

Gallagher, Carol

From: Deborah Brancato <DBrancato@riverkeeper.org>
Sent: Monday, April 29, 2013 3:16 PM
To: Gallagher, Carol
Cc: Phillip Musegaas
Subject: Riverkeeper Supplemental Letter on NRC Draft IP SEIS, Vol. 4
Attachments: Riverkeeper Supplemental Letter on NRC Draft IP SEIS, Vol. 4.pdf

Ms. Gallagher,

Attached please find a supplemental comment on behalf of Riverkeeper in relation to Docket ID NRC-2008-0672 (NRC's Draft FSEIS Vol. 4 concerning the proposed license renewal of Indian Point).

Because the comment period is over, Riverkeeper was not able to upload these comments via regulations.gov. Instead, I have faxed these comments per the initial instructions provided with the publication of NRC's draft report for comment, and I am sending this e-mail as well, to ensure that the attached comments become part of the record pertaining to this matter.

Please do not hesitate to contact me should you have any questions concerning this transmittal.

Sincerely,

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VIA FAX AND E-MAIL

April 29, 2013

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Re: *Docket ID NRC-2008-0672 – Riverkeeper, Inc.’s Supplemental Letter Regarding the U.S. Nuclear Regulatory Commission’s Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38, Vol. 4, Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Draft Report for Comment, Docket Nos. 50–247 and 50–286 (June 2012)*

Dear Rules, Announcements, and Directives Branch Chief:

Riverkeeper, Inc. (“Riverkeeper”) hereby respectfully submits the following supplemental comments on the U.S. Nuclear Regulatory Commission Staff’s (“NRC Staff”) Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 38, Volume 4, Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3, Draft Report for Comment (hereinafter referred to as “Draft FSEIS Supplement”). Notice of availability of, and opportunity to comment on, the Draft FSEIS Supplement was published on June 26, 2012; this notice provided a public comment period that ended on August 20, 2012.¹ Riverkeeper submitted comments on the Draft FSEIS Supplement in accordance with this deadline and the guidelines established in the public notice related to the document.²

Riverkeeper’s comments included a discussion of the NRC’s Endangered Species Act (“ESA”) § 7 consultation with the National Marine Fisheries Service (“NMFS”) regarding the proposed

¹ See Letter from David J. Wrona (NRC) to U.S. Environmental Protection Agency Office of Federal Activities NEPA Compliance Division EIS Filing Section, Re: Notice of Availability of Draft Supplement to Final Plant Specific Supplement 38 to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Regarding Indian Point Nuclear Generating Unit Nos. 2 and 3 (June 26, 2012), ADAMS Accession No. ML12159A495 (indicating a comment period extending to August 20, 2012).

² Riverkeeper Comments on NRC Staff Indian Point Draft FSEIS Supplement (Aug. 20, 2012), *available at*, <http://www.regulations.gov/#!documentDetail;D=NRC-2008-0672-0020>.



license renewal of Indian Point, which, at the time, remained ongoing.³ *Subsequent* to the conclusion of the comment period on the Draft FSEIS Supplement, on or about January 30, 2013, the ESA § 7 consultation process officially concluded with the publication of a final Biological Opinion pertaining to the proposed license renewal of Indian Point by NMFS (“Final BiOp”).⁴

Although the comment period on the Draft FSEIS Supplement is no longer open and, in fact, NRC expects to issue a finalized FSEIS supplement imminently, Riverkeeper submits this supplemental comment in order to make our position regarding the effect of NMFS’ January 30, 2013 Final BiOp clear on the record. In particular, NMFS’ Final BiOp focuses solely on potential impacts of ongoing operations of Indian Point on endangered aquatic resources, *as the plant currently operates*, notwithstanding the fact that Entergy wishes to operate the plant in a wholly different manner—with the operation of a cylindrical wedgewire screen technology—which will result in significant impacts to endangered species in the Hudson River. For all of the reasons explained at length in comments Riverkeeper submitted to NMFS on a draft of the BiOp, attached hereto as Attachment 1, NMFS’ assessment and conclusions, as ultimately memorialized in the Final BiOp, are questionable in light of the circumstances.⁵ Thus, Riverkeeper does not believe that the issuance of NMFS’ Final BiOp is dispositive for purposes of NRC’s conclusions regarding impacts to endangered species in the Indian Point FSEIS.

Furthermore, in light of the timing of the issuance of NMFS’ BiOp, i.e., *after* NRC’s publication of the Draft FSEIS, Riverkeeper reserves the right to assert the positions taken in our previously submitted comments regarding the adequacy of NRC’s treatment and consideration of ESA § 7 consultation process in the environmental review process related to the proposed license renewal of Indian Point pursuant to NEPA.⁶

Thank you for accepting the foregoing comment into the record relating to NRC’s Draft FSEIS Supplement. Should you have any questions regarding this correspondence, please do not hesitate to contact the undersigned.

Respectfully submitted,



Deborah Brancato
Staff Attorney

Phillip Musegaas, Esq.
Hudson River Program Director

³ *Id.* at 6-12.

⁴ NMFS Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, Units 2 and 3, pursuant to existing and proposed renewed operating licenses, NER-2012-2252 (Jan. 30, 2013), *available at*, <http://pbadupws.nrc.gov/docs/ML1303/ML13032A569.pdf>.

⁵ Comments of Riverkeeper on NMFS’ 10/26/12 Draft Biological Opinion for Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (Nov. 23, 2012) (Attachment 1).

⁶ *See* Riverkeeper Comments on NRC Staff Indian Point Draft FSEIS Supplement (Aug. 20, 2012), *available at*, <http://www.regulations.gov/#!documentDetail;D=NRC-2008-0672-0020> at 6-12.

Attachment 1

to

**Riverkeeper's Supplemental Letter Regarding the U.S. Nuclear Regulatory
Commission's Generic Environmental Impact Statement for License Renewal of
Nuclear Plants, Supplement 38, Vol. 4, Regarding Indian Point Nuclear Generating Unit
Nos. 2 and 3, Draft Report for Comment, Docket Nos. 50-247 and 50-286 (June 2012)**



November 23, 2012

VIA U.S. MAIL AND ELECTRONIC MAIL

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Re: NMFS' 10/26/12 Draft Biological Opinion for Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252

Dear Ms. Kurkul, Ms. Crocker, & Ms. Williams:

Please accept the following comments on behalf of Riverkeeper, Inc. ("Riverkeeper") regarding National Marine Fisheries Service's ("NMFS") draft Biological Opinion ("draft BiOp") on the effects of the proposed continued operation of Indian Point Nuclear Generating Station ("Indian Point") Units 2 and 3 on endangered aquatic resources in the significant and historic Hudson River, dated October 26, 2012. While initial Endangered Species Act ("ESA") § 7 consultations regarding the proposed relicensing of Indian Point commenced in December 2010, considered the impacts of the operation of Indian Point on endangered shortnose sturgeon, and resulted in the issuance of a final Biological Opinion on October 14, 2011, formal consultation was reinitiated in May 2012 in light of the recent listing of Atlantic sturgeon as endangered on February 6, 2012. NMFS' new draft BiOp considers the impact of Indian Point on the Atlantic sturgeon, which occur in the Hudson River and are known to be affected by the operation of the plant, and, when finalized, will amend and supersede the agency's previous final BiOp relating to this matter.

Riverkeeper is a non-profit environmental watchdog organization that is committed to the protection of the aquatic ecology of the Hudson River, including endangered shortnose sturgeon and Atlantic sturgeon that reside in the river. To this end, Riverkeeper has historically been engaged in advocacy activities and legal actions involving Indian Point, and, as you are likely aware, is currently a party to the Indian Point operating license renewal proceeding pending before the U.S. Nuclear Regulatory Commission ("NRC"), the Indian Point State Pollutant Discharge Elimination System ("SPDES") permit renewal proceeding, and the Indian Point Clean Water Act ("CWA") § 401 Water Quality Certification ("WQC") appeal proceeding, all of which implicate and involve endangered species issues. Moreover, Riverkeeper retains and regularly consults with the renowned expert fisheries biologists of Pisces Conservation Ltd., on issues pertaining to the aquatic ecology of the Hudson River, and impacts of power plant cooling water intake structures thereto. Riverkeeper is, therefore, well situated to provide feedback on the draft BiOp. Furthermore, consideration of Riverkeeper's comments on NMFS' draft BiOp is both necessary and appropriate pursuant to basic tenets of fairness, due process, and the Federal government's commitment to openness, transparency, and public participation.¹ Notably, during NRC and NMFS' initial ESA § 7 consultation relating to the proposed relicensing of Indian Point, upon Riverkeeper's request, NMFS provided a copy of the draft BiOp, and Riverkeeper greatly appreciated the opportunity to review it and provide NMFS with relevant and important comments.² Riverkeeper thanks NMFS in advance for once again accepting and considering the comments submitted herein prior to any issuance of a final Biological Opinion ("final BiOp").

In particular, Riverkeeper respectfully submits the following comments and concerns relating to NMFS' new draft BiOp:

The Usefulness of Issuing a Final BiOp at this Time

As discussed in Riverkeeper's comments on NMFS' previous draft BiOp, Riverkeeper continues to question the appropriateness and efficacy of issuing a final BiOp at this time, in light of the uncertain status of ongoing State legal proceedings involving Indian Point.

¹ The opportunity to review and comment on the draft BiOp would facilitate Riverkeeper's ability to meaningfully participate in the aforementioned ongoing legal proceedings involving Indian Point and to act as a public advocate, as well as foster an open process that Federal agencies are obligated to strive for. Moreover, given that Riverkeeper's position in various Indian Point proceedings is adverse to that of the owner of Indian Point, Entergy Nuclear Operations, Inc. ("Entergy"), and the NRC, it is patently unfair to allow a one-sided external review of the draft BiOp by only Entergy and the NRC.

² See Letter from D. Brancato (Riverkeeper) to P. Kurkul (NMFS), J. Williams (NMFS), and J. Crocker (NMFS) re: Draft Biological Opinion for License Renewal of the Indian Point Nuclear Generating Unit Nos. 2 and 3 (Sept. 15, 2011). Indeed, Riverkeeper's comments raised issues that NMFS considered (albeit, not entirely) prior to finalizing its BiOp concerning shortnose sturgeon, including whether accidental radiological leaks from Indian Point had impacted the endangered species in the Hudson River as well as the impact of the Indian Point Unit 1 cooling water intake on shortnose sturgeon – issues for which NMFS' initial draft BiOp was completely silent. See *id.* at 7-9; see generally Endangered Species Act Section 7 Consultation DRAFT Biological Opinion - Relicensing - Indian Point Nuclear Generating Station, F/NER/2009/00619; endangered Species Act Section 7 Consultation Biological Opinion - Relicensing - Indian Point Nuclear Generating Station, F/NER/2009/00619, at 49-51, 62.

During NMFS' earlier consultations, NMFS asked NRC to consider withdrawing its request for ESA § 7 consultation until the uncertainties related to the continued operations of Indian Point were resolved.³ However, per NRC's request, NMFS "completed consultation, considering effects of the proposed action, as defined by NRC staff in the FEIS and BA,"⁴ i.e., in relation to existing operations of the plant pursuant to 1987 SPDES permits. NMFS' new, October 26, 2012 draft BiOp take the same approach: while legal proceedings that will determine what new technology will be required to modify the operation of Indian Point's cooling water intake structures remain ongoing, NMFS again only considered "the effects of the operation of IP2 and IP3 pursuant to the . . . [1987] SPDES permits issued by NYDEC that are already in effect" since "NRC requested consultation on the operation of the facilities under the . . . existing [1987] SPDES permits, even though a new SPDES permit might be issued in the future."⁵ Thus, while NMFS recognized that the implementation of technology that Entergy has proposed, cylindrical wedge wire screens, "will affect shortnose and/or Atlantic sturgeon in a manner and to a degree that is very different from the effects"⁶ of existing operations, the draft BiOp once again only narrowly considers impacts of the current operations of the plant on endangered species in the Hudson River.

Riverkeeper continues to question the utility of the instant ESA § 7 consultation process. To begin with, because NYDEC has unequivocally denied Entergy a necessary CWA § 401 WQC, it is not clear that Indian Point will even continue to operate, in which case §7 consultation regarding the impact of 20 additional years of operating the plant on endangered species would be unnecessary. Without a new, valid CWA § 401 WQC, Indian Point cannot continue to operate.⁷ While NYSDEC's determination to deny Entergy this necessary certification was definitive, and made within the statutory one-year timeframe contemplated by the CWA, Entergy chose to avail itself of an optional hearing process on the decision, and that process is currently ongoing. The likelihood that Indian Point may not continue to operate in the absence of a new WQC renders the usefulness of the instant ESA § 7 consultation process questionable.

Moreover, NMFS' analysis in the draft BiOp considering only *existing* operations pursuant to a 25-year old, outdated, administratively extended SPDES permit, is less than useful. The "current" SPDES permit is presently the subject of a renewal proceeding that will result in the modification of the current permit (since it will require the implementation of the best technology available for minimizing the adverse environmental impacts caused by the current operation of Indian Point's environmentally destructive once-through-cooling water intakes). The analysis and determinations required in NMFS' BiOp necessarily hinge and depend upon the

³ See Letter from P. Kurkul (Regional Administrator, NMFS) to D. Wrona (Branch Chief, NRC), Re: Biological Opinion for License Renewal of the Indian Point Nuclear Generating Unit Nos. 2 and 3 (Oct. 14, 2011), at 1.

⁴ *Id.*

⁵ Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12), at 7, 11.

⁶ *Id.* at 11.

⁷ See generally Letter from D. Brancato (Riverkeeper) to NRC Commissioners, Re: Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3), Docket Nos. 50-247-LR 50-286-LR (July 26, 2012), NRC ADAMS Accession No. ML12208A392.

outcome of that proceeding. It is simply unhelpful (as well as a waste of resources) to issue a final BiOp before the final outcome of the SPDES permit renewal proceeding is known.

The eventual outcomes of the ongoing State proceedings will determine if and how Indian Point might continue to operate, and, thus, more precisely, how the plant would impact endangered species in the Hudson River. NRC's continued request for § 7 consultation regarding a "proposed action" defined as the operation of Indian Point for 20 additional years pursuant to its *existing* (i.e., 1987 administratively extended) SPDES permit remains inappropriate and largely ineffective. As such, Riverkeeper once again opines that issuing a final BiOp at this time that is based on completely inaccurate and irrelevant assumptions is neither appropriate nor useful.

It is advisable and necessary for NRC to either withdraw and hold in abeyance its request for §7 consultation pending the outcome of the State proceedings, *or*, request §7 consultation for a "proposed action" that includes and fully accounts for the reasonably foreseeable differing outcomes of these proceedings, and which will result in a thorough analysis of the respective impacts of such differing outcomes. The State proceedings are indisputably at a point where reasonably foreseeable outcomes are discernible; the likely outcomes of the State proceedings are as follows: (1) Indian Point will no longer continue to operate, (2) Entergy will install and operate a closed-cycle cooling system and potentially various other measures related to the water intakes at Indian Point, or (3) Indian Point will continue to operate for 20 years with a once-through cooling water system and cylindrical wedge wire screens.⁸

For example, Entergy's proposal that Indian Point be allowed to continue to operate with the installation of cylindrical wedge wire screens,⁹ clearly requires additional analysis, as such screens would undoubtedly impact the benthic environment and shortnose and Atlantic sturgeon in the Hudson River: these screens would require an enormous set of underwater structures -- 144 screens each of 72 inches in diameter, made of a metal alloy with toxicity implications -- that would rest on the floor of the river, where, as NMFS' draft BiOp discusses at length, sturgeon are present for foraging, migrating, avoiding unsuitable thermal temperatures occurring at higher elevations, etc.¹⁰

⁸ NRC has and may continue to argue that it would not be appropriate to speculate as to the outcome of the pending State proceedings, especially since, as NRC has repeatedly acknowledged, it does not have jurisdiction over issues related to Indian Point's state water permits. See *In re Entergy Nuclear Operations, Inc. (Indian Point, Units 2 and 3)*, 68 NRC 43, *156-57 (2008) ("NRC is prohibited from determining whether nuclear facilities are in compliance with CWA limitations, assessing discharge limitations, or imposing additional alternatives to further minimize impacts on aquatic ecology that are subject to the CWA. . . [T]he NRC has promulgated regulations, specifically 10 C.F.R. § 51.53(c)(3)(ii)(B), to implement these specific CWA requirements that help assure that the Commission does not second-guess the conclusions in CWA-equivalent state permits, or impose its own effluent limitations It would be futile for the Board to review any of the CWA determinations, given that it is not possible for the Commission to implement any changes that might be deemed appropriate"). However, asking NMFS to perform a relevant analysis (as opposed to a completely irrelevant and useless one) would clearly not conflict with NRC's lack of authority to substantively opine on Indian Point's CWA-related permits. Moreover, as stated above, the State proceedings are clearly at a point where reasonably foreseeable outcomes are apparent.

⁹ Riverkeeper maintains that such an outcome would not be in compliance with federal and state law.

¹⁰ Notably, in the state CWA § 401 and SPDES proceedings, Entergy has failed to provide any analysis of the adverse environmental impacts associated with the construction and operation of a 144-screen array in the Hudson River.

In any event, it is axiomatic that NMFS' *relevant* analysis and conclusions must be taken into account in the Indian Point operating license renewal proceeding, and in NRC's ultimate licensing decision. The relicensing proceeding, from which the ESA §7 consultation obligation stems, and associated review processes are occurring now. The ESA §7 consultation is a critical aspect to these reviews. In particular, NMFS' analysis is a critical and necessary component of the National Environmental Policy Act ("NEPA") process in the Indian Point license renewal proceeding. Indeed, the Atomic Safety and Licensing Board ("ASLB") presiding over the Indian Point relicensing case had ruled that "NMFS's BiOp will aid the agency [i.e., NRC] in making its licensing decision in this [relicensing] proceeding. Without receipt and consideration of that input from NMFS, the NRC Staff arguably has not taken the requisite hard look at this issue."¹¹ As a result, the final environmental impact statement that NRC Staff has already issued in the Indian Point license renewal proceeding, in conjunction with a pending supplement to the final environmental impact statement that has yet to be finalized, will be inadequate without review and consideration of a final BiOp that analyzes all *relevant* issues.

Therefore, whether or not NRC's §7 consultation request is withdrawn until the State proceedings conclude, or whether or not NRC redefines the relevant "proposed action" to ensure an accurate and adequate analysis by NMFS, it is clear that NRC must factor NMFS' ultimate analysis and conclusions into the environmental review process concerning the proposed license renewal of Indian Point, and in the final decision regarding whether to grant renewed licenses for the plant.¹²

¹¹ In the Matter of Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3, Docket Nos. 50-0247-LR and 50-286-LR, ASLBP No. 07-858-03-LR-BD01, Memorandum and Order (Ruling on Pending Motions for Leave to File New and Amended Contentions (July 6, 2011), at 69-70.

¹² In the event NRC does not choose either of these options, and proceeds with consultation under the faulty assumption regarding how Indian Point would continue to operate, as NMFS has made clear, re-initiation of consultation will be necessary once the outcome of the State proceedings is known, to account for the inevitable new information and circumstances that will arise. Under such a scenario, NRC, at that time would be obliged to consider NMFS' new/additional analysis and conclusions in the Federal environmental review process concerning the proposed license renewal of Indian Point, and in the final decision regarding whether to grant renewed operating licenses to the facility. For example, as discussed above, should Entergy's proposal to implement cylindrical wedge wire screens at Indian Point ultimately prevail, a new assessment by NMFS would clearly be necessary, as such screens would impact shortnose and Atlantic sturgeon in the Hudson River, which will have to be accounted for in the Federal relicensing case.

Notably, given NRC's noted lack of jurisdiction over CWA-related issues, NRC may choose to not await the outcome of the Indian Point SPDES permit renewal proceeding before attempting to conclude the license renewal proceeding; additionally, while NRC may not issue renewed operating licenses for Indian Point unless the plant receives a valid CWA § 401 WQC, this does not prevent NRC from attempting to finalize and conclude all otherwise required analyses and review processes, or from reaching a determination about the appropriateness of relicensing Indian Point from a safety and environmental perspective, which could be executed in the event a valid §401 certification is issued. However, under no circumstances would it be legal for NRC to in any way preclude consideration of the ESA §7 consultation process in the relicensing proceeding: consideration of NMFS's assessment on endangered species impacts is necessary pursuant to NEPA. *See generally*, Riverkeeper, Inc. Consolidated Motion for Leave to File a New Contention and New Contention Concerning NRC Staff's Final Supplemental Environmental Impact Statement (Feb. 3, 2011), *accessible at*, <http://www.nrc.gov/reading-rm/adams.html#web-based-adams>, ADAMS Accession No. ML110410362 (proffering a legal contention asserting the insufficiency of NRC's final environmental impact statement for failure to account for the ESA §7 consultation process, which was later deemed a valid and adjudicable issue by presiding ASLB). Therefore, when, in the future,

In the event that NRC does not either withdraw and hold in abeyance its request for ESA §7 consultation pending the outcome of the State proceedings, or, request ESA §7 consultation for a redefined “proposed action” to ensure an accurate and adequate analysis by NMFS, and NMFS intends to issue a Final BiOp, Riverkeeper submits the following comments on the new draft BiOp.¹³

NMFS’ Incidental Take Statement

NMFS’ draft BiOp includes an Incidental Take Statement (“ITS”) which exempts the take of 562 shortnose sturgeon impinged by Indian Point Units 1, 2, or 3 intakes throughout the proposed relicensing period, and 219 New York Bight (“NYB”) Distinct Population Segment (“DPS”) Atlantic sturgeon impinged by Indian Point Units 1, 2, or 3 intakes throughout the proposed relicensing period.¹⁴ NMFS concludes that such losses of sturgeon caused by Indian Point over a proposed 20 period of extended operation are not significant.

Riverkeeper does not agree that such losses are appropriate or acceptable. Notably, sturgeon are an aspect of the designated use assigned to the Hudson River pursuant to the CWA; this designated use dictates that the Hudson River “shall be suitable for fish, shellfish, and wildlife propagation and survival.”¹⁵ Moreover, the historical existing use of the Hudson River as a sturgeon fishery is an established fact. The degree and appropriateness of the impact of Indian Point on endangered sturgeon in the Hudson River must be considered in view of these circumstances.¹⁶

In addition, due to the slow maturation process and intermittent spawning of shortnose and Atlantic sturgeon, (which NMFS’ draft BiOp recognizes¹⁷), any impacts on this species may

NMFS assesses new, previously unanalyzed information arising out of the ultimate decisions in the now pending State proceedings, this will necessitate a supplemental review and analysis by the NRC in the license renewal proceeding pursuant to NEPA.

¹³ Riverkeeper does not repeat, but incorporates by reference the comments previously submitted related to shortnose sturgeon (Letter from D. Brancato (Riverkeeper) to P. Kukul (NMFS), J. Williams (NMFS), and J. Crocker (NMFS) re: Draft Biological Opinion for License Renewal of the Indian Point Nuclear Generating Unit Nos. 2 and 3 (Sept. 15, 2011)), to the extent they were not adequately addressed or considered in NMFS’ previous final BiOp, and, in turn, NMFS’ current draft BiOp.

¹⁴ Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12), at 119.

¹⁵ 6 NYCRR § 864.6; 6 NYCRR § 701.11.

¹⁶ See generally Riverkeeper, Natural Resources Defense Council, and Scenic Hudson Petition for Full Party Status and Adjudicatory Hearing, (July 10, 2010), accessible at, <http://www.riverkeeper.org/wp-content/uploads/2010/07/RK-NRDC-SH-Petition-for-Full-Party-Status-Indian-Point-401-WQC-scanned.pdf> (last visited Nov. 20, 2012) at 31-34. Riverkeeper appreciates and understands the difference between the ESA and the CWA, but respectfully submits that the protections afforded to endangered resources pursuant to the CWA are relevant and important.

¹⁷ Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12), at 15, 24, 26.

have noticeable effects, and it is critical that such impacts are kept to a minimum. Fisheries Biologist Dr. Peter Henderson of Pisces Conservation Ltd has provided his expert opinion that these numbers are appreciable, and for “endangered long-lived species,” “cannot be considered trivial.”¹⁸

In relation to shortnose sturgeon, as Dr. Henderson explains, the special significance of the Hudson River to the species warrants particular protection.¹⁹ Dr. Henderson points out that favorable recruitment of shortnose sturgeon may not persist given potential climate change impacts and explains the lack of scientific support for the claim that the population of shortnose sturgeon in the Hudson River is stable and at carrying capacity; Dr. Henderson further disagrees with NMFS’ conclusion that the proposed relicensing of Indian Point will not necessarily affect the population of shortnose sturgeon in the Hudson River, since Indian Point will undoubtedly contribute to the reduction of the likelihood that individual sturgeons will reach old age; Moreover, Dr. Henderson explains that the lack of information on the range of mortality rates attributable to man and their combined impact on the Hudson River population of shortnose sturgeon is unclear.²⁰

In relation to Atlantic sturgeon, Dr. Henderson explains that fate of Atlantic sturgeon in the Hudson River is important since recent spawning information is only known from the Hudson and Delaware rivers.²¹ Dr. Henderson does not agree that the impingement of a small proportion of the juvenile population of Atlantic sturgeon will not necessarily jeopardize the continued existence of the species, since impingement mortality and habitat degradation hinder recovery.²² Dr. Henderson explains that the indication that the population of Atlantic sturgeon is increasing is poor and does not properly ground NMFS’ conclusion that the losses attributable to Indian Point are not significant, as well as the fact that, similar to shortnose sturgeon, combined effects related to Atlantic sturgeon are not well-quantified.²³

Dr. Henderson has further explained to Riverkeeper that it is important to distinguish the impacts of power plant operations from other impacts such as fishing. For example, while there is a tendency to view power stations as another exploiter of a population like fishermen, this is not the case because if the population has a couple of poor recruitment years, it is possible for environmental managers to reduce the hunting take. That is, fishing activity can be actively managed and a response made quickly if a population gets into trouble. On the other hand, nuclear power plants, once given permission to operate, will continue to operate and do harm for many years. It is effectively impossible for the license of such a plant to be revoked or for the output and water use of a plant to be quickly changed because a population is getting into trouble. To the contrary, they are inflexible, and, as a result, cannot contribute to population management. Dr. Henderson has advised Riverkeeper that over long periods of 10-25 years, this

¹⁸ Attachment 1 – Memorandum from Pisces Conservation Ltd, “Sturgeon and Indian Point,” (Nov. 21, 2012) at 1.

¹⁹ *Id.* at 1-2.

²⁰ *Id.*

²¹ *Id.* at 2.

²² *Id.*

²³ *Id.*

inflexibility is likely to become important and harmful as all populations will occasionally have hard times. Because of the particularly inflexible and detrimental impacts of power plants, care and caution must be taken over decisions involving such plants.

The expert assessment of Pisces Conservation Ltd clearly reveals that NMFS' conclusions exempting the take of endangered sturgeon in the Hudson River are not adequately founded.

In addition, NMFS' conclusions regarding the prospective impacts to endangered sturgeon from the ongoing, i.e., future, operation of Indian Point are not well-founded due to the fact that they are based on data that was collected over twenty years ago. That is, NMFS drew conclusions without any knowledge about the current *actual* impacts of Indian Point. As a result, NMFS' findings are arbitrary and inherently unreliable. As Dr. Henderson explains, the populations of both shortnose and Atlantic sturgeon have changed since data was collected, as well as plant operations and technical specifications; a notable example is that no sampling has been undertaken since Ristroph screens were installed, resulting in no relevant data on sturgeon survival.²⁴

NMFS' Assessment of the Cumulative Impacts to Atlantic Sturgeon²⁵

NMFS recognizes that Indian Point has had and (with the continued use of the existing once-through cooling water intake structure) will continue to have adverse impingement impacts on endangered Atlantic sturgeon in the Hudson River.²⁶ NMFS has concluded the loss of Atlantic sturgeon from the ongoing (existing) operation of Indian Point would "not appreciably reduce the likelihood that the NYB DPS of Atlantic Sturgeon will survive in the wild."²⁷

However, it remains questionable whether NMFS has adequately assessed the losses of Atlantic sturgeon in the Hudson River in view of all Atlantic sturgeon entrainment- and impingement-related losses over *all* intakes of all the power plants in the Hudson River and other relevant waters. All of these intakes taken together are authorized to withdraw trillions of gallons of water every year.²⁸ While NMFS' draft BiOp makes cursory reference to the existence of other

²⁴ *Id.* at 1-2.

²⁵ Riverkeeper submitted concerns related to the inadequate consideration of cumulative impacts on shortnose sturgeon, which are incorporated by reference into the instant comments. *See* Letter from D. Brancato (Riverkeeper) to P. Kukul (NMFS), J. Williams (NMFS), and J. Crocker (NMFS) re: Draft Biological Opinion for License Renewal of the Indian Point Nuclear Generating Unit Nos. 2 and 3 (Sept. 15, 2011), at 5-7; *see also* Attachment 1 – Memorandum from Pisces Conservation Ltd, "Sturgeon and Indian Point," (Nov. 21, 2012) at 1-2.

²⁶ Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12), at 14.

²⁷ *Id.* at 116.

²⁸ *See, e.g.*, NYSDEC Final Environmental Impact Statement Concerning the Applications to Renew New York State Pollutant Discharge Elimination System Permits for the Roseton 1 & 2, Bowline 1 & 2 and Indian Point 2 & 3 Steam Electric Generating Stations, Orange, Rockland and Westchester Counties, Hudson River Power Plants FEIS (June 25, 2003) (hereinafter "2003 DEC Hudson River Power Plants FEIS"), at 71 (Responses to Comments), available at, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/FEISHRPP6.pdf (indicating in 2003 that "[t]he sheer volumes of water necessary to meet the HRSA [Hudson River Settlement Agreement] plants' cooling requirements are enormous. Together, Indian Point, Roseton, and Bowline are authorized to withdraw 1.69 trillion gallons per year for cooling water . . .") (emphasis added).

impingement related impacts to Atlantic sturgeon in the Hudson River, NMFS presents no analysis of the combined, total cumulative impacts to shortnose sturgeon, and no assessment of whether, *in light of such overall impacts*, the losses caused by Indian Point would appreciably affect the species in the river. As Dr. Henderson of Pisces Conservation Ltd has previously advised, a BiOp without such an analysis is deficient.²⁹

In particular, if Indian Point might allegedly kill 219 individual Atlantic sturgeon over the proposed 20 year license renewal period for Indian Point, such losses must be considered as part of an overall loss from *all* water extraction activities. That is, NMFS must assess what losses all power plants combined inflict on Atlantic sturgeon.³⁰ NMFS' draft BiOp reveals an inadequate sense of the spatial extent of the Hudson River Atlantic sturgeon population or threats facing it.³¹ There is a dearth of analysis of the cumulative impacts over the geographical range of this population. In addition, a cumulative impact assessment must also appropriately consider the combined impacts of other projects that affect endangered sturgeon in the Hudson River and NYB DPS, including the Tappan Zee Bridge Replacement Project; as NMFS' draft BiOp indicates, this transportation infrastructure project will result in impacts to endangered sturgeon.³²

An adequate cumulative impact analysis is necessary in order to arrive at any ultimate conclusions regarding the impact of Indian Point on this endangered species, and, if appropriate, to determine further reasonable and prudent measures necessary to minimize impacts to Atlantic sturgeon. For example, if the combined impacts to Atlantic sturgeon are significant, then each plant must reduce its impact, even if each is not responsible for an appreciable number. NMFS cannot deem the losses caused by Indian Point acceptable in a vacuum, i.e., without putting such

²⁹ See Letter from D. Brancato (Riverkeeper) to P. Kukul (NMFS), J. Williams (NMFS), and J. Crocker (NMFS) re: Draft Biological Opinion for License Renewal of the Indian Point Nuclear Generating Unit Nos. 2 and 3 (Sept. 15, 2011), at 5-7; see also 2003 DEC Hudson River Power Plants FEIS, at 16, *available at*, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/FEISHRPP3.pdf ("In addition to impingement and entrainment losses associated with the operation of CWIS, *another concern is the cumulative degradation* of the aquatic environment as a result of: (1) multiple intake structures operating in the same watershed or in the same or nearby reaches; and (2) intakes located within or adjacent to an impaired waterbody. . . . [T]here is concern about the effects of multiple intakes on fishery stocks") (emphasis added); see also *id.* at 54 (Responses to Public Comments), *available at*, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/FEISHRPP5.pdf ("The actual draw-down [i.e., "[t]he direct reduction of the quantity of organisms within the water column by water intakes"] is likely even greater because the three HRSA generating plants (combined with other facilities in the same river reaches) *act cumulatively on the entire aquatic community*") (emphasis added).

³⁰ It is well known that other power plants impinge and entrain sturgeon, which the draft BiOp acknowledges and describes in part. See also NMFS Sturgeon Recovery Plan, at 55 ("The operation of power plants in the upper portions of rivers has the greatest potential for directly affecting sturgeon populations because of the increased incidence of entraining younger and more vulnerable life stages. Documented mortalities of sturgeon have occurred in the Delaware, Hudson, Connecticut, Savannah and Santee rivers. Between 1969 and 1979, 39 shortnose sturgeon were impinged at power plants in the Hudson River (Hoff and Klauda 1979).").

³¹ For example, does the population extend into Long Island Sound and other areas of adjacent coast where it is impacted by other intakes?

³² Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12) at 44.

losses into proper context, and determining whether such losses are significant in light of all other relevant impacts to the species.

Similarly, while NMFS has concluded that the thermal plume at Indian Point is not likely to negatively affect Atlantic sturgeon in the vicinity of the plant, NMFS has failed to adequately assess the cumulative impacts of power plant thermal plumes on Atlantic sturgeon.³³ While it may be correct that Atlantic sturgeon will avoid water that is too warm for them, if there are numerous regions with plumes that are being avoided, NMFS must assess what total loss of habitat may be occurring and whether such loss is appreciable for the species in the Hudson River. This is especially important in light of global climate change, which NMFS recognizes will cause the water temperature of the Hudson River to rise over time. NMFS must view the thermal impacts of Indian Point with regard for the broader range of thermal impacts faced (and to be faced) by the species in the river.³⁴

NMFS' overall conclusion is that the continued operation of Indian Point during Entergy's proposed 20 year period of extended operation "is not likely to jeopardize the continued existence of" NYB DPS of Atlantic sturgeon.³⁵ However, given NMFS' failure to properly view the losses of Atlantic sturgeon caused by the operation of Indian Point in light of total impacts to this species in the Hudson River, these conclusions are, as yet, dubious.

NMFS' Failure to Adequately Consider Impacts of Radiological Releases from Indian Point on Endangered Sturgeon

In contrast to NMFS' previous draft BiOp (which omitted any mention, let alone discussion and analysis of radiological discharges from Indian Point), NMFS' new draft BiOp does include a discussion of the potential impact of radionuclides from Indian Point on endangered sturgeon in the Hudson River. However, NMFS' analysis is not adequate to resolve all concerns related to the potential effects on shortnose and Atlantic sturgeon caused by the regular release of radionuclides directly to the Hudson River from Indian Point, as well as the toxic radionuclide laden contamination plumes that underlie the site, which undeniably migrate and release to the Hudson River.

NMFS discusses Entergy's REMP program, as well as a one-time enhanced radiological monitoring study conducted in 2007 (i.e., 5 years ago), and based on this information, concludes that "while shortnose and Atlantic sturgeon may be exposed to radionuclides originating from

³³ Riverkeeper has offered comments on the illegality of NYSDEC's proposed issuance of a 75-acre mixing zone to allow the facility to discharge heated effluent to the Hudson and expects that issues related to thermal considerations will be advanced to adjudication.

³⁴ See 2003 DEC Hudson River Power Plants FEIS at 71 (Public Comment Summary), available at, http://www.dec.ny.gov/docs/permits_ej_operations_pdf/FEISHRPP6.pdf (indicating in 2003 that "[t]ogether, Indian Point, Roseton, and Bowline are authorized to withdraw 1.69 trillion gallons per year for cooling water, and they discharge 220 trillion BTU of waste heat per year. The volume of once-through cooling water is raised between 15°F and 18°F, depending on the plant, or an average of 16.2°F"); see also *supra* Note 9 (discussing concerns relating to cumulative impacts to aquatic ecology of the Hudson River).

³⁵ Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12), at 117.

Indian Point . . . any exposure is not likely to be at levels that would affect the health or fitness of any individual shortnose or Atlantic sturgeon. . . . Thus, NMFS considers the effects to shortnose and Atlantic sturgeon from radionuclides to be insignificant and discountable.”³⁶ However, NMFS’ limited review does not warrant such definitive and sweeping conclusions.

To begin with, it is necessary to clarify that the radiological contamination at Indian Point is not simply the result of past spent fuel pool leaks, which NMFS’ draft BiOp seems to imply. In fact, decades of leaks from a variety of components, including the Unit 1 and Unit 2 spent fuel pools, but also underground pipes and structures, and other components, has resulted in extensive plumes of contamination (which contain, *inter alia*, highly toxic strontium-90 and cesium-137, as well as tritium) in the groundwater beneath the Indian Point plant. It is undisputed that this contamination leaches through the bedrock beneath Indian Point, and discharges to the Hudson River.³⁷ Other critical overlooked and unmentioned facts are that active current radiological leaks occur, future additional leaks are highly likely, and that any such leaks at Indian Point will add to the existing contamination plumes.³⁸ Entergy’s current “remediation” methodology is Monitored Natural Attenuation,³⁹ and, thus, this contamination will persist in the groundwater and continually be discharged to the Hudson River throughout the proposed period of extended operation, and beyond.

In light of these circumstances, NMFS’ assessment of the potential impact of radiological releases from Indian Point on endangered species in the Hudson River in its draft BiOp is wanting. In particular, NMFS has failed to consider cumulative impacts on endangered species due to ongoing and future radiological releases from Indian Point *throughout* the proposed relicensing period. It is undisputed that past fish samples have showed elevated levels of radionuclides, and there is every reason to believe, absent any enhanced and regular fish sampling scheme, that because the groundwater contamination at Indian Point directly discharges to the Hudson River, it may impact fish in the river during the proposed relicensing terms. Even if endangered species in the Hudson River are being exposed to “small” levels of radionuclides, NMFS has demonstrably failed to conduct the assessment necessary to found the sweeping conclusion that any such impacts are “insignificant and discountable.” Relying on a *one-time* study that was conducted 5-years ago for an apparent assurance that the radionuclides attributable to Indian Point will not impact endangered resources through 2035 belies logic and science. Moreover, NMFS’ reliance on Entergy’s REMP program, which involves a relatively limited set of opportunistic sampling that does not involve sampling of bone, where Strontium-

³⁶ *Id.* at 102.

³⁷ See Groundwater Investigation Executive Summary (Indian Point Entergy Center, Buchanan, N.Y., Jan. 2008), at 1 (“The plumes ultimately discharge to the Hudson River to the West”).

³⁸ See generally, Riverkeeper, Natural Resources Defense Council, and Scenic Hudson Petition for Full Party Status and Adjudicatory Hearing, (July 10, 2010), accessible at, <http://www.riverkeeper.org/wp-content/uploads/2010/07/RK-NRDC-SH-Petition-for-Full-Party-Status-Indian-Point-401-WOC-scanned.pdf> (last visited Nov. 20, 2012), at 39-48; Post-Hearing Closing Brief of Intervenors Riverkeeper, Natural Resources Defense Council, and Scenic Hudson Regarding Issue for Adjudication No. 3 – Radiological Materials (April 27, 2012), at 24-66.

³⁹ See, e.g., GZA GeoEnvironmental, Inc., Hydrogeologic Site Investigation Report, Indian Point Energy Center (Jan. 7, 2008) (“The proposed remediation technology is source elimination/control . . . with subsequent Monitored Natural Attenuation, or MNA.”)

90 is known to concentrate, is clearly inadequate to support an overall conclusion that radionuclides from Indian Point pose no danger to shortnose and Atlantic sturgeon in the Hudson River for the next 20+ years. Notably, Riverkeeper has questioned the legality of the accidental radiological releases from Indian Point to waters of NYS in State proceedings that are still pending. Those proceeding revealed Entergy's failure to demonstrate that radiological leaks will not adversely impact the aquatic ecology of the Hudson River, which includes endangered sturgeon species, during the proposed relicensing terms.⁴⁰

The lack of adequate analysis by NMFS is particularly troubling given the known dangers of exposure to radioactive substances such as strontium-90 and tritium: Strontium-90 imitates calcium by concentrating in fish bones and shells of clams and blue crab. Clams are a major part of the diet of sturgeon found in the Hudson River. Riverkeeper, therefore, continues to be concerned that Hudson sturgeon are being exposed to elevated levels of this dangerous substance, opine that NMFS' assessment does not resolve these concerns.

In addition, Entergy has indicated that cesium contamination is present in Hudson River sediments in front of Indian Point and that this contamination is attributable in part to releases from Indian Point.⁴¹ Entergy's plans to dredge such sediments in order to install cylindrical wedge wire screens on the river-bottom poses a clear risk to endangered sturgeon from radionuclides from Indian Point. Yet, NMFS has failed to consider such impacts. Notably, Entergy's lack of adequate information on the what levels of contaminants attributable to Indian Point are in the river sediments or how sediment discharges can and should be controlled⁴² highlights the potential risks posed to endangered sturgeon species in the river that have not been accounted for.

NMFS' BiOp must properly analyze the potential effects of radiological releases and groundwater contamination at Indian Point on shortnose and Atlantic sturgeon. Assessing this issue is a critical aspect of NMFS' overall assessment of impacts to these endangered species, and should certainly be considered in terms of further necessary and appropriate reasonable and prudent measures that should be implemented at Indian Point. For example, appropriate measures include remediation and mitigation measures to assure that radiological contamination attributable to Indian Point does not discharge to the Hudson River in the first instance, which, according to representations from Entergy, is entirely possible.⁴³

⁴⁰ See generally Post-Hearing Closing Brief of Intervenors Riverkeeper, Natural Resources Defense Council, and Scenic Hudson Regarding Issue for Adjudication No. 3 – Radiological Materials (April 27, 2012).

⁴¹ IPEC CWW Dredging Step 1 – Draft White Paper Postulated Contamination Characterization (Nov. 2011). Notably, Riverkeeper filed a motion to reopen the record in the State adjudicatory proceedings to allow meaningful consideration of the information in this report, which came to light after hearings on the relevant issue concluded, in relation to how radiological leaks at Indian Point have impacted, or will impact, the Hudson River. While this motion was denied, the time to appeal the denial is still ongoing; moreover, the State tribunal has indicated that concerns related to the sediment issue can appropriately be raised in the context of hearings related to Entergy's cylindrical wedge wire screen proposal.

⁴² See *id.*

⁴³ In the Matter of: Entergy Nuclear Indian Point 2, LLC, and Entergy Indian Point 3, LLC, For a State Pollution Discharge Elimination System Permit Renewal and Modification, DEC No.: 3-5522-00011/00004, SPDES No.: NY-0004472; Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC, and Entergy Nuclear

NMFS' Failure to Assess all Reasonable and Prudent Measures

NMFS concludes that potential losses of Atlantic sturgeon caused by Indian Point over a proposed 20 year period of extended operation are not significant, and therefore, exempts a certain level of impingement. As discussed above, NMFS' conclusions are, at a minimum, uncertain, given the extent of the take, and due to NMFS' failure to properly assess the cumulative impacts to sturgeon in the Hudson River. Moreover, Riverkeeper once again respectfully submits that, because of the slow maturation process and intermittent spawning of Atlantic sturgeon, (which NMFS' draft BiOp recognizes⁴⁴), any impacts on this species may have noticeable effects, and that it is critical that impacts on Atlantic sturgeon are kept to a minimum.

In any event (that is, whether NMFS' overall conclusions are supportable or whether the impacts may be more significant than the draft BiOp concludes), due to the availability of a technology that would substantially reduce the impacts to Atlantic sturgeon caused by Indian Point, i.e., closed-cycle cooling,⁴⁵ Riverkeeper fails to understand why the draft BiOp does not assess the efficacy of this technology as a "reasonable and prudent measure"⁴⁶ to be implemented at the plant.

While Riverkeeper understands that the outcome of the NYDEC SPDES permit modification proceeding will ultimately determine whether closed-cycle cooling will be required at Indian Point,⁴⁷ there is no reason this should preclude NMFS from examining this technology, and

Operations, Inc. Joint Application for CWA § 401 Water Quality Certification, DEC App. Nos. 3-5522-00011/00030 (IP2), 3-5522-00105/00031, Transcript of Arbitration before Daniel P. O'Connell, ALJ, Maria E. Villa, ALJ, Reporter: Alan H. Brock, RDR, CRR, Farmer Arsenault Brock LLC (January 11, 2012, pages 3071-3344; January 23, 2012, pages 3895-4125), at 4041:2-6, 11-14, 4094:1-2, 18-21.

⁴⁴ Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12), at 24, 26.

⁴⁵ Closed-cycle cooling systems require only a small fraction of the water which is required by once-through cooling systems, and since aquatic mortality is directly related to the amount of water use, a retrofit to a closed-cycle cooling system results in substantial reductions in aquatic mortality. See DEC Fact Sheet, New York State Pollutant Discharge Elimination System (SPDES) Draft Permit Renewal With Modification, Indian Point Electric Generating Station, Buchanan, NY – November 2003, at Attachment B, p.3, available at http://www.dec.ny.gov/docs/permits_ej_operations_pdf/IndianPointFS.pdf (last accessed Nov. 20, 2012) ("Closed-cycle cooling recirculates cooling water in a closed system that substantially reduces the need for taking cooling water from the River."); see also, e.g., Network for New Energy Choices, *The Truth About Closed-Cycle Cooling* (2010), available at, http://www.newenergychoices.org/uploads/fishkill_truth.pdf (last accessed Nov. 20, 2012).

⁴⁶ See 50 C.F.R. § 402.02 ("Reasonable and prudent measures refer to those actions the Director believes necessary or appropriate to minimize the impacts, i.e., amount or extent, of incidental take."); see *id.* § 402.14(g)(8) ("In formulating its biological opinion, . . . and any reasonable and prudent measures, the Service will use the best scientific and commercial data available. . ."); see also *id.* § 402.14(i)(ii) ("the Service will provide with the biological opinion a statement concerning incidental take that: . . . (ii) Specifies those reasonable and prudent measures that the Director considers necessary or appropriate to minimize such impact").

⁴⁷ As discussed at length above, in order for the consultation process to be meaningful and useful, NRC should request consultation regarding the reasonably foreseeable outcomes of the ongoing State proceedings, or, in the alternative, withdraw its request for consultation and initiate such consultation in the future after the State proceedings conclude. However, if NRC does not do this, and NMFS and NRC continue the consultation process

reaching independent conclusions about whether instituting this technology would be beneficial for endangered aquatic resources in the Hudson River.

Overall, NMFS' "Reasonable and Prudent Measures" fail to result in a net benefit to the endangered sturgeon populations in the Hudson River and NYB DPS. NMFS' "Reasonable and Prudent Measures" require monitoring of impingement, releasing any live sturgeon back to the river, performing necropsy's on any dead sturgeon, conducting genetic sampling of all impinged sturgeon, and reporting any sturgeon sightings near Indian Point.⁴⁸ While these measures are certainly important, altogether they fail to reduce the likely non-trivial impact Indian Point will have on endangered sturgeon in the Hudson River.

NMFS' Conservation Recommendations

Riverkeeper questions the efficacy and sufficiency of NMFS' "Conservation Recommendations" related to the impact of Indian Point on endangered sturgeon in the Hudson River. NMFS recommends that NRC ensure and/or require tissue analysis, impingement/entrainment/heat shock studies, thermal plume model studies, REMP samples of forage species, mortality studies, in-water assessments and abundance/distribution surveys in the Hudson River and Haverstraw Bay in particular, and studies to assess sturgeon interaction with Indian Point's thermal plume.⁴⁹

To begin with, while these recommendations are important and will result in the existence of better information about the impact of Indian Point on endangered aquatic resources, as NMFS explains, such recommendations from NMFS to the NRC are "discretionary agency activities."⁵⁰ Riverkeeper questions the degree to which NRC will undertake *any* of NMFS' suggestions, given NRC's historical disinclination to "require" licensees to undertake any activities beyond what is specifically dictated by statutes and regulations. NRC has a noted history of ignoring important environmental considerations related to the operation of Indian Point, while taking the stance that the plant is in compliance with applicable laws and regulations. A level of assurance or plan to ensure that NRC meaningfully considers NMFS' Conservation Recommendations, is, therefore, advisable.

In any event, NMFS' Conservation Recommendations fail to achieve a net conservation benefit to the endangered sturgeon populations in the Hudson River.⁵¹ That is, they demonstrably fail to mitigate the significant impact that Indian Point will have on endangered sturgeon during the proposed relicensing period. There is simply no mitigation plan articulated to ensure that endangered sturgeon are adequately protected during the proposed 20 additional years of operation Entergy is seeking for Indian Point.

based on the existing draft BiOp, the efficacy of a closed-cycle cooling system should still be analyzed before finalizing the BiOp.

⁴⁸ Endangered Species Act Section 7 Consultation, Draft Biological Opinion, Continued Operations of the Indian Point Nuclear Generating Station, F/NER/2012/02252 (NMFS Draft 10-26-12), at 120-21.

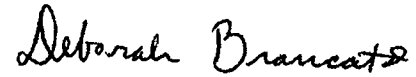
⁴⁹ *Id.* at 125.

⁵⁰ *Id.*

⁵¹ *Id.*

Thank you for your consideration of the foregoing comments. Please do not hesitate to contact me at 914-478-4501, or via e-mail at dbrancato@riverkeeper.org, to discuss anything further.

Sincerely,



Deborah Brancato
Staff Attorney

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ATTACHMENT 1

Memo:

Pisces Conservation Ltd

To: Deborah Brancato (Riverkeeper)

From: Peter Henderson

Date: Wednesday, 21 November 2012

Re: Sturgeon and Indian Point

Summary Comments on NMFS' Draft BiOp

The first point to note is that it is recognised that impingement will kill appreciable numbers of sturgeon: "the continued operation of IP2 and IP3 . . . through the proposed extended license period . . . will result in the impingement and mortality of 562 shortnose sturgeon and 219 juvenile New York Bight DPS Atlantic sturgeon" (Draft BiOp at p.108). For endangered long-lived species, these numbers cannot be considered trivial. Imagine the concern if wind turbines were predicted to kill the same numbers of protected bird species.

A second key point is that all the calculations and predictions are based on data collected prior to 1991. Not only have the populations of both species likely changed since this period, but plant operation and technical specification has also changed. For example, no sampling has been undertaken since the Ristroph screens were installed. There is, therefore, no relevant data on sturgeon survival.

The species are considered in turn below.

Shortnose Sturgeon

The first point to note is the importance of the Hudson to this species. "The Hudson River population of shortnose sturgeon is the largest in the United States." (Draft BiOp at p.108). Given the poor health of many other populations, the Hudson is of special significance and merits particular protection.

Recruitment of this species varies appreciably through time and seems to be linked to conditions in the fall. Recruitment was particularly favourable 1986-1992 and this explains the increased population observed in the late 1990s. However, care must be taken not to assume such favourable recruitment will persist, particularly given potential climate change impacts.

To summarise the Draft BiOp, it concludes that the proposed action will not affect the shortnose sturgeon population because the number killed is a small proportion of the total population. It is claimed that the population is stable and possibly at carrying capacity, however, there is no evidence presented to scientifically support this finding.



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Page 1 of 2

Memo:

Pisces Conservation Ltd

The size and age structure of sturgeon populations must be considered in conjunction with numerical abundance. Historically populations of long-lived fish such as sturgeon held some old and very large individuals. Human interference has reduced the average age of the populations. Indian Point will contribute to this reduction as impingement losses effectively reduce the likelihood that an individual will reach old age.

While in-combination effect arguments are recognised, the lack of information on the range of mortality rates attributable to man and their combined impact on the Hudson population is unclear.

Atlantic Sturgeon

Recent spawning is only known from the Hudson and Delaware rivers; therefore, the fate of Atlantic sturgeon in the Hudson is of considerable importance.

The present information available on Atlantic sturgeon impingement and juvenile abundance is poor as it comes from pre-1991 studies. It is estimated that impingement will kill a small proportion of the juvenile population and, therefore, will not likely jeopardise the continued existence of the Atlantic Sturgeon. However, we seek a recovery of this species to levels where the population is sustainable and able to take the inevitable setbacks. Impingement mortality and habitat degradation do not contribute to, but hinder, recovery.

There is some indication that the population is presently increasing, but this is poor and gives no grounds to claim that power plant losses are of no import.

As with the shortnose sturgeon, in-combination effects are not well quantified.



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Page 2 of 2