IPRenewal NPEmails

From: Logan, Dennis
Sent: Friday, November 09, 2012 3:50 PM
To: 'Julie Crocker'
Cc: IPRenewal NPEmails; Wong, Melanie; Keegan, Elaine; Balsam, Briana; Turk, Sherwin
Subject: NRC and Entergy comments on NMFS's draft Indian Point biological opinion.
Attachments: NRC comments on Indian Point draft biological opinion.docx; 2012DraftBIOPComments.pdf

Julie,

Attached are Entergy and NRC's comments on the NMFS's draft biological opinion for Indian Point. Thank you for the opportunity to review the draft.

I will be out of the office until Monday, November 26th. If you have any questions in that time, please call Melanie Wong, who is now Branch Chief of RERB, at 301-415-2432 or Briana Balsam at 301-415-1042.

Dennis Logan

Hearing Identifier: IndianPointUnits2and3NonPublic_EX
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Subject: NRC and Entergy comments on NMFS's draft Indian Point biological opinion.
Sent Date: 11/9/2012 3:49:39 PM
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From: Logan, Dennis

Created By: Dennis.Logan@nrc.gov

Recipients:
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Files	**Size**	**Date & Time**
MESSAGE	406	11/9/2012 3:49:42 PM
NRC comments on Indian Point draft biological opinion.docx	32167	
2012DraftBIOPComments.pdf	762512	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
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NRC Comments on Indian Point 10-26-12 Draft Biological Opinion

Page 3, paragraph 4: The correct expiration date of IP2 is Sept. 28, 2013 (not Sept. 29). Also, the IP3 expiration date is only specified by month—the expiration date is December 12, 2015.

Page 5, Line 1: NMFS states that the previous consultation started in 2010. However, NRC considers the consultation to have started when the NRC sent a letter dated 8/16/07 requesting information on listed species that could be affected by the proposed license renewal. This request is in accordance with 50 CFR 402.12(c). Such requests are included in the definition of informal consultation at 50 CFR 402.13.

Page 5, end of paragraph 2: NMFS states that consultation was initiated on December 10, 2010. See above comment. Additionally, if this statement is referring specifically to formal consultation, the NRC considers consultation to have started on 12/22/08 when NRC sent its first biological assessment and requested consultation in accordance with 50 CFR 402.14(c).

Page 6, first line of paragraph 4: The letter referred to is actually dated May 16, 2012 (not May 17). This needs to be changed later in the paragraph as well in the sentence that says, "Consultation was initiated on May 17, 2012."

Page 6, paragraph 4: The beginning of this paragraph insinuates that the NRC only requested consultation for Atlantic sturgeon during the proposed renewed operating period and that the NRC later requested to add on the current operating period. However, NRC requested both time periods to be included from its initial consultation request. See the fourth paragraph on page 2 of the May 16, 2012, letter and Section 2.0 of the biological assessment transmitted with that letter.

Page 7, full paragraph 3, line 6: "NRC staff state" should be "NRC staff states".

Page 7, full paragraph 3, line 14: Add "(WQC)" after "Water Quality Certification" to define acronym that you use later.

Page 9, end of paragraph 1: The NRC license does not require compliance with the SPDES permit. This needs to be changed here and in other sections of the document that incorrectly state this (page 89, paragraph 2; and possibly others).

Page 11, end of paragraph 1: NMFS states that NRC would need to reinitiate consultation if a new SPDES permit is issued. However, it is NRC's understanding that the EPA would be the responsible federal agency for such a consultation. This is in keeping with the January 2010 MOA between the EPA, FWS, and NMFS regarding enhanced coordination under the CWA and ESA: http://www.nmfs.noaa.gov/op/pds/documents/02/301/02-301-22.pdf. In such a case, NRC would expect that we might be involved in the consultation, but we would not be the agency responsible for initiating consultation. If this is the case, the language in the biological opinion should reflect this here and in other sections of the document (page 12, end of paragraph 1; page 126, paragraph 2; and possibly others).

Page 15, paragraph 2, line 4: Do you mean "Male and female shortnose sturgeon have similar lengths at maturity …"?

Page 87, paragraph 3, sentence 2: Apparently something is missing in the middle of this sentence.

Page 118. In paragraph 1, starting on line 9, NMFS states: "All impinged sturgeon are expected to die, immediately or later, as a result of interactions with the facility". In the last paragraph, NMFS states that it expects that some shortnose and Atlantic sturgeon will be impinged and returned back to the river "without significant injury or mortality." These two positions are contradictory, and the NRC staff urges NMFS to be consistent in its conclusions.

Page 118, paragraph 3: The NRC-issued operating licenses for IP2 and IP3 contain environmental technical specifications that require the plants to maintain consistency with local, state and federal regulations. The NRC interprets this to include the Endangered Species Act and the biological opinion. The language requiring NRC to add additional license conditions should be removed or changed here and in other sections (page 120, paragraph 2; page 121, 1st paragraph under "terms and conditions"; and possibly others).

Page 123, Reasonable and Prudent Measures: An address should be specified when NMFS asks for something in writing. Also, specify if it is acceptable to transmit letters and reports electronically, and, if so, to what email address. If electronic mail is acceptable to NMFS, please add NRC's email (endangeredspecies@nrc.gov) as well.

Page 123, Reasonable and Prudent Measure #8: Specify how NMFS expects to receive the annual report (in writing or electronically).

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November 9, 2012

David J. Wrona, Branch Chief
Projects Branch 2
Division of License Renewal
Office of Nuclear Reactor Program
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Draft Biological Opinion for Indian Point Units 2 and 3

Dear Mr. Wrona:

We write on behalf of Entergy Nuclear Operations, Inc., Entergy Nuclear Indian Point 2, LLC and Entergy Nuclear Indian Point 3, LLC (collectively, "Entergy") to provide Entergy's comments on the Draft Biological Opinion issued by the National Marine Fisheries Service ("NMFS") on October 26, 2012 ("Draft Biological Opinion"). Entergy agrees with NMFS's conclusions in the Draft Biological Opinion that the operation of Indian Point Units 2 and 3 ("IP2" and "IP3," respectively), as currently configured and operated under existing approvals, as well as under renewed Nuclear Regulatory Commission ("NRC") licenses, (a) is not likely to jeopardize the continued existence of shortnose sturgeon or the New York Bight Distinct Population Segment ("DPS") of Atlantic sturgeon, (b) is not likely to adversely affect the Gulf of Maine or Chesapeake Bay DPS of Atlantic sturgeon, and (c) will have no effect on critical habitats for either species. To that end, Entergy provides these comments, consistent with the consensus consultation schedule developed in conjunction with NRC and NMFS staff, to clarify certain aspects of the Draft Biological Opinion in a manner consistent with NMFS's conclusion.

Entergy's comments are divided into four sections. The first addresses the marginal questions/comments included in the Draft Biological Opinion by NMFS. The second addresses the application of the incidental take limits to sturgeon collected at the trash bars or the Ristroph screens. The third provides some suggested clarifications for/corrections to certain items discussed in the Draft Biological Opinion. Finally, the fourth section provides comments designed to facilitate the future discussion between Entergy and NMFS with regard to the required monitoring program. To reiterate, the Draft Biological Opinion properly concludes – based upon the best information available – that continued operation of IP2 and IP3, both during their current and prospective NRC license periods, is not likely to jeopardize the continued

existence of shortnose sturgeon or Atlantic sturgeon in the Hudson River.[1] This conclusion is soundly supported in the record and, in Entergy's view, is the only reasonable conclusion to be drawn from that record. Thus, the following comments are targeted at specific aspects of the Draft Biological Opinion, none of which changes its conclusion.

A. Response to Comments/Questions Posed by NMFS

In the Draft Biological Opinion, NMFS included eight separate questions or requests for clarifying information from NRC and/or Entergy. Each item is repeated here, with Entergy's response immediately following:

1. *Page 12: Questions to NRC and Entergy – What enforceable instrument, if any, requires such speed adjustments? For example, is this speed adjustment a condition for the NRC license and/or a requirement of the NYPDES permit? What factors determine whether a pump is run at full speed versus reduced speed?*

The 1980 Hudson River Settlement Agreement ("HRSA") required Indian Point to be retrofitted with dual speed (at IP2) and variable speed (at IP3) pumps to allow for the reduction of cooling water intake flows to the minimum necessary for efficient plant operations. The HRSA expired in 1991, but the requirement regarding the minimization of intake flows was continued in a series of judicially approved Consent Orders, the last of which expired on February 1, 1998. Since then, Indian Point has committed to continue to operate both Units in the manner set forth in the final Consent Order until a new SPDES permit is issued. *See* New York State Department of Environmental Conservation, Final Environmental Impact Statement, June 2003, p. 10 ("The generators agreed to continue the mitigative measures included in the continuing SPDES permit and provisions of the Fourth Amended Consent Order until new SPDES permits were issued to them."). The Fourth Amended Consent Order required the owners of Indian Point to "use their best reasonable efforts to operate Indian Point dual/variable speed pumps in a manner as will keep the volumes of river water drawn into the plants at the minimum required for their efficient operation, giving due regard to ambient river water temperature, plant operating status, and the need to meet water quality standards or other permit conditions." Thus, the factors affecting

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[1] *See* Draft Biological Opinion, pp. 5-7 (discussing scope of consultation to include existing operations); p. 117 (reflecting conclusion that "[a]fter reviewing the best available information on the status of endangered and threatened species under NMFS jurisdiction, the environmental baseline for the action area, the effects of the proposed action, interdependent and interrelated actions and the cumulative effects, it is NMFS' biological opinion that the proposed action may adversely affect but is not likely to jeopardize the continued existence of shortnose sturgeon or the New York Bight DPS of Atlantic sturgeon. We have determined that the proposed action is not likely to adversely affect the Gulf of Maine or Chesapeake Bay DPS of Atlantic sturgeon. No critical habitat is designated in the action area; therefore, none will be affected by the proposed action.").

pump speed are river water temperature, plant operating status, and the need to manage flow rates to comply with water quality standards or other SPDES permit conditions.

2. *Page 13: Question to NRC and/or Entergy – Where does material that is removed by the high pressure spray go? Down the sluice?*

There are three different washwater sluices each associated with the Ristroph screens at IP2 and IP3: a fish return sluice and two debris return sluices. The fish return sluice is located on the east (descending) side of the screens near the top of the sprocket wheel and receives fish as the screen mesh rotates from the west (ascending) to the east side of each screen. The main debris sluice is located on the west side of each Ristroph screen and the auxiliary debris sluice is located on the east side of each screen below the fish return sluice. The two debris sluices join into one, and discharges the contents into the Hudson River at the north (IP2) or south (IP3) end of the CWIS bulkhead in locations that minimize re-circulation of debris toward the intakes.

3. *Page 14: Question to NRC/Entergy – is this screen a Ristroph screen, modified Ristroph screen, or other type of screen? If the latter, please describe it.*

The IP1 intake structure has two redundant forebays, each with a maximum or design flow of 10,000 gallons per minute (gpm), *employing a dual flow traveling screen equipped with fine mesh screen (1/8 inch; 3.2 mm) panels*. Each dual flow traveling screen at IP1's intake has an estimated design through-screen velocity of less than the 0.50 feet per second ("fps").

4. *Page 65: Question to NRC – how far outside the trash bars is this velocity [1 fps] reported? The reports state "approximately" – what is the range of velocities that are experienced? What is the "through-rack" velocity? What is the range of water velocity between the trash rack and the Ristroph screens (Fletcher 1990 reports an average of 30 cm/s)?*

The intake water approach velocity 3 inches to 12 inches upstream from the bar racks at IP2 and IP3 was estimated at mean low water to be 1.0 fps for 100% circulating water flow rate (840,000 gpm) and 0.6 fps for 60% reduced circulating water flow rate (504,000 gpm). *See* Entergy 2007b (*citing* Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc., New York Power Authority, and Southern Energy New York, Draft Environmental Impact Statement for State Pollutant Discharge Elimination System Permits for Bowline Point, Indian Point 2 and 3, and Roseton Steam Electric Generating Stations, 1999). Measurements have not been taken to determine the observed variation in approach velocity through the IPEC bar racks under full flow or reduced flow operations. The velocity through the Ristroph traveling screens at mean low water has been calculated to be 1.6 fps for 100% circulating water flow rate and 1.0 fps for 60% circulating water flow rate. Thus, the range in

velocities from a location just upstream (*i.e.*, 3 to 12 inches) from the bar racks to the through-screen velocity is 0.6 – 1.0 fps at 60% circulating water flow rate and 1.0 – 1.6 fps at 100% circulating water flow rate. Entergy notes that this range of velocities should not be interpreted as a linear increase in flow rates between these two locations, as there is likely a drop in flow rate after the water passes through the bar racks and before it approaches the Ristroph screens.

5. *Page 65: Question to NRC: What are these assumptions [regarding through-screen velocities] based on? What is the data that resulted in flow estimates of 1 ft/sec for full flow and 0.6 for reduced flow? To get those figures, was there a field study across a range of conditions or are these based on pump specifications or something else?*

Please see response to #4 above.

6. *Page 96: Question to NRC/Entergy – in the context [discussing rapid changes in water temperature], please describe the characteristics of the discharge during (1) routine operations, (2) during times when a unit is shut down and restarted and (3) at times when generation is increasing. For example, is the discharge always at a steady flow and temperature or are there fluctuations? What is the time frame associated with these fluctuations (seconds, minutes, hours?)? How quickly can temperatures change near the intakes? What documentation supports your answers?*

Under routine operations, IPEC discharge flow follows the same seasonal pattern as intake flow, which is governed by the HRSA/Consent Orders, as described in the reply to Comment A1 above. IP2 and IP3 do not typically vary their generation by more than a few percent of full capacity when operating. The temperature rise between intake and discharge, measured at the condenser inlet boxes at a location just upstream from the intake, is reported to the New York State Department of Environmental Conservation ("NYSDEC") in quarterly discharge monitoring reports ("DMRs") for IP2 and IP3 showing the hourly minimum, maximum and average intake and discharge temperatures for each day, and the associated intake flows represented by the combined flow for all circulating water pumps and service water pumps. An examination of intake and discharge temperatures from the quarterly DMR applicable to the most recent refueling outage beginning on 5 March 2012 at IP2 revealed no discernible change in the pattern of hourly intake or discharge temperatures in relation to the shutdown of IP2. It should be noted that the IP2 and IP3 discharge flows are combined into one discharge canal before entering the discharge bulkhead. Also, during start-ups and shut downs, there are no measurable changes in discharge flow. That is because IPEC is required to maintain the water level within the discharge canal at 1.75 feet above the river height, to ensure that the subsurface discharge is maintained at 10 cubic feet per second, thereby ensuring sufficient mixing to minimize any potential changes in temperature. If an event such as start-up, shut down, or pump speed adjustment caused this height differential to be less, the IPEC SPDES Permit requires that

the adjustable subsurface ports at the discharge be adjusted to meet the 1.75 feet height differential, within 4 hours.

7. *Page 98: Question for NRC – What is it about the model that results in findings that bottom waters never exceeded 28C while this information indicates that water temperatures at the bottom can be higher than 28C?*

There appears to be some confusion over what information is discussed in Swanson et al. 2011a (the "ASA response") and its origins, *i.e.*, whether field measurements or model results were used. As requested by the NYSDEC, ASA prepared graphics (presented in Swanson et al. 2011a) that used *actual measured temperature* data collected during the extensive field program conducted during the summer of 2010, *not a model*. The data that underpins the ASA response were obtained from 66 deployed moorings in the vicinity of Indian Point, each of which contained three to six thermistors mounted at different depths throughout the water column along the mooring lines. Numerical interpolation techniques were used to create the requested plan and vertical section views of temperature contours during a tidal cycle spanning 11 and 12 July at different tidal current regimes (maximum ebb, slack before flood and slack before ebb) that were provided to NYSDEC staff in the ASA response. The vertical sections displayed in the ASA response showed that there were no bottom water temperatures exceeding 28C even though the July – August 2010 period was the second warmest (after 2005) during the twenty-year period 1991 through 2010, based on the temperature record obtained from the USGS West Point Station.

We likewise believe NMFS has misunderstood the purpose, quality of data and findings of the additional thermal review performed. Following the thermal analysis provided to NYSDEC and in response to NMFS inquiries, ASA reviewed other data not designed or collected for assessment or monitoring of Indian Point's thermal discharge, but rather collected incidental to the Hudson River Biological Monitoring Program to assess the natural river characteristics (temperature, salinity, dissolved oxygen) without regard to Indian Point. This assessment showed that temperatures exceeding 28C at the bottom occur throughout the Hudson River at 46 of 54 stations, including at locations 100 miles north and 39 miles south of Indian Point, as a function of natural River conditions. Stated another way, this information reflects the thermal structure of the River as having 28C bottom temperatures throughout its length due to natural conditions. Thus, this supplemental analysis merely reflects natural thermal regimes in the Hudson River.

8. *Page 100: Question for NRC and Entergy – It is our understanding you will be undertaking new fish sampling in Haverstraw Bay in 2013. Will you be applying for a modification to your ESA Section 10 permit for this work? If not, why not?*

Radiological Environmental Monitoring Program ("REMP") fish and blue crab samples for IPEC are collected opportunistically as part of ongoing sampling for the Hudson River Biological Monitoring Program ("HRBMP"). The procedures used to collect samples for the REMP are specified in Section 8 and Appendix 3 of the current (2012) Hudson River Fall Juvenile and Beach Seine Surveys Standard Operating Procedures (Revision 1, September 2012), a copy of which is approved by NYSDEC and supplied annually to Ms. Kim Damon-Randall and Ms. Julie Carter of NOAA/NMFS. The additional fish sampling in Haverstraw Bay will rely on sampling programs already in place. Atlantic and shortnose sturgeon are not among the fish species sacrificed for edible tissue samples, and any Atlantic and shortnose sturgeon caught while sampling are handled as specified in Permit to Take Protected Species for Scientific Purposes No. 17095 issued 28 August 2012.

B. The incidental take limits should apply only to injury or mortality caused by the operation of IP2 and IP3.

The proposed Incidental Take Statement exempts the taking of 562 shortnose sturgeon and 219 New York Bight DPS Atlantic sturgeon by impingement at IP1, IP2 and IP3, from the date of issuance through the twenty-year license renewal periods for IP2 and IP3. Entergy agrees to these limits. However, the comments below address how impinged sturgeon are tallied with respect to these limits.

The proposed incidental take limits apply to sturgeon, whether they are dead or alive *before* they are impinged at IP2 or IP3.[2] As detailed below, Entergy respectfully asserts that these take limits should apply only to the impingement of healthy, live fish (as opposed to dead or moribund fish). These totals also apply whether or not sturgeon are harmed or killed by IP2 or IP3 – that is, they are related to the event of impingement, not outcome, despite the existence of state-of-the-art impingement and fish return systems at IP2 and IP3. These systems have been determined by the United States Environmental Protection Agency ("USEPA") to minimize impingement mortality, and are expected to facilitate the non-injurious transport of impinged sturgeon to the Hudson River. As such, a presumption of mortality or injury is not scientifically justified. Stated simply: takings should be attributable to IP2 or IP3 only when they actually have been caused by IP2 or IP3, and result in demonstrable injury or mortality.

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[2] *See* Draft Biological Opinion, pp. 119.

Takings regulated under Incidental Take Statements or Incidental Take Permits are those which are incidental to the carrying out of an otherwise lawful activity – in this case, incidental to the operation of IP2 and IP3.[3] NMFS addresses the locations where these impingement events might occur at IP2 and IP3 – the trash bars and the modified Ristroph screens, each of which is addressed below separately.

1. Impingement at Trash Bars

With respect to sturgeon that may be impinged at the trash bars, NMFS appears to agree with Entergy that it is virtually certain that any sturgeon found at the trash bars was dead or moribund in the Hudson River before encountering the trash bars (*i.e.*, their injury or mortality was not incidental to IP2 and IP3 operations). As noted in the Draft Biological Opinion:

> healthy Atlantic sturgeon (yearlings and older) are expected to be able to readily avoid an intake with an approach velocity of 1.0 fps or less. Therefore, any Atlantic sturgeon impinged at the trash bars, where the velocity is 1.0 fps or less depending on operating condition, are likely to already be suffering from injury, or illness which has impaired their swimming ability.[4]

Similar findings are made with respect to shortnose sturgeon. *See* Draft Biological Opinion, p. 75 ("healthy shortnose sturgeon (yearlings and older) are expected to be able to readily avoid an intake with an approach velocity of 1.0 fps or less").

In other words, sturgeon of both species large enough to be impinged at the trash bars would also be capable of swimming away from the bars, if alive and healthy. Thus, the impingement of sturgeon at the trash bars would not be the result of Indian Point operations, but rather the dead or moribund condition of the sturgeon in the intake flow from other causes such as recreational fishing mortality, boat propeller strikes, or predation. Because the purpose of the incidental take limit is to limit the impact *of the facility* on the sturgeon population, and/or because the impingement of a dead or moribund fish has no impact on the population, the impingement of dead or moribund fish should not be limited as though it does have such an impact. Furthermore, the sturgeon impingement data used to estimate the take limits were based on those fish impinged on the traveling screens at IP2 and IP3 during 1974 through 1990 (*see* Tables 2 and 3 of the Draft Biological Opinion) and not on the sum of fish collected from the bar racks and in the impingement samples from the traveling screens, so take limits based on these data relate

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[3] *See* 16 U.S.C. §1536(b)(4)(B) (addressing takings "incidental to the agency action"); §1539(a)(1)(B) (authorizing permits for a "taking which is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity").

[4] Draft Biological Opinion, p. 88.

exclusively to impingement on the traveling screens. Certainly, Entergy can agree to the requirements of the Draft Biological Opinion with respect to the collection and processing of sturgeon observed to be impinged at the trash bars as a means of advancing the scientific knowledge of the species generally and in the Hudson River, but such collections of dead or moribund sturgeon to advance scientific understanding of these species should not count toward Indian Point's incidental take limits and should be exempt from the provisions of Sections 9 and 10 of the Endangered Species Act.[5]

Entergy notes that NMFS has provided a similar context for incidental take limits in another authorization with respect to sturgeon in the Hudson River, where unintentional mortality is described as substantially less than the number of takes authorized. *See, e.g.*, Draft Biological Opinion, p. 43 (NYSDEC scientific authorization which appears to allow up to 2,340 sturgeon to be caught over no more than five years, but contemplates the "unintentional" mortality of nine (9) sturgeon other than that subset for which mortality apparently is part of the study program). Thus, while the incidental take limits for IP2 and IP3 track the number of estimated impingement events, it should be recognized that the estimated mortality (and, therefore, adverse effect on sturgeon) caused by these authorized impingement events is likely to be quite small.

2. Impingement at the Optimized Ristroph Screens

Both IP2 and IP3 are equipped with state-of-the-art, optimized Ristroph screens and fish return systems that operate continuously whenever cooling water is withdrawn from the Hudson River and are designed to automatically and effectively return impinged fish to the Hudson River in a continuous stream of flowing river water at locations found to minimize re-impingement. As indicated in prior submissions to NRC and NMFS, these screens and fish returns have reduced impingement mortality by approximately 90% for species with a hardiness similar to shortnose sturgeon.[6] Indeed, the USEPA has determined that systems of the type installed at IP2 and IP3 constitute the best technology available for minimizing impingement mortality, ascribing to them an average impingement survival rate of 88% across species, many far less hardy than sturgeon.[7] Thus, any healthy sturgeon impinged at the optimized Ristroph screens has a very high likelihood of returning to the river unharmed. The return of an uninjured sturgeon to the river in this fashion should not count toward the incidental take limits, which are based on the

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5 Entergy understand that neither the Roseton nor the Danskammer facilities on the Hudson River include trash bar/rack impingement in their incidental take numbers.

6 *See Shortnose Sturgeon: A Technical Assessment Pursuant to the Endangered Species Act* (April 2011) (enclosed with correspondence from Fred R. Dacimo (Entergy) to Mr. Andrew Stuyvenberg (NRC) and Ms. Patricia A. Kurkul (NMFS), dated April 28, 2011), p. 20.

7 *See National Pollutant Discharge Elimination System—Cooling Water Intake Structures at Existing Facilities and Phase I Facilities*, 76 Fed. Reg. 22174, 22282 (April 20, 2011).

assumption that every impinged sturgeon will die, and should be exempt from the provisions of Sections 9 and 10 of the Endangered Species Act.[8]

Of course, it could also be the case that a smaller sturgeon capable of passing through the trash bars and being impinged at the modified Ristroph screens was dead or moribund before it was impinged. As with sturgeon impinged at the trash bars, the impingement of such sturgeon, or at least the vast majority of them, at the optimized Ristroph screens also should not count toward Indian Point's incidental take limits, because their mortality or injury was not incidental to IP2's and IP3's operation.

Accordingly, the monitoring program to be developed in conjunction with NMFS should include procedures for evaluating whether sturgeon impinged at the optimized Ristroph screens were (a) dead or moribund before impingement, or (b) injured or killed as a result of being impinged. Those in the former category should not count toward the impingement limit, while those in the later category should count toward the limit.

For these reasons, Entergy respectfully requests that NMFS clarify that the incidental take limits established in the proposed Incidental Take Statement apply to impingement of live, non-moribund sturgeon at the modified Ristroph screens resulting in injury or mortality. Indeed, the Draft Biological Opinion's Reasonable and Prudent Measure ("RPM") #3 requires that "[a]ny shortnose or Atlantic sturgeon [ ] be transferred to NMFS or an appropriately permitted research facility NMFS will identify so that a necropsy can be undertaken to attempt *to determine the cause of death.*"[9] Entergy agrees with this focus on takes incidental to its operations and believes the incidental take limits should have a similar focus.

C. Comments Related to Clarifications/Corrections

1. Section 4 of the Biological Opinion

Much of the content of Section 4 of the Draft Biological Opinion, although accurate, is irrelevant to the purpose of this document and may be confusing to readers. Section 4.1 contains lengthy discussions of region-wide aspects of the life history, status, trends, and threats to recovery for shortnose sturgeon. Nearly all of this information pertains to shortnose sturgeon populations in river systems other than the Hudson. Since the 19 known populations of shortnose sturgeon are believed to be reproductively isolated (Draft Biological Opinion, p. 20), this information is

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[8] *See* Draft Biological Opinion, p. 119 ("All impinged sturgeon are expected to die, immediately or later, as a result of interactions with the facility.").

[9] Draft Biological Opinion, p. 121 (emphasis supplied). *See also* Draft Biological Opinion, p. 123, Term and Condition #4 (discussing necropsy for dead specimens).

irrelevant to the Draft Biological Opinion. Similarly, Sections 4.2, 4.3, and 4.4 contain lengthy discussions of the life history, status, trends, and threats to recovery for the Gulf of Maine, New York Bight, and Chesapeake Bay Distinct Population Segments ("DPS") of Atlantic sturgeon. Since the NMFS concludes elsewhere (Section 7.1.2.2) that only Atlantic sturgeon spawned in the Hudson River are subject to impingement at IPEC, Sections 4.2, 4.3, and 4.4 are irrelevant to the objectives of the Draft Biological Opinion. The presence of this extraneous content is potentially misleading, because readers may inappropriately conclude that threats such as chemical exposures, boat strikes, or elevated temperatures that have been found to affect sturgeon in other river systems are applicable to the Hudson River as well.

The relevant characteristics of the Hudson River population of shortnose sturgeon are adequately discussed in Section 4.5. The relevant characteristics of the Hudson River spawning population of Atlantic sturgeon are discussed in Section 4.6. Sections 4.1-4.4 are not necessary and could be deleted without compromising the objectives of the Draft Biological Opinion.

2. Typographical/Stenographic Corrections

Entergy noted a series of instances in which numbers used in the Draft Biological Opinion appeared to be in error, although none of these impacts the final incidental take limits which Entergy believes have been appropriately calculated. These suggested corrections are for internal consistency within the document:

Page	Paragraph	Line	Existing Text	Corrected Text
88	4	3	265 Atlantic	219 Atlantic
89	3	4	24 shortnose	26 shortnose
110	2	4	20 shortnose	26 shortnose
110	2	4	444 shortnose	562 shortnose
110	2	10	444 shortnose	562 shortnose
110	2	14	0.8%	1.0%
110	2	16	0.2%	0.05%
111	3	5	0.8%	1.0%
112	1	1	24 shortnose	26 shortnose
115	4	3	12 juveniles	10 juveniles
116	3	1	102 juvenile	10 juvenile
123	4	3	(12 and 5	(13 and 5

3. The description of the operation of the modified Ristroph screens and fish returns is inaccurate.

On page 13, the Draft Biological Opinion describes the operation of the modified Ristroph screens and fish return systems at Indian Point. That description indicates that fish contained in the water-filled buckets on the screen are washed onto a "mesh," which is not correct. Any fish contained in the water-filled buckets is washed out by the low-pressure spray of ambient river water into a fiberglass sluice which carries the fish in flowing water of sufficient depth through the fish return system to the Hudson River. The screens themselves consist of fine mesh to reduce the potential for abrasion, but the fish are not washed onto a mesh after exiting the water-filled fish bucket.

4. The list of permittees under scientific research permit #1580 is incomplete.

On page 43, the Draft Biological Opinion refers to scientific research permit #1580 (originally issued as #1254, for the Hudson River Biological Monitoring Program) as "issued to Dynegy." Entergy notes that (1) by letter dated September 14, 2001, NMFS added Entergy and Mirant Bowline to this permit as additional permitted agents, and (2) the current permit is issued to Entergy, not Dynegy.

D. Comments Related to Monitoring and Reporting

Entergy agrees, as NMFS has suggested, that an appropriate monitoring program should be developed with NMFS's input and oversight for documenting incidental takes, and looks forward to that process. *See* Draft Biological Opinion, pp. 120-121. Entergy respectfully requests sixty (60) days from the date of finalizing the Draft Biological Opinion to develop such a plan, and that the implementation schedule for that plan be determined based upon the scope and extent of the plan that actually is developed. Entergy also notes that any implementation schedule may need to account for authorizations of other regulators, including NRC.

At this time, however, Entergy would simply like to note several points for purposes of advancing the discussion of the monitoring and reporting program. First, as discussed above, both IP2 and IP3 are equipped with modified Ristroph screens and fish return systems that are continuously operated whenever cooling water is withdrawn from the Hudson River and designed to automatically return impinged fish to the Hudson River at locations found to minimize re-impingement with little or no adverse effect, particularly with respect to hardy species such as sturgeon. Additional handling of these fish for the purpose of monitoring (*e.g.*, diverting the fish into a sampling device for subsequent length, weight and tissue sampling for genetic testing) will increase the potential for injury and could result in inadvertent mortality, thereby frustrating the very purpose of the installation and operation of the screens and fish

returns. As such, Entergy looks forward to developing a monitoring program that is sensitive to the potential for additional handling stress on individual fish – one that reduces mortality.

Second, Entergy and NMFS agree that any sturgeon impinged at the trash racks will have been dead or moribund prior to impingement there:

> If through-rack velocity at the trash racks in front of IP1, IP2 and IP3 is 1.0 fps, as reported by Entergy, we would not anticipate any impingement of shortnose sturgeon at the trash racks. That is because sturgeon that are big enough to not be able to pass through the racks (*i.e.*, those that have body widths greater than three inches) would be adults. These fish are able to avoid impingement at velocities of up to 3 feet per second and should be able to readily avoid getting stuck on the trash racks.

Draft Biological Opinion, p. 65. Because velocities through the trash rack are certainly less than 3.0 fps, Entergy respectfully questions the need for any monitoring of the trash racks, and requests that it be omitted from the final Biological Opinion. Any impingement event occurring at the trash racks will not be the result of Indian Point operations, but, instead, will be the result of the moribund or deceased condition of the sturgeon prior to impingement. Thus, monitoring will not advance an understanding of impingement events related to Indian Point's operation. Should sturgeon be collected from the trash bars, Entergy would be amenable to delivering such specimens to appropriate locations for further study.

Third, the monitoring program described in the Draft Biological Opinion also calls for monitoring of river water at the trash racks and/or Ristroph screens. Entergy already monitors, on a continuous basis, the intake water temperature at a location just downstream of the intake pumps and does not expect there to be any reason that the temperature measured at this location would be materially different from the temperature in the intake forebay, located just a few feet away. Thus, Entergy anticipates making use of existing temperature measuring devices – and perhaps other in-place equipment – as it develops its monitoring program.

Finally, Entergy believes that terms and conditions numbers 7 and 8 (related to reporting of monitored impingement events) should be combined into a single notification requirement. Given the low numbers of shortnose and Atlantic sturgeon expected to be impinged annually, and the likelihood that impingement will vary substantially from month to month and year to year due to natural environmental variability, the reporting requirements prescribed by NMFS would not be biologically meaningful. Historically, most impingement of shortnose sturgeon has occurred between January and May, and most impingement of Atlantic sturgeon has occurred between January and June. NMFS' own projections of expected future impingement (Figure 3, page 64, and Figure 8, page 84) are consistent with this pattern. Hence, in a typical year, the

50% thresholds for both species are likely to be reached during the spring. Since impingement is expected to be low for the remainder of the year, there is no scientific justification for NMFS to consider whether additional mitigation or monitoring is warranted after the 50% threshold has been reached. Moreover, the annual take levels specified by NMFS (25 shortnose sturgeon and 10 Atlantic sturgeon) are expected values calculated from the overall take limits for the licensing periods of IP2 and IP3. On average, it would be expected that these levels would be exceeded in 50% of years through chance alone. Accordingly, Entergy requests that NMFS clarify that these take limits apply to the entire period covered by the final Biological Opinion and not to single years within that period, and that the take of more than 1/20th of the limit in a single year does not constitute a violation.

Entergy believes that re-initiation of consultation is warranted only if sturgeon impingement exceeds the annual take level by a significant amount during several consecutive years. Entergy proposes to notify NMFS and NRC in writing if impingement mortality of either shortnose or Atlantic sturgeon exceeds 1/20th of the total limit for three consecutive years (*i.e.* 30 or more shortnose sturgeon each year for three consecutive years or 12 Atlantic sturgeon each year for three consecutive years). This notification would be provided as part of the annual incidental take report for the third year in which the take level has been exceeded by 20%.

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As a final point, Entergy notes that the Draft Biological Opinion provides summaries of various matters outside of the scope of NMFS's Draft Biological Opinion and/or NMFS's authority. These include the status of IP2 and IP3's NRC license renewal applications, historic NRC authorizations for IP2 and IP3, NMFS's historic authorization of IP2 and IP3's current operations relative to shortnose sturgeon, the application of §316(b) of the Clean Water Act, the history of the NPDES/SPDES permitting and WQC issuance for IP2 and IP3, and the status of the SPDES and WQC Proceedings pending before NYSDEC Administrative Law Judges ("ALJs"). *See* Section 1.0 through 3.3, and elsewhere where statements from these sections are echoed or repeated.

Entergy respectfully states that these matters are irrelevant to the issue to be addressed – *i.e.*, whether the proposed federal action is likely to jeopardize the continued existence of the shortnose sturgeon or Atlantic sturgeon in the Hudson River – and outside of NMFS' authority, expertise or knowledge. Although there are numerous misstatements or errors in the Draft Biological Opinion's discussion of these matters, providing comments in these areas would unnecessarily complicate the important process of providing comments on the matters *within* NMFS's authority in the Draft Biological Opinion. Examples include incorrect statements that NRC licenses for IP2 and IP3 "will expire," *see* Draft Biological Opinion, p. 3, when in fact the licenses are subject to timely renewal, as NMFS elsewhere acknowledges. They also include the

incorrect assertion that NYSDEC's 1982 WQC did not address all applicable water quality standards ("WQS"), when New York law requires that a WQC reach a determination on all WQS. *See* Draft Biological Opinion, p. 9. These statements, and others, while inaccurate, have no effect on the underlying determination NMFS has made. Thus, Entergy is not commenting on NMFS' recitation of any of these irrelevant or inaccurate matters, but expressly reserves its rights to do so in the future, including by taking any legal or factual position in any ongoing or future administrative or judicial proceeding related to IP2 or IP3 to establish any errors in NMFS's Draft Biological Opinion.

Entergy appreciates this opportunity to provide these comments on the Draft Biological Opinion, and looks forward to the completion of consultation and the issuance of the Final Biological Opinion on the schedule agreed to by NMFS, NRC and Entergy. Entergy likewise looks forward to final resolution of the monitoring program, as proposed in the Draft Biological Opinion. If you have any questions regarding these comments, please do not hesitate to contact me.

Sincerely,

RHF

Elise N. Zoli

Elise N. Zoli