

# ECOLAW

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April 17, 2012

Mr. Tom Chapman  
Supervisor  
United States Department of the Interior  
Fish and Wildlife Service  
New England Field Office  
70 Commercial Street  
Suite 300  
Concord, New Hampshire 03301-5087

**Re: Pilgrim Nuclear Power Station, Plymouth MA: ESA § 7 Consultation with  
Nuclear Regulatory Commission Regarding Roseate Terns**

Dear Mr. Chapman,

On behalf of Pilgrim Watch and Jones River Watershed Association, Inc., this is to provide additional information warranting a reconsideration of your office's finding under the Endangered Species Act, 16 U.S.C. §§ 1531 *et seq.*, that relicensing the Power Station Pilgrim Nuclear Power Station (PNPS) in Plymouth, Massachusetts is "not likely to adversely affect" the roseate tern, *Sterna dougallii*. Your office provided this concurrence to the Nuclear Regulatory Commission (NRC) in a letter dated May 23, 2006.

PNPS is a 715-megawatt nuclear power station that has operated since 1972 using least 510 million gallons per day of once-through cooling water from Cape Cod Bay. Throughout its' 40-year operating history, the PNPS cooling water intake system (CWIS) and pollutant discharges have impacted a range of species, ecosystems, and habitats. Entergy Nuclear Generation Company and Entergy Nuclear Operations Inc. (Entergy) seek to renew the PNPS operating license for another 20 years, through 2032, using the same once-through CWIS. By the NRC's own estimates, PNPS has already used the entire volume of Cape Cod Bay as cooling water for the reactor.

In 2006, USFWS provided a "not likely to adversely affect" determination to the NRC for all species under USFWS jurisdiction, including the roseate tern. New information shows that this determination for the roseate tern was based on information that is no longer valid, as well as new scientific data, and that the NRC should have

prepared a biological assessment.

Some of the background is as follows. By letter dated May 23, 2006 to the NRC, the USFWS confirmed a statement made in an earlier letter from March 9, 2005 in which USFWS concurred with Entergy's claim that PNPS relicensing is "not likely to adversely affect federally-listed species," including the roseate tern. Yet, Entergy's own letter to USFWS dated February 3, 2005, states that "Several listed terrestrial species are known to occur in the general vicinity of the PNPS site, however, and cannot be ruled out as occasional visitors to the PNPS site and environs....These include the roseate tern."<sup>1</sup> Since the tern "may be present," in areas to be affected directly or indirectly by PNPS, the NRC was required by the ESA, § 1531(c)(1), to prepare a biological assessment "for the purpose of identifying any endangered or threatened species which is likely to be affected by such action." *See also*, 50 C.F.R. § 402.12, and the definition of "action area" in 402.02.<sup>2</sup>

To our knowledge, the NRC Staff did not prepare a biological assessment for the roseate tern. Instead, USFWS concurred with Entergy's conclusion in its February 3, 2005 letter that PNPS operations would have "no effect" on ESA-listed species, and dismissed the tern's presence as "probably transient in nature" and "unlikely to be adversely affected."<sup>3</sup> We are unaware of any scientific data in the record supporting the

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<sup>1</sup> This letter is contained in Attachment B to Entergy's NRC relicensing application, available at: <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/pilgrim.html>. The PNPS EIS is at: <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/supplement29/index.html>

<sup>2</sup> PNPS relicensing is a "major construction activity" as defined by 50 CFR § 402.12(b) because it is an undertaking which is a "major Federal action significantly affecting the quality of the human environment" as referred to in the National Environmental Policy Act, 42 U.S.C. § 4332(2)(C). The NRC prepared an environmental impact statement under NEPA for PNPS, thus acknowledging that relicensing is a "major Federal action significantly affecting the quality of the human environment."

<sup>3</sup> The February 3, 2005 letter from Entergy to USFWS states,

Several listed terrestrial species are known to occur in the general vicinity of the PNPS site, however, and cannot be ruled out as occasional visitors to the PNPS site and environs. These include the bald eagle, piping plover, and roseate tern. Bald eagles are present year-round in Massachusetts and congregate in significant numbers in wintering areas along the coast of Cape Cod and Buzzard's Bay. Bald eagles have been observed foraging in the general vicinity of PNPS, but are not believed to nest in the area... Like the piping plover, the roseate tern nests in colonies along the Massachusetts coast in summer. The roseate tern nests in dune areas with thick vegetative cover, always in association with the common tern. Although suitable nesting habitat has not been identified at PNPS, migrating terns may move through the site in late spring (en route to nesting areas in Maine and Nova Scotia) and late summer (en route to wintering areas in the West Indies and Latin America).

....

We therefore request your concurrence with our determination that license renewal would have no effect on threatened or endangered species (including candidate species and species proposed for listing) and that formal consultation is not necessary.

USFWS statement in its 2005 and 2006 letters. If such data exists, we request that it be made publicly available.

The following information shows that the USFWS statement that the roseate tern is “unlikely to be adversely affected” was erroneously made without a biological assessment from the NRC staff, and lacks a credible scientific basis. We request that you consider the following facts and revisit your 2006 statement.

1. PNPS cooling water operations are in an area that would be used by the roseate tern for foraging. Roseate terns are documented by the Massachusetts Natural Heritage and Endangered Species Program as nesting on Plymouth Beach annually in small numbers (1 to 3 pairs). They are known to forage for sand lance, herring, and other small fish in shallow waters within about 20 miles of nesting areas.<sup>4</sup> Roseate terns also gather in large staging migratory flocks (hundreds and up to about 4,000) at the tip of Plymouth Beach from late July through most of September. Plymouth Beach is about 2.5 miles from PNPS. The roseate terns tend to stage on sand bars and tidal flats close to important food resource areas and are not believed to fly more than a few miles from these areas for food. Thus, for both nesting roseate terns and staging flocks, PNPS is within their nesting, foraging and staging range.<sup>5</sup>

2. The predominant prey species of roseate terns in New England has been found to be American Sand Lance (*sammodytes americanus*), Hake, and Atlantic Herring

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The USFWS March 9, 2005 reply letter to Entergy states “..... roseate terns are known to occur on Plymouth beach just north of PNPS but “[a]ccording to our records, none of the above-listed species [including the roseate tern and bald eagle] are known to frequent the immediate vicinity of PNPS and, therefore, the presence of these species near the power station is probably transient in nature... Since no expansion of existing facilities is planned and no additional land disturbance is anticipated, we concur with your determination that license renewal for PNPS is not likely to adversely affect federally-listed species....” This statement was confirmed in the May 23, 2006 USFWS letter to the NRC Staff.

<sup>4</sup> *Carribean Roseate Tern and North Atlantic Roseate Tern, 5-Year Review: Summary and Evaluation*, USFWS, Sept. 2010, p. 40. [http://ecos.fws.gov/docs/five\\_year\\_review/doc3588.pdf](http://ecos.fws.gov/docs/five_year_review/doc3588.pdf)

See also, *Roseate Tern, Northeast Population Recovery Plan First Update*, prepared by Northeast Roseate Tern Recovery Team for Northeast Region, USFWS, Nov. 5, 1998  
[http://ecos.fws.gov/docs/recovery\\_plan/981105.pdf](http://ecos.fws.gov/docs/recovery_plan/981105.pdf)

*Roseate Tern Recovery in Buzzards Bay*, <http://www.buzzardsbay.org/roseates.htm>

<sup>5</sup> “In the only foraging study of roseate terns within the Northeast population that utilized telemetry, Rock *et al.* (2007) found that while roseate terns nesting at Country Island, Nova Scotia, sometimes foraged as far as 7.2 miles (24 km) from the colony, on average they foraged much closer, 2.1 mi (7 km), and especially in locations within 6 miles (10 km) of the colony, at water depths less than 16.5 ft. (5 m). The authors recommended that critical foraging habitat for the roseate terns at Country Island, *i.e.*, shallow areas (< 5 m depth) within 10 km of the colony, should be protected (Rock *et al.* 2007).”

(*clupea harengus*).<sup>6</sup> The NRC's environmental impact statement for PNPS identifies Atlantic Herring, Hake, and Atlantic Sand Lance as having designated essential fish habitat under the Magnuson Stevens Fisheries Conservation Act in the vicinity of PNPS. PNPS EIS, p. 2-33.<sup>7</sup> Other small fish and juvenile fish such as other species of herring and menhaden are also food species for the roseate tern.

American Sand Lance, Hake, and Atlantic Herring, as well as other roseate tern food species, are impinged and entrained at PNPS, and subject to its point source and non-point source pollutant discharges. See, e.g. PNPS EIS, p. 2-36 ("Juveniles and/or adults [of Atlantic herring] have been consistently collected in the PNPS impingement sampling program. Over the last 25 years they have been one of the numerically dominant impinged species"; p. 2-49 and Table 4-4 (in 2005 there were 9,860,824 Atlantic herring larvae entrained; p. E-57 (here have been "significant entrainment events involving Atlantic herring). Other herring species, such as the river herring, and menhaden are also impinged and entrained at PNPS and subject to its point source and non-point source discharges. Eggs and larvae of the Red Hake and silver hake are entrained at PNPS, and juveniles and adults are impinged. PNPS EIS, p. 2-56; p. 2-60.

3. Pollution of Buzzards Bay, habitat for roseate terns, has been called a "significant threat to the species".<sup>8</sup> There has been no assessment of the affect on roseate terns and their food source from the pollutant discharges from PNPS, including radioactive effluent, chlorine, biocides, and thermal releases.

4. Since 1999, Entergy has been in violation of its Clean Water Act NPDES permit because it has failed to obtain state and federal approval of its Biological Monitoring plans, and has failed to conduct any monitoring it did do, under the oversight of the Pilgrim Advisory Technical Committee, in violation of NPDES Permit, Part A.8 and Part A, 8.d.

Entergy's NPDES permit expired in 1996 but has been administratively extended since that time. EPA and MassDEP do not have the capacity to complete the CWA § 316 review and issue a new NPDES permit before June 8, 2012, the NRC relicensing deadline.

Entergy claims it its February 3, 2005 letter to USFWS that PNPS relicensing will have "no effects," in part because a report by its consultant, ENSR, done in the year 2000

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<sup>6</sup> *Carribean Roseate Tern and North Atlantic Roseate Tern, 5-Year Review: Summary and Evaluation*, USFWS, Sept. 2010, pp. 50, 51, 59. [http://ecos.fws.gov/docs/five\\_year\\_review/doc3588.pdf](http://ecos.fws.gov/docs/five_year_review/doc3588.pdf)

<sup>7</sup> Yet, the NRC has not completed an EFH consultation but has attempted to put that off into the indefinite future, at such time as U.S. EPA renews the PNPS NPDES permit, which is now overdue by 16 years. The NPDES permit review is not scheduled to be completed for at least one year from now, if then.

<sup>8</sup> *Carribean Roseate Tern and North Atlantic Roseate Tern, 5-Year Review: Summary and Evaluation*, USFWS, Sept. 2010, p. 40. [http://ecos.fws.gov/docs/five\\_year\\_review/doc3588.pdf](http://ecos.fws.gov/docs/five_year_review/doc3588.pdf) p. 62.

(12 years ago) shows no “adverse impact on the integrity of Cape Cod fish and shellfish populations....” This report was done for purposes of demonstrating compliance with the Clean Water Act 316(a) and (b) requirements for thermal discharges and CWIS. As noted, Entergy’s current permit is 16 years out of date. Most importantly, U.S. EPA has not accepted the conclusions in the 12-year old ENSR report, and even the PNPS EIS states, “EPA Region 1, in discussions with the NRC staff, indicated that there was some debate over the conclusions of the report.” PNPS EIS, p. 4-21. Moreover, MCZM staff comments on the ENSR 2000 report forcefully states the 2000 ENSR CWA 316 report failed to demonstrate that MCZM standards were met.<sup>9</sup>

Further, there has been a substantial difference in the operations of PNPS between 1994, the date of an NPDES permit modification, and 2008: in 1994 the reactor average output was 65.2% while in 2008 it was 98%. This increase in operating output means that the facility is running its once-through cooling water system more frequently, meaning more impingement, entrainment, and pollutant discharges including thermal releases.

Thus, to the extent USFWS relied upon Entergy’s 2000 report and statements that its CWIS operations “has not resulted in adverse impacts to the integrity of Cape Cod Bay fish and shellfish populations,” USFWS was in error.

5. Entergy has not demonstrated compliance with MassDEP’s 2006 CWIS standards, upheld by the Massachusetts Supreme Judicial Court in April 2011, following a legal challenge by Entergy. Entergy Nuclear Generation Company v. Department of Environmental Protection, 459 Mass. 319 (2011). These regulations are designed, *inter alia*, to minimize impacts on aquatic life through entrainment, impingement and thermal discharge. See, 314 CMR § 4.05(b)(2)(d), 4.05(3)(c)(2)(d), 4.05(4)(a)(2)(d), 4.05(4)(b)(2)(d), 4.05(4)(c)(2)(d).

Each of the five factors above requires reconsideration of USFWS’ 2006 decision that PNPS relicensing is “not likely to affect” the roseate tern. Given this new

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<sup>9</sup> In 2000, MCZM staff provided comments to U.S. EPA on Entergy’s § 316 Demonstration Report. These comments are highly critical of Entergy’s § 316 Demonstration Report. For example, the letter states,

- In 1997 and 1998, Entergy killed almost “40% of the annual total recreational and commercial catch” of winter flounder.
- “...the Demonstration Report does not adequately support the conclusion of no significant impact to the species inhabiting the waters surrounding Entergy-Pilgrim Station.”
- “...at least one modeling study predicts that hundreds of acres of Cape Cod Bay may increase by one degree Celsius or more due to thermal loading from the discharge. The Demonstration Report does not provide adequate evidence to determine how a temperature increase of just a few degrees may affect the development and survivorship of eggs and larvae or how a temperature increase may affect the future fecundity of adults exposed to the discharge plume in Cape Cod Bay.”
- “...it has yet to be determined how large single-day losses of these important prey species [e.g. schooling species] affect food web dynamics in the region of Cape Cod Bay near the Entergy-Pilgrim Station.”
- “Of most concern is the entrainment of eggs and planktonic larvae by the cooling water intake structures.”

information, USFWS should require a biological assessment and proper ESA § 7 consultation to determine whether relicensing of PNPS roseate terns.

Please feel free to contact me if you have questions. I can be contacted at cell 508-259-9154 or meg@ecolaw.biz, or by mail at the above address.

Thank you for your attention to this matter.

Very truly yours,

*Electronically signed*

Margaret E. Sheehan, Esq.

Cc: Pilgrim Watch  
Rep. Ed Markey  
Goldenrod Foundation  
Jones River Watershed Association, Inc.  
Maxwell Smith, Nuclear Regulatory Commission