

**Perkins, Leslie**

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**From:** Logan, Dennis  
**Sent:** Friday, March 11, 2011 2:47 PM  
**To:** Perkins, Leslie  
**Cc:** Imboden, Andy  
**Subject:** Hope Creek and Salem Comment Responses for Aquatic Biology  
**Attachments:** Bo's edit to Aquatics Resources comments in Appendix A - DTL.docx

Leslie,

The attached file has aquatic biology comment responses for Appendix A. You will see I had to do some rearranging of comments, etc. as well as provide responses.

I also changed some text—you will find that on page 4-47 of the draft FSEIS. The new text has a few new citations, and I put the references for those at the bottom of the comment responses for Appendix A file.

Dennis

D-1130

1 This section should be inserted in its entirety into App. A

2  
3 **4. Comments Concerning Aquatic Resources**

4  
5 **Comment SHC-A-8:** As part of the Stop the Salem Fish Slaughter, and Unplug Salem  
6 Coalition, the New Jersey Environmental Federation has called on PSEG to install cooling  
7 towers, at Salem 1 and 2, to reduce the fish loss and protect the estuary, the Delaware River.  
8 If PSEG is not willing to spend the money to install cooling towers, and protect the fisheries and  
9 estuary of the Delaware River, when cooling towers would obviously provide the best  
10 technology available to protect the ecosystem, how are we to trust that they will maintain their  
11 plants for the next 20 years using the safest methods, using the best available technology.

12  
13 **Comment SHC-A-10:** And a lot of the problems, and issues that I brought up in my testimony  
14 on May 3rd, including sea level rise, climate change, tritium in groundwater, radioactive releases  
15 to the atmosphere.

16  
17 A lot of those issues have been discussed in the Environmental Impact Statement, but  
18 dismissed as being small. Small, okay? And, yet, in the Environmental Impact Statement it  
19 says that the water withdrawal from the combined two nuclear stations, and Hope Creek, is  
20 combined to the total withdrawal of all other industrial, power, and public water uses in the  
21 Delaware estuary, in Delaware, New Jersey, and Pennsylvania.

22  
23 These plants are this single largest user of water in the river system, in three states. Again,  
24 their combined use of water exceeds all other industrial uses combined.

25  
26 And I just don't think that that impact can be called small. If that is not large, I don't know what  
27 large is. How large does it have to be to be considered a large impact?

28  
29 The comparison in millions of gallons, between Hope Creek and Salem 1 and 2, is orders of  
30 magnitude. The numbers are so large that I would have to write them on the board, and I might  
31 do that, because I can't even -- you know, is it trillions of billions? I'm not sure.

32  
33  
34 **Comment SHC-F-1:** Today we will focus on Delaware Riverkeeper Network's concern about  
35 the relicensing of the Salem facility, due to continued detrimental environmental effects that the  
36 facility's cooling water intake structures have on the aquatic life in the Delaware River.  
37 While we recognize that the New Jersey Department of Environmental Protection has permitting  
38 authority over Clean Water Act, Section 316-B, the Nuclear Regulatory Commission should be  
39 aware of the regulatory landscape in this area.

40  
41 A closed-loop cooling system, at the Salem Nuclear facility would circulate a similar total volume  
42 of water, as once-through cooling, but would only withdraw a limited amount of water to replace  
43 evaporative loss and blowdown. Section 316-B, of the Clean Water Act, requires that the  
44 location, design, construction, and capacity of cooling water intake structure, reflect the best  
45 technology available for minimizing adverse environmental impacts. Adverse environmental  
46 impacts are interpreted, by EPA, to mean the impingement, mortality of fish, and shell fish, and  
47 their entrainment of their eggs and larvae.

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1 EPA implemented three rulemaking phases for 316-B. The phase one rule was promulgated in  
2 2001, and covered new facilities. The phase two rule was promulgated in 2004, and covered  
3 large existing facilities. And the phase 3 rule, in 2006, covered certain existing facilities, and  
4 offshore oil and gas.

5  
6 Extensive litigation followed the promulgation of the phase two rule. Following a decision, in  
7 Riverkeeper v EPA, out of the Second Circuit, EPA suspended the cooling water intake  
8 structure regulations for existing large power plants. Of course, the Second Circuit decision was  
9 challenged to the Supreme Court in 2009. However, the Second Circuit Decision held, in part,  
10 that the use of restoration measures, as a means of compliance, is not authorized under 316-B  
11 of the Clean Water Act, a decision which was not disturbed by the subsequent Supreme Court  
12 opinion.

13  
14 EPA is now looking to combine, and re-promulgate rules for all existing cooling water intake  
15 structure facilities. In the meantime EPA noting that, with so many provisions of the phase 2  
16 rule affected by the Second Circuit decision, the rule should be considered suspended.  
17 And it developed the following policy. All permits for phase 2 facility should include conditions,  
18 under Section 316-B, of the Clean Water Act, developed on the best professional judgment  
19 basis.

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20  
21 As noted, the phase 2 rule was appealed to the Supreme Court. In 2009 the High Court held  
22 that the Agency may consider cost benefit analysis in choosing among regulatory options. But it  
23 did not hold that the Agency must consider it. According to certain industry predictions, EPA  
24 has signal concerns with using a cost benefit analysis.

25  
26 EPA's new rulemaking is expected to set significant new national technology-based  
27 performance standards to minimize adverse environmental impacts. Current industry predictions  
28 expect EPA to favor performance commensurate with cooling towers. This regulatory process,  
29 combined for phases 2 and 3, is anticipated quite soon. A revised draft rule is expected by  
30 February 2011, and a final rule by July of 2012.

31  
32 It is imperative that any relicensing effort, at Salem, must take these recent developments, and  
33 any subsequently promulgated rules, into account. The two major aspects of the 316-B  
34 regulatory framework that concern the Delaware Riverkeeper Network at Salem the use of  
35 once-through cooling, and the use of restoration measures at the site.

36  
37 **Comment SHC-G-1:** My name is Benjamin Wharton, and I will address once-through cooling  
38 impacts. The 1994 and 2001 NJPDES permits, for Salem, determined BTA to continue to be  
39 once-through cooling based on, one, the reduction of permitted intake flow of Salem to its  
40 maximum actual operating capacity, two, intake screen modifications, and three, a feasibility  
41 study for a sound deterrent system. Yet the Salem Nuclear Generating Station kills over three  
42 billion fish in the Delaware River every year, taking a huge toll on the living resources of the  
43 Delaware River. But in seeking to argue that its adverse environmental impacts are limited, the  
44 plant has, consistently, underestimated these numbers by two-fold or more.

45  
46 The idea that three billion fish, killed per year, is not great enough adverse environmental  
47 impact to affect the license renewal process, is simply untenable and absurd.

48  
49 **Comment SHC-H-1:** My name is Cristina Matteliano, and I will be addressing why closed cycle  
50 cooling should be adopted. While the EPA declined to mandate closed cooling systems, it did

1 set national performance standards, which require a nuclear plant to reduce its fish kills by 80 to  
2 95 percent over the baseline. And those are found on the Code of Federal Regulations.  
3 Section 316-B of the Clean Water Act requires that cooling water intake structures utilize the  
4 best technology available for minimizing adverse environmental impact. While making the  
5 decision on whether to implement cooling technology, in a nuclear plant, cost benefit analysis is  
6 permissible. However, that cost benefit analysis must be made based on reliable data.  
7 PSEG has overextended the data used in this analysis. It has grossly underestimated the  
8 actual total loss of biomass in the Delaware River fisheries.  
9

10 Due the conversion of the cooling system to the best technology available, as required by the  
11 Clean Water Act, the Salem facility could reduce its fish kills to 95 percent, by converting to  
12 closed cycle cooling towers, or to 99 percent, if using a dry cooling system.  
13

14 PSEG has not shown that the cost of installing a closed cycle cooling system outweigh the  
15 benefits. The cost of a closed cooling system is estimated at 13 dollars a year per rate payer.  
16 This is offset by the millions, even billions of fish which could be saved as a result of a closed  
17 cooling system. The resulting benefits to the fishing industry will also offset the cost of the  
18 cooling system.  
19

20 **Comments SHC-I-1 and SHC-F-11:** In an effort to mitigate its impact, in 1996, NJDP issued an  
21 NJD permit, with special conditions, including a wetland restoration and enhancement program,  
22 fish ladder project, and biological monitoring program.

23 PSEG is required to engage in the wetlands initiative until 2012, in New Jersey, and 2013 for  
24 Delaware wetlands. The purpose of the restoration program was to enhance the production of  
25 fish, in the estuary, in an effort to offset losses of fish associated with entrainment and  
26 impingement at the cooling water intake structure. In other words, to mitigate the harms caused  
27 by once-through cooling.  
28

29 However, PSEG's wetlands restoration experiment, fails to meet the requirements of the Clean  
30 Water Act. The experiment has resulted in over 22,000 pounds of herbicide to be dumped over  
31 valuable wetland resources. PSEG has failed to demonstrate that this experiment provides any  
32 environmental benefit.  
33

34 The fact remains that there has been no demonstrated increase in abundance, values,  
35 represented as important fish species. And, importantly, PSEG has not shown that the  
36 wetlands will sustain themselves once the herbicide treatment has ended. This mitigation  
37 project is a clear failure, and in no way offsets the millions, the costs of millions of fish lost each  
38 year as a result of PSEG's failure to install a closed cooling system.  
39

40 DRN commissioned a 2003 study that reviewed and evaluated the effectiveness of the wetland  
41 restoration project, in increasing fish production, based on the success of the established plant  
42 community, plant densities, invasion by phragmites, and other invasive species, utilization of  
43 marshes by fish, and the potential for the marshes to increase fish populations in the estuary.  
44 With regard to wetlands restoration efforts, the DRN study concluded that although some  
45 phragmites reductions were achieved, the sustainability of that reduction was dependent on  
46 annual herbicide treatment, and the true success of the program could not be determined until  
47 herbicide treatment, and marsh manipulation efforts, such as burning, were discontinued.  
48 With regard to fish response, the study did not support the assertion that phragmites eradication  
49 was resulting in an increased utilization of the site, and increased fish production.  
50

1 | **Comments SHC-J-1 and SHC-F-12:** For 20 years PSEG has claimed that the exorbitant cost  
2 of conversion make a closed cycle cooling system an untenable option. The New Jersey DEPA  
3 has accordingly allowed PSEG to rely on mitigation practices, in order to counter the negative  
4 effects of the continued operation of their cooling system, on fish. Since 1993, the DRN has  
5 addressed several concerns with the mitigation practices proposed by PSEG, including real  
6 data showing that the restoration plans are simply not working.

7  
8 Whereas the 2009 Supreme Court Decision in Entergy Corp. v Riverkeeper, Inc., held that the  
9 cost benefit analysis was an appropriate measure in determining the best available technology  
10 for cooling methods, it has not overturned the previous 2007 decision, in which it determined  
11 that after the fact restoration measures are not appropriate for addressing the environmental  
12 impacts highlighted by Section 316-B.

13  
14 This means that going forward the failed restoration measures at Salem should not count as  
15 valid means of minimizing adverse environmental impacts.

16  
17 **Comment SHC-F-2:** it is clear that under the Clean Water Act, the location, design,  
18 construction, and capacity of cooling water intake structures must reflect the best technology  
19 available for minimizing adverse environmental impacts.

20  
21 In order to properly address the extreme and negative effects that the continued use of the  
22 cooling system has on aquatic life, within the area, Delaware Riverkeeper Network believes that  
23 the relicensing of the Salem Nuclear facility must require a conversion to closed cycle cooling  
24 systems, and should end the practice of so-called mitigation to changes necessary to comply  
25 with the Clean Water Act.

26  
27 **Comment SHC-F-3:** DRN's review of the DSEIS reveals glaring deficiencies which undermine  
28 the NRC's conclusion that the environmental impacts of Salem and Hope Creek's operations  
29 are not severe enough to preclude renewing its operating license. DRN absolutely disagrees  
30 with this determination, and submits that if the NRC Staff had performed the proper  
31 assessments, they would have reached the opposite conclusion, in particular with regard to  
32 impacts on aquatic resources. DRN urges the NRC Staff to fully consider and address our  
33 comments prior to issuing the Final SEIS for License Renewal of Salem. DRN would like to  
34 reaffirm its longstanding position to convert Salem to closed cycle cooling as mandated by  
35 Section 316(b) of the Clean Water Act. The Act states that generating plants such as Salem  
36 "shall be required that the location, design, construction, and capacity of cooling water intake  
37 structures reflect the best technology available for minimizing adverse environmental impact."  
38

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39 **Comment SHC-F-4:** The NRC DSEIS does not call for compliance with the Clean Water Act as  
40 it relates to best technology available, and even fails to acknowledge the significant  
41 environmental impact occurring in the absence of this technology. Every year the Salem  
42 Nuclear Generating Station kills over 3 billion Delaware River fish including:  
43

- 44 • Over 59 million Blueback Herring
- 45 • Over 77 million Weakfish
- 46 • Over 134 million Atlantic Croaker
- 47 • Over 412 million White Perch
- 48 • Over 448 million Striped Bass
- 49 • Over 2 billion Bay Anchovy

1 The Salem facility is already clearly having a significant environmental impact on the Estuary,  
2 and another twenty years of this destruction will lead to further significant impacts.

3  
4 **Comment SHC-U-1:** I'm with the Coalition to Protect Fisheries. We feel that Salem 1 and 2  
5 should not be permitted to operate for another 20 years, because of many areas of concern.  
6 If, however, it is allowed to, by the NRC, to operate for another 20 years, the needless and  
7 senseless destruction of aquatic life, millions of dead fish and crabs every year, must not be  
8 allowed to continue.

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9  
10 There are several aspects that are troubling. First, the Salem 1 and 2 units are over 40 years  
11 old. The projected life of these nuclear plants was designed for 40 years. To extend the  
12 operation of these old plants is very risky.

13  
14  
15 **Comment SHC-U-3:** If the NRC allows Salem 1 and 2 to operate for another 20 years, the  
16 massive fish kill caused by Salem 1 and 2, needs to be stopped as part of a permit renewal.  
17 The outdated, destructive, open loop cooling system used at Salem 1 and 2, needs to be  
18 changed to a non-destructive closed loop cooling system, a cooling tower, the same as used at  
19 Hope Creek.

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20  
21 To allow Salem 1 and 2 to kill billions of fish, every year, for another 20 years, is unacceptable,  
22 and un-excusable. Salem 1 and 2 draws in over three billion gallons of water a day. Three  
23 billion gallons of water a day, every day.

24  
25 The EPA estimates that Salem 1 and 2 kills over 350 million age 1 equivalent fish every year.  
26 And age 1 is a standard of measuring the fish kill. It actually kills billions of little fish, also.  
27 But they, for the statistics, they say that 5,000 little fish equals one age one-equivalent fish. But  
28 the statistics, and data, uses age one- equivalent fish as a standard that is common in the fish  
29 analysis industry.

30  
31 This massive amount of fish are needlessly being destroyed. Salem 1 and 2 is, also, in violation  
32 of the Federal Clean Water Act, of the 1970s, which requires the best technology available to  
33 protect fisheries.

34  
35 Salem 1 and 2 is not using the best technology, a closed loop system. Salem 1 and 2 is the  
36 largest destroyer of aquatic life on the Delaware River. It has, and is still, destroying the fishing  
37 industry along the Delaware River. To say that Salem 1 and 2 is having no negative effect on  
38 the Delaware River fishery is absurd, and outrageous.

39  
40 I'd like to present, as evidence, a Wilmington News Journal Article, dated January 14th, 2007,  
41 titled, "Cooling Systems Ravage River", subtitled "Big Industrial Sites on the Delaware Kill Tens  
42 of Billions of Fish in Crabs Each Year".

43  
44 It is an excellent article about the fish kill along the Delaware River. The EPA estimate of 350  
45 age one-equivalent fish kill by Salem 1 and 2, every year, is shown in this article. The facts  
46 show the destruction Salem is causing.

47  
48 **Comments SHC-U-6:** The NRC needs to recommend that the non-destructive closed loop  
49 cooling system be used at Salem 1 and 2 to stop the fish kill, and protect the fisheries and the  
50 fishing industry.

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51

1 The NRC needs to step up to the plate and do the right thing. We, the Coalition to Protect the  
2 Fisheries, are just trying to stop the needless and senseless destruction of the fisheries.  
3 If you want to create jobs build the cooling towers, which would create hundreds of construction  
4 jobs. Also the fish that are no longer killed by Salem 1 and 2, will create hundreds of jobs in  
5 commercial and recreational fishing.

6  
7 The fishing docks at Salem should be packed with fish, fishing boats, and there should be a  
8 fishing industry, like there used to be. That is the way Salem should be if you want to create  
9 jobs.

10  
11 **Response to Comments SHC-A-8, A-10, F-1, F-2, F-3, F-4, F-11, F-12, G-1, H-1, I-1, U-1, U-**  
12 **3, and U-6.** *The comments above express concerns regarding the number of fish and other*  
13 *aquatic organisms killed due to operation of the once through cooling systems in use at the*  
14 *Salem facility. They also express concern regarding the EPA's ongoing rulemaking process*  
15 *regarding section 316(b) of the Clean Water Act as it applies to the Salem plant, including use*  
16 *of mitigation to offset environmental effects of impingement and entrainment and use of cost-*  
17 *benefit analyses in 316(b) demonstrations.*

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18  
19 *The NRC staff is cognizant of and has considered the ongoing rulemaking effort by the EPA.*  
20 *However, administration of 316(b) under the Clean Water Act is delegated to the State of New*  
21 *Jersey for Salem's once through cooling system. Therefore, any consideration for construction*  
22 *of cooling towers, as suggested in the comments, would be beyond the regulatory purview of*  
23 *the NRC, as it is within the regulatory authority of the NJDEP and its NJPDES permitting*  
24 *process for the Salem facility.*

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25  
26 *While NRC recognizes that the numbers of organisms killed or otherwise adversely affected by*  
27 *entrainment and impingement at the Salem and Hope Creek plants combined are large, The*  
28 *NRC assesses impacts for the purposes of implementing the National Environmental Policy Act*  
29 *(NEPA) in terms of the three levels of impact defined in its regulations (small, moderate, and*  
30 *large. The NRC defines these levels of impact based not on numbers affected but rather on the*  
31 *degree to which changes in attributes of aquatic resources are detected or observable and to*  
32 *which the changes represent destabilization of those resources for the purposes of this SEIS.*  
33 *These definitions of impact differ from criteria defined in EPA regulations for the purposes of*  
34 *implementing Section 316 of the Clean Water Act. The NRC assumes that the State of New*  
35 *Jersey though its NJPDES permitting process will actively regulate the cooling water intake*  
36 *throughout the life of the plant to protect populations of aquatic and wildlife species as required*  
37 *under New Jersey State laws and the Clean Water Act.*

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These comments provide no new and significant information; therefore, no changes were made to the SEIS. ¶

Deleted: Comment SHC-F-4: The NRC DSEIS does not call for compliance with the Clean Water Act as it relates to best technology available, and even fails to acknowledge the significant environmental impact occurring in the absence of this technology. Every year the Salem Nuclear Generating Station kills over 3 billion Delaware River fish including ¶  
¶  
<#>Over 59 million Blueback Herring¶  
<#>Over 77 million Weakfish¶  
<#>Over 134 million Atlantic Croaker¶  
<#>Over 412 million White Perch¶  
<#>Over 448 million Striped Bass¶  
<#>Over 2 billion Bay Anchovy¶  
The Salem facility is already clearly having a significant environmental impact on the Estuary, and another twenty years of this destruction will lead to further significant impacts.¶  
¶

38  
39 *With regard to comments on mitigation measures, the NRC considered mitigation separately*  
40 *from impingement and entrainment in the SEIS. Plant operation and mitigation measures do*  
41 *affect estuarine aquatic populations and communities simultaneously, however. For the*  
42 *purposes of this environmental impact statement, the NRC assumed that the future owners of*  
43 *the plant would continue mitigation measures for as long as the plant operates.*

44  
45  
46 **Comment SHC-F-7:** *The DSEIS concludes that "impacts to fish and shellfish from the*  
47 *collective effects of entrainment, impingement and heat shock at Salem during the renewal term*  
48 *would be SMALL." DSEIS 4-46. This is completely unsupported position. As a starting point,*  
49 *NMFS has gone on record that:*

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1 Evidence suggests that northeast coast estuaries have lost much of their rich former  
2 fishery productivity because of habitat degradation or loss, but lack of absolute species  
3 abundance data for early historical periods prior to significant human disturbances  
4 makes this conclusion somewhat inferential. Yet the linkage is supported by strong  
5 evidence, particularly that stock sizes for most estuarine dependent fishery resources  
6 under the jurisdiction of the Atlantic States Marine Fisheries Commission, New England  
7 or Mid-Atlantic Management Councils, or the states of New York and New Jersey  
8 fishery management agencies, are not currently over fished, but fall below historic levels  
9 (NEFMC 1998; ASMFC 2005). This observation suggests that the Hudson River's ability  
10 to support and produce living aquatic organisms has been compromised over the years  
11 by lost habitat quality and quantity as humans have dredged, filled, and withdrawn river  
12 water for a myriad of uses, resulting in conflicts of use with fishery resources.

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14 Oct. 12, 2010 Letter from NMFS (Colosi) to NRC at 3-4. The DSEIS relies heavily on industry  
15 provided data to evaluate effects of impingement and entrainment. However, the  
16 DSEIS concedes that its analysis is flawed, "due to the differences in methods used during the  
17 more than 30 years since Salem Unit 1 began commercial operation in 1978, it is difficult to  
18 compare  
19 impingement estimates across studies." DSEIS at 4-28. Additionally, study results reported in  
20 the GEIS are decades old, with the most recent information collected in 1990. This was  
21 identified as a concern by NMFS in a 2010 letter to NRC regarding another facility in the  
22 Northeast, noting, "This concerns us on two counts: 1) the data may not accurately depict  
23 contemporary habitat usage of the [mid-Hudson region] by fishes, invertebrates, and other  
24 aquatic life, and 2) the project proponents have not evaluated the effectiveness of adaptive  
25 measures that have been implemented since the original [agreement] was put into place."

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27 **Comment SHC-F-8:** The Draft SEIS fails to consider EPA's 2004 report entitled "Regional  
28 Analysis Document for the Final Section 316(b) Phase II Existing Facilities Rule." The report  
29 detailed EPA's section 316(b) Phase II benefits analysis and study results. This critical  
30 information is missing from the NRC analysis and provides evidence and data challenging the  
31 DSEIS's finding that "the Staff concludes that impacts to fish and shellfish from the collective  
32 effects of entrainment, impingement and heat shock at Salem during the renewal term would be  
33 SMALL." DSEIS 4-46.

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35 EPA itself has acknowledged significant impacts from once-through cooling. EPA has  
36 determined that operation of industrial scale cooling water intakes results in a wide spectrum of  
37 undesirable and unacceptable adverse effects on aquatic resources including entrainment and  
38 impingement; disrupting the food chain; and losses to aquatic populations that may result in  
39 reductions in biological diversity or other undesirable effects on ecosystem structure or function.  
40 See, 66 Federal Register 65,256, 65,292 (December 18, 2001), 69 Federal Register 41,576,  
41 41,586 (July 9, 2004); NMFS letter at 4. Expert federal agency NMFS has also explicitly  
42 identified significant impacts from intake structures that are ignored in the DSEIS for Salem.

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44 According to NMFS' assessment of the DSEIS for another Northeastern facility:

46 The intake impacts for once-through cooling systems largely surround physical habitat  
47 loss associated with construction of the intakes themselves as well as the inability of  
48 aquatic species from being successfully able to use habitat within the volumes of water  
49 withdrawn from the source supply. These impacts may include changing particular  
50 ecological features such as local hydrological patterns as suggested in the foregoing  
51 section, but the preponderance of the impacts usually are associated with organism

1 impingement and entrainment. Impingement impacts tend to accrue to larger species  
2 and life stages that cannot pass through the impingement screens nor avoid the intake  
3 current, but become trapped on cooling water screens and sometimes cannot escape  
4 before suffering exhaustion, injury or even mortality.

5 ...  
6 Unlike impingement impacts, which tend to exhibit some selective characteristics in that  
7 they largely accrue to larger tax a or more mature life stages, entrainment of organisms  
8 into the cooling water source stream are relatively indiscriminate and may adversely  
9 affect any organism that fits through the screens and cannot counter the suction force of  
10 the intake. While the review material indicate that the IP2 and IP3 cooling systems have  
11 been retrofitted with dual-speed and variable-flow pumps in order that intake flows can  
12 be regulated to some degree to provide some level of mitigation or protection, we note  
13 that the dGEIS also indicates that using planned seasonal outages or maximum pump  
14 speeds does not eliminate the losses of fishes and other organisms to entrainment.  
15 Regarding these collective intake impact matters, NMFS disagrees with the NRCs  
16 approach to presenting and analyzing the impingement and entrainment data. We  
17 particularly dispute the NRCs decision to attempt correlating overall population level  
18 trends with operation of the Indian Point nuclear generating facilities.

19  
20 First of all, analyzing the data over the entire range of a species instead of a more  
21 meaningful population segment does not follow the spirit of the National Environmental  
22 Policy Act nor the implementing regulations for EFH in the MSA because it ignores real  
23 and obvious impacts that could adversely affect a local stock.

24  
25 It is rare for the preponderance of a particular species be extirpated unless it already is  
26 endangered or threatened, but it certainly is quite plausible that a more local segment of  
27 an otherwise healthy population could be effectively decimated in an acute event or after  
28 years of suffering chronic or cumulative impacts. Thus, when considering the impacts of  
29 cooling water withdrawal on more local stock contributions emanating from the Hudson  
30 River and potentially recruiting to a greatly dispersed coastal fishery, the effects of  
31 cooling withdrawal even from a limited portion of the total available habitat (as it is  
32 construed in the dGEIS) could be quite profound.

33  
34 Finally, we are critical of this type of data transformation because it also has great  
35 potential for creating undesirable artifacts because it assumes all fishery habitats,  
36 regardless of their geographic location, size, and ecological condition, are equally  
37 valuable to the living resources that they support. The scientific literature is replete with  
38 studies that organisms do not use habitats uniformly over their ranges, and this  
39 observation is borne out in our own status and trends data that have been used to select  
40 closed areas or to make similar resource management decisions for certain federally  
41 managed fishery resources.

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42  
43 **Response to Comment SHC-F-7 and F-8.** *The commenter disagrees with the findings and*  
44 *conclusion in the SEIS regarding impacts to aquatic resources, and cites NMFS documents to*  
45 *refute the staff's conclusion, the age of the data used by the NRC, inconsistencies in the*  
46 *sampling programs that provide those data, failure to take into consideration an EPA's(2004)*  
47 *assessment of the effects of the plant and of once-through cooling systems in general, use of*  
48 *the entire range of a species to assess impact rather than a population segment, inter alia.*  
49 *Regarding use of information from EPA (2004: "Regional Analysis Document for the Final*  
50 *Section 316(b) Phase II Existing Facilities Rule. Part D: Mid-Atlantic Region" EPA-821-R-02-*  
51 *003. Office of Water, Washington, D.C.), while that document does use information from the*

1 Salem facility for its assessment of regional and national impacts of cooling water withdrawal, it  
2 does not present new information specifically about the Salem facility that NRC did not review.  
3 Regarding NMFS's assessment of another facility, that assessment was site-specific for another  
4 site on another estuary and prepared under a different federal act than NEPA with different  
5 requirements. Neither of these documents presents new information about Salem facility.

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6 Regarding age of the data, impingement data in Table 4-16 (draft SEIS page 4-25) and  
7 4-16 (draft SEIS page 4-29) and entrainment data in Tables 4-8 (page 4-16) and 4-10 (page 4-  
8 17) cover the period 1978 through 2008 and so are in fact recent. Regarding inconsistencies in  
9 sampling, NRC disclosed that such inconsistencies exist, presented the data summaries, and  
10 drew appropriate conclusions. The NRC is not responsible for data collection under the NJDES  
11 permitting program. These comments provide no new and significant information beyond that  
12 which NRC used, and so NRC made no changes to the SEIS based on this comment.

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¶

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13  
14 **Comment SHC-F-9:** Specific to this site, NJDEP reviewed PSEG data as part of its state  
15 permit application in 2006. NJDEP's expert (ESSA) found that PSEG's assertions were not  
16 credible and were not backed by the data and studies PSEG had presented. According to the  
17 ESSA report, PSEG "underestimated biomass lost from the ecosystem by perhaps greater than  
18 2-fold." (ESSA report p. xi) And "... the actual total biomass of fish lost to the ecosystem ... is at  
19 least 2.2 times greater than that listed" by PSEG. (ESSA Report p. 75)

20  
21 ESSA Technologies' 154 page review of PSEG's permit application documented ongoing  
22 problems with PSEG's assertions and findings including bias, misleading conclusions, data  
23 gaps, inaccuracies, and misrepresentations of their findings and damage. Some examples of  
24 ESSA's findings:

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- 25  
26 • With regards to fisheries data and population trends, ESSA said "The conclusions of the  
27 analyses generally overextend the data or results." (p. ix)
- 28  
29 • PSEG "underestimates biomass lost from the ecosystem by perhaps greater than 2-  
30 fold."(p. xi) "... the actual total biomass of fish lost to the ecosystem ... is at least 2.2  
31 times greater than that listed in the Application." (p. 75)
- 32  
33 • "Inconsistency in the use of terminology, poorly defined terms, and a tendency to draw  
34 conclusions that are not supported by the information presented detract from the rigor of  
35 this section and raises skepticism about the results. In particular, there is a tendency to  
36 draw subjective and unsupported conclusions about the importance of Salem's impact  
37 on RIS finfish species." (p. 77)

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38 Referring to PSEG's discussion and presentation of entrainment mortality rates ESSA found  
39 PSEG's "discussion in this section of the Application to be misleading." (p. 13). The NRC's  
40 DSEIS fails to take this analysis into account.

41  
42 In concluding Section 4.5.6 of the DSEIS, NRC names several potential mitigation options, but  
43 neither arrives at the specific conclusions that the units should be retrofitted with closed-cycle  
44 cooling systems, nor selects particular alternatives that they would recommend in lieu of closed-  
45 cycle cooling. Moreover, NRC unfairly minimizes its role, and stresses NJDEP's responsibility  
46 to issue permits and impose mitigation requirements. This is completely separate from an  
47 analysis of environmental impacts for purposes of NEPA and should not prevent NRC from  
48 undertaking a full and fair analysis of the impacts.

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1 **Response to Comment SHC-F-9.** *The comment references a 2000 report produced by ESSA-*  
2 *for the NJDEP as part of its review of the 1999 NJPDES permit application filed by PSEG. The*  
3 *report is a critique on specific aspects of the PSEG application. During its review, the NRC staff*  
4 *considered a range of information available for review, including Salem's NJPDES permitting*  
5 *history, as documented in section 4.5 of the SEIS. As a result of its review of PSEG's 1999*  
6 *NJPDES application, NJDEP ultimately issued a NJPDES permit for Salem in 2001. NRC*  
7 *reviewed these documents as well as studies performed after 1999 in the preparation of this*  
8 *SEIS and so has made no changes as a result of this comment.*

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9  
10 **Comment SHC-F-10:** On October 6, 2010, NOAA's National Marine Fisheries Service (NMFS)  
11 issued a proposed rule to list five distinct population segments (DPS) of the Atlantic sturgeon as  
12 threatened or endangered under the Endangered Species Act (ESA). In recognition of the many  
13 threats to riverine habitat, including dredging, filling, and degraded water quality, facing Atlantic  
14 sturgeon in the Hudson and Delaware Rivers, NMFS proposed to list a DPS consisting of these  
15 populations; the New York Bight (NYB) DPS, as endangered. See, 75 Fed. Reg. 61,872 at  
16 61,881(Oct. 6, 2010). We also note with alarm that the Delaware River population of Atlantic  
17 sturgeon is more precariously poised than the Hudson River population, according to research  
18 on the record. According to the Delaware River State of the Basin Report, 2008, which is based  
19 on science collected in the region, the status of the Atlantic Sturgeon is considered "poor and  
20 getting worse" with numbers "estimated to be less than 1,000 and probably less than 100 across  
21 the Estuary." Furthermore, there is scientific evidence that the Delaware River is home to a  
22 genetically unique population of Atlantic Sturgeon, and that this small but distinct population is  
23 currently reproducing. That the Delaware River population is not only genetically unique but  
24 also may have a population of fewer than 100 fish makes protection of this portion of the NYB  
25 DPS a critical priority.

Deleted: , and is currently reviewing a subsequent application filed by PSEG in 2006. While the comment raises concerns regarding sufficiency of PSEG's analysis of aquatic impacts in 1999, they are not directly related to more recent analyses including those submitted by PSEG in 2006 to the NJDEP or those submitted as part of the Environmental Report for license renewal of Salem and Hope Creek.  
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¶ These comments provide no new and significant information; therefore, no changes were made to the SEIS.  
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26  
27 This change in status means that a critical piece of information is missing from the DSEIS, and  
28 must be evaluated prior to NRC's issuance of a final SEIS. A lack of sufficient data relating to  
29 impingement, entrainment and thermal impacts of Salem on Atlantic sturgeon in the vicinity of  
30 Salem leads to an at best incomplete and at worst erroneous determination regarding the  
31 environmental impact of relicensing on this critical species. Given the impending designation of  
32 the Atlantic sturgeon NYB as endangered, NRC Staff's thinly supported assessment and  
33 indefinite conclusions are insufficient for purposes of meeting the obligations of NEPA. Thus,  
34 the DSEIS should consider and incorporate all relevant information contained in the Proposed  
35 Listing prior to reaching any final conclusions related to the impacts of license renewal of Salem  
36 on endangered aquatic resources.

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37  
38 **Comment SHC-X-29:** Page 2-78, lines 23 to 28. PSEG Nuclear recommends that the text on  
39 page 2-78, lines 23 to 28, be updated to reflect the recent Endangered Species Act listing notice  
40 for Atlantic Sturgeon, which was published in the Federal Register on October 6, 2010 (75 FR  
41 61897).

42  
43 **Response to Comments SHC-F-10 and X-29.** *In sections 2.2.7 and 4.7 of the DSEIS, the*  
44 *NRC staff acknowledged the Atlantic sturgeon as a candidate species be considered for being*  
45 *listed as an endangered species. As such, the NRC staff provided the same level of*  
46 *information regarding the species and potential adverse impacts to it as with the other*  
47 *threatened and endangered species. As noted in section 4.7.1, the staff discussed the potential*  
48 *effects of entrainment, impingement, and thermal discharges on these and other important*  
49 *species in Sections 4.5.2, 4.5.3, and 4.5.4. In addition, by letter dated December 13, 2010*  
50 *(ML103350271), the NRC staff provided its biological assessment to the NMFS on the potential*  
51 *adverse impacts to threatened and endangered species within the vicinity of Salem and Hope*

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1 Creek—the Atlantic sturgeon was included in the assessment. The NRC staff will comply with  
2 any biological opinion under Section 7 of the Endangered Species Act that may result from  
3 NMFS review of the biological assessment.

4  
5 **Comment SHC-A-7:** Salem 1 and 2 are also huge consumers of water, for cooling, as well as  
6 Delaware Riverkeeper recently attested to, in their testimony, killing three billion fish a year  
7 through entrainment and impingement.

8  
9 I read the Draft Supplemental Environmental Impact Statement, according to their own permit  
10 renewal application, it states that one-sixth of the production of the Delaware River is being lost  
11 to impingement and entrainment in the facility.

12  
13 And, furthermore, the application states that between 2000 and 2006, the fish loss from  
14 impingement and entrainment were 2.4 million alewives, 87 million croaker, two thousand million  
15 bay anchovies, 14 million striped bass, 32 million weak fish, and that is just a partial list.  
16 At the same time PSEG stated that increased production of fish, from restored salt hay farms, is  
17 estimated at 2.3 times the annual production lost from impingement and entrainment at Salem.  
18 PSEG did not evaluate the fish populations at the phragmites sites. Although I'm not a scientist,  
19 I find it hard to believe that restoration mitigates the fish loss.  
20 But even if it did, it does not make up for the years of damage done to the ecosystem before the  
21 salt hay farms were restored to Wetlands, nor does it offset the continuing loss of fish, on a daily  
22 basis, from the once-through cooling system.

23  
24 **Response to Comment SHC-A-7,** *The Draft Environmental Impact Statement referred to*  
25 *above was prepared for the State of New Jersey by PSEG as part of its 2006 application for its*  
26 *NJPDES permit. While NRC does not regulate state permits, it did review the information in that*  
27 *permit for the purposes of the draft SEIS. Based on its review of comments on the draft SEIS*  
28 *and other information, the NRC staff added further discussion to Conclusions on aquatic*  
29 *resources and modified its conclusions about level of impact.*

30  
31  
32 **Comment SHC-U-4:** The NRC needs to know that weakfish are so few in numbers, now in the  
33 Delaware River, that the fishing regulation is you can only legally catch one weakfish a day,  
34 recreationally, fishing.

35  
36 So the fisherman goes out, on his boat, is only allowed to keep one weakfish, and that is it. All  
37 that effort, trying to go fishing recreationally and that is all he can keep. The weakfish are low.

38  
39 I'd also like to present, as evidence, a fish kill report by Dr. Desmond Kahn, of the Delaware  
40 Department of Environmental Control, DENREC, on the fish kill damage to the weakfish, and  
41 stripers, in the Delaware River caused by Salem 1 and 2.

42  
43 This is an excellent in-depth report. The report states that Salem 1 and 2 killed more weakfish  
44 in one year, than what was caught commercially, and recreationally, in Delaware, in the same  
45 year.

46  
47 **Comment SHC-U-5:** Salem 1 and 2 has destroyed, and is continuing to destroy the fishing  
48 industry. It is not right that Salem continues to needlessly destroy the fishing industry, while  
49 commercial and recreational fishermen suffer.

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These comments provide no new and significant information; therefore, no changes were made to the SEIS.¶

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Moved up [1]: Comment SHC-A-8: As part of the Stop the Salem Fish Slaughter, and Unplug Salem Coalition, the New Jersey Environmental Federation has called on PSEG to install cooling towers, at Salem 1 and 2, to reduce the fish loss and protect the estuary, the Delaware River. ¶

If PSEG is not willing to spend the money to install cooling towers, and protect the fisheries and estuary of the Delaware River, when cooling towers would obviously provide the best technology available to protect the ecosystem, how are we to trust that they will maintain their plants for the next 20 years using the safest methods, using the best available technology.¶

Moved (insertion) [2]

Moved up [4]: Comment SHC-U-1: I'm with the Coalition to Protect Fisheries. We feel that Salem 1 and 2 should not be permitted to operate for another 20 years, because of many areas of concern.¶  
If, however, it is allowed to, by the NRC, to operate for another 20 years, the needless and senseless destruction of aquatic life, millions of dead fish and crabs every year, must not be allowed to continue.¶

¶  
There are several aspects that are troubling. First, the Salem 1 and 2 units are over 40 years old. The projected life of these nuclear plants was designed for 40 years. To extend the operation of these old plants is very risky. ¶

Deleted: Comment SHC-A-8: As part of the the Stop the Salem Fish Slaughter, and Unplug Salem Coalition, the New Jersey Environmental Federation has called on PSEG to install cooling towers, at Salem 1 and 2, to redu... [1]

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¶  
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¶ ... [3]

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1 The water intake issue, the fish kill issue, is relegated to be a state permit decision. The federal  
2 rules say that the state decides the water intake.

3  
4 The Nuclear Regulatory Commission, as part of a permit renewal, considers environmental  
5 impacts. As part of an overall environmental review, the NRC comments on various aspects,  
6 the water intake fish kill being one part.

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7  
8 For the NRC to say that Salem 1 and 2 drawing in over three billion gallons of water a day, and  
9 killing over 350 million age one-equivalent fish every year, is causing little harm to the fishery, is  
10 totally wrong and unexcusable.

11  
12 The NRC's environmental evaluation on the fish needs to state the truth and the facts. Salem 1  
13 and 2 draws in over three billion gallons of water a day, Salem 1 and 2 kills 350 age one-  
14 equivalent fish every year.

15  
16 Salem 1 and 2 is the largest destroyer of aquatic life in the Delaware River. Salem 1 and 2 has,  
17 and is, destroying the fishery and will continue to destroy the fishery for another 20 years, if the  
18 destructive open loop cooling systems are still used.

19  
20 **Comment SHC-U-7:** Another part of my comments pertains to the actual Environmental  
21 Statement in the report, there. There are the sentences, and I want to go over, like, three of  
22 them that are part of the report, that I need -- that I feel need to be discussed. And I differ on  
23 my opinion, or my opinion differs from what was said.

24  
25 The first sentence, in the statement, about the open loop cooling system, and the impact, is  
26 "This analysis found that in the vicinity of Salem and HGS, since 1978, when Salem began in  
27 operation, fin fish richness has not changed, and species densities has increased, PSEG  
28 2006C". End of quote.

29  
30 I disagree with that statement, strongly disagree with it. I would like to present, to the NRC, a  
31 report that states -- a fish kill report on another facility, but it was a study done, from the  
32 weakfish, from 1980 to 1990, the population declined 85 percent. In ten years it was 15 percent  
33 of the population that it used to be.

34  
35 The fish have declined, the weak fish has declined. Also, the weakfish now are so low, that the  
36 regulations for weakfish, in the Delaware River, is you are only allowed to catch one fish,  
37 recreationally.

38  
39 And now I would like to provide some information about that. And then also, too, in another fish  
40 kill report that I have read, and I will provide information. The stripers were so low, in the 1980s,  
41 that commercial stripe fishery industry was banned for five years, from 1985 to 1990.  
42 For five years no commercial stripe fishing industry in the Delaware River. The commercial  
43 stripe fishermen were put out of business. But yet the nuclear plant continued to kill them  
44 needlessly.

45  
46 So to say that the fish are doing great, and they have been for decades, is factually wrong. And  
47 I will provide this information. And just because PSEG cited it in a particular report, does not  
48 mean that it is correct. And I will provide this information on the fish kill, and the decline in the  
49 fish population.

50

**Moved up [3]:** Comments SHC-U-6: The NRC needs to recommend that the non-destructive closed loop cooling system be used at Salem 1 and 2 to stop the fish kill, and protect the fisheries and the fishing industry. ¶

¶ The NRC needs to step up to the plate and do the right thing. We, the Coalition to Protect the Fisheries, are just trying to stop the needless and senseless destruction of the fisheries. ¶ If you want to create jobs build the cooling towers, which would create hundreds of construction jobs. Also the fish that are no longer killed by Salem 1 and 2, will create hundreds of jobs in commercial and recreational fishing. ¶

¶ The fishing docks at Salem should be packed with fish, fishing boats, and there should be a fishing industry, like there used to be. That is the way Salem should be if you want to create jobs. ¶

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¶ The NRC needs to step up to the plate and do the right thing. We, the Coalition to Protect the Fisheries, are just trying to stop the needless and senseless destruction of the fisheries. ¶ If you want to create jobs build the cooling towers, which would create hundreds of construction jobs. Also the fish that are no longer killed by Salem 1 and 2, will create hundreds of jobs in commercial and recreational fishing. ¶

¶ The fishing docks at Salem should be packed with fish, fishing boats, and there should be a fishing industry, like there used to be. That is the way Salem should be if you want to create jobs. ¶

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¶ The fishing docks at Salem should be packed with fish, fishing boats, and there should be a fishing industry, like there used to be. That is the way Salem should be if you want to create jobs. ¶

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1 **Comment SHC-U-8:** The second sentence or the following sentence: "Operation of Salem,  
2 during relicensing period, likely would continue to contribute substantially to cumulative impacts  
3 on aquatic resources, in conjunction with HCGS, and other facilities, that withdraw water from,  
4 or discharge to the Delaware River".

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5  
6 This is a true statement. It will continue to cause harm to the fishery, because of all the water  
7 being withdrawn. And it is not just the Salem facility. There are dozens of them, all along the  
8 river, that draw in. Salem happens to be the one single biggest.

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9  
10 But you must consider the cumulative effect of all the facilities. So, you know, it wouldn't be so  
11 bad if you only had one facility that took a little bit of water, but you have many, and Salem is  
12 the biggest. So that statement is true.

13  
14 **Comment SHC-U-9:** The next sentence, "However, given long-term improvements in the  
15 estuarine community, during the recent decades while these facilities were operating, NRC  
16 expects cumulative impacts expected to be limited, with effects on individual species  
17 populations, potentially ranging from negligible, to noticeable."

18  
19 Well, the first part is wrong, because the fish populations have declined. And the last part is just  
20 saying, well, there is the fish kill, but it is okay, don't worry about it, you know?

21  
22 It is not okay, they are destroying the fisheries. And this is the statement, and the sentences  
23 that I want to critique. And, specifically, I find incorrect.

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24  
25 So for the NRC to conclude that, oh, it is okay, it is wrong, it is not okay. And I will provide the  
26 data and the information that I was talking about, previously.

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27  
28 The moral code we should live by is, if something is causing harm, it should be stopped. The  
29 open loop cooling system is causing great harm to the fisheries, and should be stopped.  
30 Salem knows they are causing great harm. Why do they continue to destroy the fishery?

**Comment [B1]:** This is my baseline answer, but may need to change if we decide to up the impact level to a range of SMALL to MORDERATE. The commenter brings up a good point that we may not have completely looked at in the DSEIS.

31  
32 **Response to comments SHC-U-4, U-5, U-7, U-8, and U-9.** The comments disagree with the  
33 SEIS's findings and conclusions regarding impacts on aquatic resources—particularly fish kill  
34 and overall decline in the fish population in the Delaware River. Based on its review of  
35 comments on the draft SEIS and other information, the NRC staff added further discussion to  
36 Conclusions on aquatic resources and modified its conclusions about level of impact.

**Deleted:** After consideration of the information provided by the commenter, the NRC staff did not change its findings and conclusion in the SEIS, but provides the following clarification regarding impacts on aquatic resources:¶

¶  
While the analyses for impingement, entrainment, and thermal impact in section 4.5 of the SEIS acknowledge that a large number of fish kill have resulted from operation of the once through cooling system at Salem, the NRC staff found that such results did not have a noticeable adverse effect on the balanced indigenous community of the Delaware Estuary in the vicinity of Salem, i.e., when compared to the overall fish population in the area. The SEIS's finding of SMALL is meant to convey our conclusion that such impacts and effects are not at the level such that they will either destabilize or noticeably alter any important attribute of the aquatic resources.¶

37  
38 **Comment SHC-W-5:** Cooling and Auxiliary Water Systems / Salem Generating Station Page  
39 2-23 Lines 6-12, The Salem Generating Station Service Water System (SWS) intake does not  
40 contain a modified Ristroph travelling screen or fish discharge system. There is no explanation  
41 provided as to why they were not used.

¶  
These comments provide no new and significant information; therefore, no changes were made to the SEIS.

42  
43 **Comment SHC-W-7:** Page 2-23 and 2-26 appear to conflict;

44  
45 Page 2-23 Lines 10-12: "The SWS intake structure is equipped with trash racks, travelling  
46 screens, and filters to remove debris and biota from the intake water stream, but do not have a  
47 modified Ristroph-type travelling screen or fish return system".

48  
49 Page 2-26 Line 42: "The Salem SWS intake is also fitted with trash racks, travelling screens,  
50 and fish return troughs".

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51

1 **Response to Comments SHC-W-5 and W-7:** *The comments are related to SWS intake*  
2 *structure. The SEIS was revised to resolve the conflict between pages 2-23 and 2-26.*

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5 **Comment SHC-W-6:** Page 2-23 Lines 13-15 and Lines 28-29, contradict each other regarding  
6 the use of sodium hypochlorite.

8 **Response to Comment SHC-W-6:** *The comment addresses the use of sodium hypochlorite.*  
9 *The circulating water system (CWS) initial design included sodium hypochlorite system. The*  
10 *system was removed after operational experience demonstrated chemical biocides were not*  
11 *required in the CWS. However, for the service water system, the primary method of preventing*  
12 *organic buildup and biofouling organism in the heat exchangers and piping of the SWS is by*  
13 *injecting sodium hypochlorite. The SEIS was revised to provide clarification.*

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15 **Comment SHC-W-8:** *Cooling and Auxiliary Water Systems / Hope Creek Generating Station /*  
16 *Page 2-24 Lines 4-9. Are the travelling screens utilized at this single intake structure (SWS*  
17 *water at HC) modified Ristroph screens? In addition, with the possibility of utilizing the empty*  
18 *bays for the proposed second unit on the Hope Creek site, would an upgrade to the travelling*  
19 *screens and Ristroph system be needed during the relicensing period if a new plant was built*  
20 *during that time period?*

22 **Response to Comment SHC-W-8:** *The traveling screens utilized in service water system at*  
23 *Hope Creek are Ristroph traveling screens. The decision to use empty bays for the proposed*  
24 *second unit on the Hope Creek site is PSEG's. However, any potential impacts or mitigation*  
25 *associated with such decision would be addressed separately as part of the NRC's NEPA*  
26 *review of the new reactor licensing or early site permit process.*

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a new plant will be
- Deleted: early site permit review
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28 **Comment SHC-W-39:** The New Jersey Division of Fish & Wildlife (DFW) continues to be  
29 concerned with the issue of impacts to the eggs, larval forms, juveniles and adults of the fish,  
30 shellfish and other invertebrate species which exist in the Delaware River Estuary.

32 The DFW was initially concerned with the statement in section 9.1 (lines 21-23), however  
33 because one of the overall goals of the Estuary Enhancement Program is to minimize the  
34 effects of the Salem Generating Station (Station) on Delaware Estuary biota, these issues can  
35 be addressed anytime.

37 Also the DFW feels that this line should include "Additionally, the Staff concludes that impacts to  
38 fish and shellfish from entrainment, impingement, and heat shock at Salem and HCGS would  
39 not warrant additional mitigation beyond the Estuary Enhancement Program for the purposes of  
40 this license renewal."

42 **Response to Comment SHC-W-38:** *The comment is related to the impacts to the Delaware*  
43 *River Estuary. The SEIS was updated to include the suggested revision.*

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Division of Fish and Wildlife is noted.
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45 **Comment SHC-X-3:** PSEG Nuclear submits that the conclusion in DSEIS-45 on page 4-77,  
46 lines 27 to 44 that cumulative impacts to aquatic resources during the periods of extended  
47 operation for Salem and HCGS would be SMALL to LARGE is misleading. As the information in  
48 the bulleted list below indicates, except for possible impacts associated with climate change,  
49 there is no reason to believe that cumulative impacts during the periods of extended operation  
50 for Salem and HCGS would be anything other than SMALL. However, considering that  
51 cumulative impacts from climate change would occur, if at all, at unknown future times, which

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1 may not coincide with the periods of extended operation for Salem and HCGS, and that the  
2 level of such impacts, if they occurred, are not quantifiable, PSEG Nuclear submits that it would  
3 be misleading to represent such cumulative impacts as having potential to be LARGE during the  
4 Salem and HCGS periods of extended operation. Accordingly, PSEG Nuclear recommends that  
5 NRC acknowledge the possibility for mitigation and management of impacts from climate  
6 change and revise the conclusion on page 4-77, lines 39 to 42 to read as follows

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8 "Even so, NRC acknowledges that methods for mitigation and management of  
9 anthropogenic environmental stressors such as climate change are being investigated  
10 and may serve to reduce future cumulative impact levels. Based on the assessment, the  
11 Staff concludes that cumulative impacts during the relicensing period from past, present,  
12 and future stressors affecting aquatic resources in the Delaware Estuary during the  
13 relicensing period would range from SMALL to MODERATE."

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15 It should be noted that the change suggested above would also resolve an inconsistency  
16 between the existing text on page 4-77 and the entry on page 4-84 in Table 4-24 (Summary of  
17 Cumulative Impacts on Resource Areas), row labeled "Aquatic Resources," column labeled  
18 "Impact," which already reads "SMALL to MODERATE."

20 **Response to Comment SHC-X-3.** *Cumulative effects are caused by the aggregate of past,  
21 present, and reasonably foreseeable future actions. They include the total of direct and indirect  
22 effects on the aquatic resources of all actions taken, no matter who has taken the actions. NRC  
23 disagrees with the comment that climate change is the only stressor that would have an impact  
24 level other than small. As discussed in the cumulative impact section 4.11.2 of the draft SEIS,  
25 the Delaware Estuary north of the Salem and Hope Creek plants was one of the most polluted  
26 river reaches in the world until improvement of water quality began in the 1960s through 1980s.  
27 Those improvements continue today, as do changes such the continued development that can  
28 degrade water quality. Legacy contaminants in sediments from the past continue to adversely  
29 affect aquatic resources. These and other continued changes in the estuarine environment  
30 from anthropogenic activities is observable, and biological communities still responding to such  
31 changes are not stable in the sense that they are also changing. These conditions satisfy  
32 NRC's definition of a large level of impact for the purposes of NEPA. The "SMALL to  
33 MODERATE" in the summary table of the draft was an unintentional mistake and should have  
34 reflected the conclusions of Section 4.11.2.*

Deleted: Comment SHC-X-29: Page 2-78, lines 23 to 28. PSEG Nuclear recommends that the text on page 2-78, lines 23 to 28, be updated to reflect the recent Endangered Species Act listing notice for Atlantic Sturgeon, which was published in the Federal Register on October 6, 2010 (75 FR 61897)¶

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36 ALSO, ADD THE FOLLOWING REFERENCES TO CHAPTER 4. The citations are on page 4-  
37 47 of the FSEIS draft.

Comment [B2]: Need to coordinate this response with Andy & Dennis. I'm inclined to agree to their comment. But RERB needs to help us make a judgment call on whether the Cumulative Impacts for Aquatics should be MOD-LARGE or SMALL-MOD.

#### 38 Literature Cited

40 PSEG. 2009b. THIS IS THE ER AS CITED IN THE DSEIS.

41 Brubaker, S. 2010. THIS IS THE WRITTEN COMMENT BY SCOTT BRUBAKER, ML 110060284.

42 Kahn, D.M. 2000. Mortality of Delaware River Striped Bass from Entrainment and Impingement by the  
43 Salem Nuclear Generating Station. Delaware Division of Fish and Wildlife, Dover, Delaware. ADAMS

44 Accession Number ML103500393.

1 Kahn, D.M. 2001. Assessment of Impact of the Salem Nuclear Generating Station on Weakfish and  
2 Striped Bass. Delaware Division of Fish and Wildlife, Dover, Delaware. ADAMS Accession Number  
3 ML103500393.

4 PSEG. 2006c1. SALEM NJPDES PERMIT RENEWAL APPLICATION, NJPDES PERMIT NO. NJ0005622.  
5 RESTORATION PRODUCTION ESTIMATES-G.12.B, ATTACHMENT 7 – 3, AN ECOSYSTEM MODEL OF  
6 DELAWARE BAY. Appendix III. Marsh restoration analysis (page 144). Newark, New Jersey, Public  
7 Service Enterprise Group. February 1, 2006

8 PSEG. 2009b. THIS IS THE ER AS CITED IN THE DSEIS.

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**Comment SHC-A-8:** As part of the Stop the Salem Fish Slaughter, and Unplug Salem Coalition, the New Jersey Environmental Federation has called on PSEG to install cooling towers, at Salem 1 and 2, to reduce the fish loss and protect the estuary, the Delaware River. If PSEG is not willing to spend the money to install cooling towers, and protect the fisheries and estuary of the Delaware River, when cooling towers would obviously provide the best technology available to protect the ecosystem, how are we to trust that they will maintain their plants for the next 20 years using the safest methods, using the best available technology.

**Comment SHC-A-10:** And a lot of the problems, and issues that I brought up in my testimony on May 3rd, including sea level rise, climate change, tritium in groundwater, radioactive releases to the atmosphere.

A lot of those issues have been discussed in the Environmental Impact Statement, but dismissed as being small. Small, okay? And, yet, in the Environmental Impact Statement it says that the water withdrawal from the combined two nuclear stations, and Hope Creek, is combined to the total withdrawal of all other industrial, power, and public water uses in the Delaware estuary, in Delaware, New Jersey, and Pennsylvania.

These plants are this single largest user of water in the river system, in three states. Again, their combined use of water exceeds all other industrial uses combined.

And I just don't think that that impact can be called small. If that is not large, I don't know what large is. How large does it have to be to be considered a large impact?

The comparison in millions of gallons, between Hope Creek and Salem 1 and 2, is orders of magnitude. The numbers are so large that I would have to write them on the board, and I might do that, because I can't even -- you know, is it trillions of billions? I'm not sure.

**Comment SHC-U-1:** I'm with the Coalition to Protect Fisheries. We feel that Salem 1 and 2 should not be permitted to operate for another 20 years, because of many areas of concern. If, however, it is allowed to, by the NRC, to operate for another 20 years, the needless and senseless destruction of aquatic life, millions of dead fish and crabs every year, must not be allowed to continue.

There are several aspects that are troubling. First, the Salem 1 and 2 units are over 40 years old. The projected life of these nuclear plants was designed for 40 years. To extend the operation of these old plants is very risky.

**Response:** *The comments are general in nature and express disagreements with the SEIS's findings and conclusions regarding impacts to aquatic resources. These comments provide no new and significant information; therefore, no changes were made to the SEIS.*

**Response:** *(This comment was binned with groundwater but its really an aquatic comment. Check with aquatic review. Why is the impact of the largest water user classified as SMALL?)*

**Comment SHC-U-3:** If the NRC allows Salem 1 and 2 to operate, for another 20 years, the massive fish kill caused by Salem 1 and 2, needs to be stopped, as part of a permit renewal. The outdated, destructive, open loop cooling system used at Salem 1 and 2, needs to be changed to a non-destructive closed loop cooling system, a cooling tower, the same as used at Hope Creek.

To allow Salem 1 and 2 to kill billions of fish, every year, for another 20 years, is unacceptable, and un-excusable. Salem 1 and 2 draws in over three billion gallons of water a day. Three billion gallons of water a day, every day.

The EPA estimates that Salem 1 and 2 kills over 350 million age 1 equivalent fish every year. And age 1 is a standard of measuring the fish kill. It actually kills billions of little fish, also. But they, for the statistics, they say that 5,000 little fish equals one age one-equivalent fish. But the statistics, and data, uses age one- equivalent fish as a standard that is common in the fish analysis industry.

This massive amount of fish are needlessly being destroyed. Salem 1 and 2 is, also, in violation of the Federal Clean Water Act, of the 1970s, which requires the best technology available to protect fisheries.

Salem 1 and 2 is not using the best technology, a closed loop system. Salem 1 and 2 is the largest destroyer of aquatic life on the Delaware River. It has, and is still, destroying the fishing industry along the Delaware River. To say that Salem 1 and 2 is having no negative effect on the Delaware River fishery is absurd, and outrageous.

I'd like to present, as evidence, a Wilmington News Journal Article, dated January 14th, 2007, titled, "Cooling Systems Ravage River", subtitled "Big Industrial Sites on the Delaware Kill Tens of Billions of Fish in Crabs Each Year".

It is an excellent article about the fish kill along the Delaware River. The EPA estimate of 350 age one-equivalent fish kill by Salem 1 and 2, every year, is shown in this article. The facts show the destruction Salem is causing.