandeau advanced its scientific assessment that Sturgeon were not readily susceptible to impingement at IPEC (consisting of Unit 2 and Unit 3; collectively, the “IPEC Stations”). Specifically, the BiOp/ITS reflected the following scientific hypotheses of Normandeau, AKRF, Inc., ASA Analysis and Communications, Inc., and LWB Environmental, Inc. (collectively, the “Bio Team”), as detailed in discussions with NMFS and in the report titled “Atlantic Sturgeon and Shortnose Sturgeon Impingement at IPEC Units 2 and 3: Review of Historical Data, Projections of Impingement, and Assessment of the Condition of Impinged Sturgeon Upon Arrival at IPEC, dated July 23, 2012” (i.e., “the Sturgeon Impingement Report”, prepared by the Bio Team and attached again for your convenience):

- Impingement of healthy Sturgeon at the IPEC Stations’ Ristroph screens is not likely to occur, based on: (1) demonstrated migratory patterns in the Hudson River of sturgeon, (2) limited access of sturgeon to the IPEC Stations’ cooling water intake structure and the Ristroph screens (which are located behind trash bar racks with 3-inch clear space openings that exclude the overwhelming majority of sturgeon larger than 600 mm TL), and (3) sturgeon size and swimming abilities, in combination with low through-trash rack and through-Ristroph screen system approach velocities that allow escape of far smaller and more susceptible fish species than sturgeon.
- Specifically, historic (1974-1990) impingement studies performed at the IPEC Stations revealed 80% of all sturgeon impinged were between 200 mm TL and 500 mm TL, and that 98% were less than 600 mm TL. Analysis performed in the Sturgeon Impingement Report based on peer-reviewed literature of sturgeon swimming ability indicate that healthy sturgeon over 195 mm TL should be capable of sustained avoidance of impingement at the IPEC Stations throughout the year. However, all Shortnose Sturgeon impinged at the IPEC Stations from 1974-1990 were larger than 195 mm TL, and approximately 90% of impinged Atlantic Sturgeon were larger than 195 mm TL. These observations led to the conclusion that most if not all of these historically impinged sturgeon at the IPEC Stations were moribund or in a state of morbidity when impinged, likely due to being discarded as bycatch from the nearby American Shad and Atlantic Sturgeon gillnet fisheries.

- The absence of sturgeon from the 2019 sampling at the IPEC Stations as described below confirms this earlier analysis.
- The historic instances of Ristroph screen impingement of sturgeon at the IPEC Stations most likely resulted from the passive collection of sturgeon that had been exposed to commercial gillnetting, e.g., American Shad and sturgeon-related fisheries, and the associated bycatch morbidity or mortality during the 1970s and 1980s when gillnetting was permitted in the Hudson River near Indian Point. These historic fisheries and therefore their impacts to sturgeon within the Hudson River no longer exist, as the commercial gillnet fisheries either are subject to regulatory moratoria or otherwise have ceased to operate in the Hudson River¹.

This report, submitted pursuant to the requirements outlined in the Biological Opinion/Incidental Take Statement in Connection with Indian Point Energy Center summarizes the objective, methods, and, based on best available scientific information, the implications of the results of intensive impingement monitoring for sturgeon that occurred at the IPEC Stations during 2019. As noted below, this monitoring constitutes new, material and supportive scientific information regarding the expectations stated above and explained in more detail in the Sturgeon Impingement Report, and as expected by NMFS in the BiOp/ITS.

To implement the BiOp/ITS sampling requirements, Normandeau performed intensive Ristroph screen-based sturgeon monitoring that consisted of three, 24-hour continuous periods per week in 2019, typically Monday, Wednesday and Friday, during the months of April, May, September, and October at the IPEC Stations. April, May, September and October were selected as the months with the expected highest likelihood of impingement of sturgeon based on an analysis of the historic sturgeon impingement data from the IPEC Stations adjusted to current Hudson River conditions using the catch data from the ongoing Hudson River Biological Monitoring Program (see the Sturgeon Impingement Report). The monitoring procedures are reflected in the attached SOP (also previously provided to NMFS) and not repeated here.

In summary, 2,400 impingement sampling hours over 50 impingement sampling days were performed during April, May, September and October 2019 in tanks specifically designed to intercept and retain all impinged fish, including sturgeon, present in the Ristroph screen fish-return sluice flows of the IPEC Stations (see Table 1). Zero (0) sturgeon were encountered during this intensive sampling effort at the IPEC Stations during 2019 (Table 1). The extensive nature of this sampling, combined with the knowledge of sturgeon biology and life history with respect to this Indian Point region of the Hudson River, and their swimming ability, confirms, in connection with the BiOp/ITS and Sturgeon Impingement Report, that healthy, impingement-sized sturgeon are not susceptible to impingement at the IPEC Stations despite their presence throughout the Hudson River.

Since zero (0) sturgeon were collected during the 2019 monitoring during periods when sturgeon were historically most likely to be impinged, we submit that the total annual sturgeon impinged is zero (0); i.e., 0 sturgeon/50 days of monitoring x 365 days per year = 0 sturgeon per year. A 1% increase to account for fish impinged at the Ristroph screens that are returned to the debris sluice instead of the fish return sluice is not

¹ Historic data also indicates that, if impinged, sturgeon are likely to experience or undergo minimal physical harm at the optimized Indian Point Ristroph screens. This is because this screen system: (1) was specifically designed by Entergy's predecessors as of 1981 and extensively tested through 1990 to advance fish protection for all but a subset of small, soft-bodied species (e.g., Bay Anchovy); and (2) their operation was approved by the United States Environmental Protection Agency ("EPA") as state of the art impingement protection on a national basis for the majority of species subject to impingement. This EPA finding is confirmed by historically extensive impingement monitoring at the Stations from 1974 through 1990, plus the current 2019 study, which demonstrates an absence of impingement-related damage to species of hardness comparable to sturgeon in terms of their likely Ristroph screen system survival (e.g., White Perch and Striped Bass). For these reasons, Entergy undertook the 2019 Sturgeon monitoring with a hope of demonstrating the effectiveness of the optimized Ristroph screen system to return healthy impinged sturgeon back into the Hudson River source water in the same healthy condition in the unlikely event of their impingement.

applicable due to the absence of sturgeon collected during monitoring; i.e. a 1% increase on zero is likewise zero.

If you have any questions concerning this letter, or need additional information, please contact me at 603.319.5307 or by email at mmattson@normandeau.com, or Ms. Jessica Melgey at jmelgey@normandeau.com.

Sincerely,

Normandeau Associates, Inc.



Mark T. Mattson, Ph.D.
Vice President/Principal Aquatic Ecologist,

cc:

D. Gray (Entergy)
S. Floyd (Entergy)
J. Melgey (Normandeau)
C. Sweeney (Normandeau)
C. Gurshin (Normandeau)

Table 1. Atlantic and Shortnose Sturgeon impingement monitoring results for the spring and fall sampling dates, unit sampled, and total sturgeon collected in the Ristroph screens fish return sluices at Indian Point Station during 2019.

Spring Sampling Date 2019	Unit 2	Unit 3	Total Sturgeon
	Duration (hrs)		
1-Apr	24	0	0
3-Apr	24	0	0
5-Apr	24	0	0
8-Apr	24	0	0
10-Apr	24	0	0
12-Apr	24	24	0
15-Apr	24	24	0
17-Apr	24	24	0
18-Apr	0	24	0
19-Apr	24	24	0
22-Apr	24	24	0
24-Apr	24	24	0
26-Apr	24	24	0
29-Apr	24	24	0
1-May	24	24	0
2-May	0	24	0
3-May	24	24	0
6-May	24	24	0
8-May	24	24	0
10-May	24	24	0
13-May	24	24	0
15-May	24	24	0
17-May	24	24	0
20-May	24	24	0
22-May	24	24	0
23-May	0	24	0
24-May	24	24	0
27-May	24	24	0
29-May	24	24	0
31-May	24	24	0

Fall Sampling Date 2019	Unit 2	Unit 3	Total Sturgeon
	Duration (hrs)		
3-Sep	24	24	0
4-Sep	24	24	0
6-Sep	24	24	0
9-Sep	24	24	0
11-Sep	24	24	0
13-Sep	24	24	0
16-Sep	24	24	0
18-Sep	24	24	0
20-Sep	24	24	0
23-Sep	24	24	0
25-Sep	24	24	0
27-Sep	24	24	0
30-Sep	24	24	0
2-Oct	24	24	0
4-Oct	24	24	0
7-Oct	24	24	0
9-Oct	24	24	0
11-Oct	24	24	0
14-Oct	24	24	0
16-Oct	24	24	0
18-Oct	24	24	0
21-Oct	24	24	0
23-Oct	0	24	0
25-Oct	24	24	0
28-Oct	0	24	0
Total	50 days	50 days	0