



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 22, 2011

Ms. Shelley Norton
Sawfish and Johnson's Seagrass Coordinator
Protected Resources Division
National Marine Fisheries Service
263 13th Ave S
St. Petersburg, FL 33701

SUBJECT: ADDITIONAL INFORMATION PERTAINING TO THE ONGOING SECTION 7
CONSULTATION FOR ST. LUCIE PLANT UNIT NOS. 1 AND 2

Dear Ms. Norton:

On January 6, 2011, you spoke with U.S. Nuclear Regulatory Commission (NRC) staff member, Richard Bulavinetz, concerning Florida Power & Light Co.'s (FPL) extended power uprate (EPU) application for the St. Lucie Plant, Units 1 and 2, (St. Lucie) that the NRC staff is currently reviewing. During this phone conversation, you requested additional information concerning the potential impacts to listed aquatic species that would occur as a result of the proposed EPU. This letter responds to your request and provides information on the proposed EPU as well as an analysis of the potential impacts to listed species beyond those already identified in the NRC's Biological Assessments dated February 24, 2006,¹ for smalltooth sawfish (*Pristis pectinata*), and August 14, 2007,² for sea turtles.

Section 7 Consultation Background

The NRC has consulted with the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act for operation of St. Lucie since 1982. NMFS issued the current Biological Opinion on May 4, 2001³, and subsequently provided clarifications to this Biological Opinion on October 24, 2001.⁴ The 2001 Biological Opinion includes an incidental take statement for five species of sea turtles: the loggerhead (*Caretta caretta*), green sea turtle (*Chelonia mydas*), Kemp's ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricate*).

For the current ongoing section 7 consultation, the correspondence and event timeline has been as follows:

¹ NRC. Letter from F. Gillespie to D. Bernhart, NMFS Southeast Regional Office. Subject: Biological Assessment and Request to Initiate Section 7 Consultation for the Smalltooth Sawfish at St. Lucie. February 24, 2006. ML060580303.

² NRC. Letter from E. Benner to D. Bernhart, NMFS Southeast Regional Office. Subject: Biological Assessment for Reinitiation of Section 7 Consultation Regarding Sea Turtles at St. Lucie. August 14, 2007. ML071700079.

³ NMFS. Letter from J.E. Powers to K.N. Jabbour, NRC. Subject: Biological Opinion for St. Lucie. May 4, 2001. ML011430173.

⁴ NMFS. Letter from G. Cranmore to B.T. Moroney, NRC. Subject: Clarification to Terms and Conditions of the St. Lucie Biological Opinion. October 24, 2001. ML013020208.

- **May 2005:** FPL reported a take of a smalltooth sawfish at St. Lucie on May 16.
- **February 2006:** The NRC initiated a formal section 7 consultation in response to the smalltooth sawfish take and submitted a Biological Assessment to NMFS.
- **December 2006:** The NMFS provided the NRC with a copy of the terms and conditions of the draft Biological Opinion.⁵
- **February 2007:** FPL notified NRC that St. Lucie exceeded its incidental take statement for loggerhead and green turtles in 2006.⁶
- **April 2007:** NRC requested NMFS to reinstate a formal section 7 consultation in response to the 2006 takes that exceeded the limits set forth in St. Lucie's incidental take statement.⁷ NRC, NMFS, and FPL met at St. Lucie to inspect the intake structures and discuss potential mitigation associated with the section 7 consultation for sea turtles.
- **August 2007:** NRC sent NMFS a Biological Assessment to accompany the request to reinstate section 7 consultation for sea turtles. NRC, NMFS, and FPL held a conference call to discuss mitigation associated with the section 7 consultation, including plans for a turtle excluder.⁸
- **2008-2010:** FPL began feasibility investigations for potential mitigation measures to be included in the terms and conditions of the Biological Opinion. NMFS began developing a Biological Opinion that incorporated the developing information from FPL.
- **December 2010:** FPL submitted a license amendment request for an EPU at St. Lucie, Unit 1.⁹
- **February 2011:** FPL submitted a license amendment request for an EPU at St. Lucie, Unit 2.¹⁰

Proposed St. Lucie Extended Power Uprate

FPL submitted two separate license amendment requests for EPUs on December 15, 2010, and February 25, 2011, for Unit 1 and Unit 2, respectively. If approved, these two amendment requests would increase the licensed core thermal power for St. Lucie from 2700 megawatts

⁵ NMFS. Letter from S. Norton to H. Nash, NRC. Subject: Terms and Conditions of draft Biological Opinion for St. Lucie. December 19, 2006. ML063620017.

⁶ FPL. Letter from G.L. Johnston to NRC. Subject: Notification That Turtle Included Take Was Exceeded. February 1, 2007. ML070460595.

⁷ NRC. Letter from E. Benner to D. Bernhart, NMFS Southeast Regional Office. Subject: Reinitiation of Section 7 Consultation Regarding Sea Turtles at St. Lucie. April 4, 2007. ML070870846.

⁸ FPL. Memorandum from Stacy Foster to NRC, NMFS, FFWCC, FPL, and Quantum Resources. Subject: Minutes from August 24th Conference Call. August 24, 2007. ML072630242.

⁹ FPL. Letter from R.L. Anderson to NRC. Subject: License Amendment Request for Extended Power Uprate. December 15, 2010. ML103560418.

¹⁰ FPL. Letter from R.L. Anderson to NRC. Subject: License Amendment Request for Extended Power Uprate. February 25, 2011. ML110730116.

thermal (MWt) to 3020 MWt, an increase of 11.85 percent.¹¹ FPL would implement the increased power level in the fall of 2011 for Unit 1 and in the spring of 2012 for Unit 2.

If approved, the proposed EPU would not change the rate of water withdrawal or quantity of water withdrawn at St. Lucie. Additionally, FPL would not change any component of the cooling system design; therefore, the description of the physical cooling water system provided in the 2007 Biological Assessment would remain relevant under EPU conditions.

The proposed EPU would increase the temperature of discharged water. However, St. Lucie's Industrial Wastewater Facility Permit would continue to limit the maximum temperature of heated discharge water and the thermal mixing zone volume. The permit specifies the following limitations for water discharged from the diffusers into the Atlantic Ocean:

- Discharged water may not exceed a maximum of 115°F (46°C) or rise more than 30°F (16.7°C) above the ambient water temperature during normal operations.
- Discharged water may not cause the ocean surface temperature to exceed 97°F (36°C) as an instantaneous maximum.
- Discharged water may not be more than 17°F above the ambient water temperature in the receiving body of water outside a thermal mixing zone of 466,092 ft³ (13,198 m³); and
- The total area of the mixing zone for St. Lucie may not exceed 511,804 ft² (47,548 m²).

Note that the Industrial Wastewater Facility Permit, as in effect today, specifies that discharged water may not exceed a maximum of 113°F (45°C). However, the Florida Department of Environmental Protection revised FPL's permit to allow FPL to discharge water 2°F (1°C) higher—at a temperature 115°F (46°C)—upon NRC's approval of the proposed EPU.

Potential Effects to Listed Species

Because the proposed EPU would not change the rate or quantity of water withdrawn at St. Lucie, the NRC staff does not anticipate any additional entrainment or impingement impacts to the smalltooth sawfish or sea turtles beyond those discussed in the 2006 and 2007 Biological Assessments or presently under consideration for NMFS's developing Biological Opinion.

The proposed EPU would increase the temperature of discharged water and the temperature of ocean water within the thermal plume surrounding the discharge point, which is located approximately 3,400 ft (1,040 m) offshore. However, the increase in the temperature would be relatively small, and the multipoint diffusers on the discharge pipes would continue to rapidly dilute heated water and limit high temperatures to the mixing zone area specified in the Industrial Wastewater Facility Permit. As a conservative measure, the NRC considered the upper limits of the Industrial Wastewater Facility Permit listed above to assess impacts to listed species.

¹¹ FPL. License Amendment Request for Extended Power Uprate, Attachment 2: Supplemental Environmental Report. December 15, 2010. ML103560435.

The smalltooth sawfish is a tropical species that occupies waters in the western Atlantic Ocean from Brazil through the Caribbean and Central America, the Gulf of Mexico, and the Atlantic U.S. The species distribution indicates that it has a high thermal tolerance. The sea turtle species that occur in the vicinity of St. Lucie have wide geographic distributions that span temperate, subtropical, and tropical waters. Because the smalltooth sawfish has a high thermal tolerance and sea turtles are able to tolerate a wide range of water temperatures, these species are unlikely to be adversely affected by higher water temperatures within the thermal plume at the St. Lucie discharge under EPU conditions. For smalltooth sawfish specifically, because the species lives in close association with the sea bottom and the thermal effluent rises to the water's surface, exposure of smalltooth sawfish to the thermal plume should be minimal even in the area immediately surrounding the discharge point. For sea turtles specifically, because water within the thermal plume is more turbulent and the thermal plume is relatively small, the sea turtles are likely to avoid this area altogether. However, if smalltooth sawfish or sea turtles do inhabit the discharge area, because these species tolerate warmer water temperatures, they are unlikely to be sensitive to the localized area of elevated water temperatures. The NRC staff does not anticipate any adverse impacts to smalltooth sawfish or sea turtle species as a result of the proposed EPU at St. Lucie.

If you have any questions or require additional information concerning the proposed EPU at St. Lucie, please contact Ms. Briana Balsam, Biologist, by phone at 301-415-1042, or by e-mail at Briana.Balsam@nrc.gov, or Dr. Dennis Logan, Aquatic Biologist, by phone at 301-415-0490, or by e-mail at Dennis.Logan@nrc.gov.

Sincerely,



Andrew S. Imboden, Chief
Environmental Review Branch
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

cc: Listserv

The smalltooth sawfish is a tropical species that occupies waters in the western Atlantic Ocean from Brazil through the Caribbean and Central America, the Gulf of Mexico, and the Atlantic U.S. The species distribution indicates that it has a high thermal tolerance. The sea turtle species that occur in the vicinity of St. Lucie have wide geographic distributions that span temperate, subtropical, and tropical waters. Because the smalltooth sawfish has a high thermal tolerance and sea turtles are able to tolerate a wide range of water temperatures, these species are unlikely to be adversely affected by higher water temperatures within the thermal plume at the St. Lucie discharge under EPU conditions. For smalltooth sawfish specifically, because the species lives in close association with the sea bottom and the thermal effluent rises to the water's surface, exposure of smalltooth sawfish to the thermal plume should be minimal even in the area immediately surrounding the discharge point. For sea turtles specifically, because water within the thermal plume is more turbulent and the thermal plume is relatively small, the sea turtles are likely to avoid this area altogether. However, if smalltooth sawfish or sea turtles do inhabit the discharge area, because these species tolerate warmer water temperatures, they are unlikely to be sensitive to the localized area of elevated water temperatures. The NRC staff does not anticipate any adverse impacts to smalltooth sawfish or sea turtle species as a result of the proposed EPU at St. Lucie.

If you have any questions or require additional information concerning the proposed EPU at St. Lucie, please contact Ms. Briana Balsam, Biologist, by phone at 301-415-1042, or by e-mail at Briana.Balsam@nrc.gov, or Dr. Dennis Logan, Aquatic Biologist, by phone at 301-415-0490, or by e-mail at Dennis.Logan@nrc.gov.

Sincerely,

/RA/

Andrew S. Imboden, Chief
Environmental Review Branch
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

cc: Listserv

DISTRIBUTION:

See next page

ADAMS Accession Number: ML11108A014

*concurrence via email

OFFICE	LA: DLR*	DLR/RERB	DLR/RERB	BC: DLR/RERB
NAME	IKing	BBalsam	DLogan	Almboden
DATE	04/20/2011	04/21/2011	04/22/2011	04/22/2011

OFFICIAL RECORD COPY

Letter to Shelley Norton from Andrew S. Imboden dated April 22, 2011

**SUBJECT: ADDITIONAL INFORMATION PERTAINING TO THE ONGOING SECTION 7
 CONSULTATION FOR ST. LUCIE PLANT UNIT NOS. 1 AND 2**

DISTRIBUTION:

HARD COPY:

DLR R/F

E-MAIL:

PUBLIC

RidsNrrDlr Resource

RidsNrrDlrRpb2 Resource

RidsNrrPMStLucie

RidsNrrLABClayton

RidsNrrDciCvib

RidsAcrsAcnw_MailCTR

RidsOgcRp

RidsRgn2MailCenter

B. Balsam

D. Logan

A. Imboden

S. Klementowicz