

## Grange, Briana

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**From:** Grange, Briana  
**Sent:** Tuesday, April 03, 2018 9:23 AM  
**To:** 'Audra Livergood - NOAA Federal'  
**Cc:** Gless, Jodie; Eaton, Kristin  
**Subject:** RE: Request for Additional Information  
**Attachments:** St. Lucie Sect 7\_NRC Responses to 3-13-18 NMFS Questions.pdf

Audra,

Attached to this email are NRC's responses to your additional information requests. Please let me know if you have any questions as you review them. Thanks,

Briana

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### Briana A. Grange

Aquatic Biologist

Division of Materials and License Renewal  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1042  
briana.grange@nrc.gov

**From:** Audra Livergood - NOAA Federal [mailto:audra.livergood@noaa.gov]  
**Sent:** Tuesday, March 13, 2018 3:43 PM  
**To:** Grange, Briana <Briana.Grange@nrc.gov>  
**Cc:** Gless, Jodie <Jodie.Gless@fpl.com>; Eaton, Kristin <Kristin.Eaton@fpl.com>  
**Subject:** [External\_Sender] Request for Additional Information

Dear Briana,

Please see enclosed request for additional information.

### **FPL St. Lucie Reinitiation (SER-2018-19124), Request for Additional Information**

- 1) Given FPL has met their annual take limit for causal mortalities of green sea turtles, is the NRC also requesting that NMFS revise our Incidental Take Statement for green sea turtles that is included in the 2016 Biological Opinion? If so, please provide the same information for green sea turtles that has been provided for smalltooth sawfish and Kemp's ridley sea turtles in the February 9, 2018, *Request to Reinitiate Endangered Species Act Section 7 Formal Consultation for FPL St. Lucie Plant, Units 1 and 2*.
- 2) NMFS requests FPL's final report on the excluder device testing. We reserve the right to request additional information after we have an opportunity to read the final report.

NMFS looks forward to working collaboratively with the NRC to ensure the conservation of our threatened and endangered species.

Should you have any questions related to this request, please contact Audra Livergood by email ([Audra.Livergood@noaa.gov](mailto:Audra.Livergood@noaa.gov)) or phone (786) 351-2225.

We look forward to meeting with your staff on March 22, 2018.

We also look forward to receiving your response within 60 days from the date of this email. If we do not receive a response within 60 days, we will assume the consultation is no longer active. We will then close out the consultation request and change the status of the request to “withdrawn.”

Kind regards,

Audra

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Audra Banks  
NOAA National Marine Fisheries Service  
SERO Protected Resources Division  
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Dania Beach, FL 33004

St. Lucie Plant, Units 1 and 2, Reinitiated Endangered Species Act (ESA) Section 7 Formal Consultation for Continued Operation under Current Renewed Licenses

Responses to the National Marine Fisheries Service's (NMFS) Requests for Additional Information dated March 13, 2018

NMFS Consultation No. SER-2018-19124

- 1. Given FPL has met their annual take limit for causal mortalities of green sea turtles, is the NRC also requesting that NMFS revise our Incidental Take Statement for green sea turtles that is included in the 2016 Biological Opinion? If so, please provide the same information for green sea turtles that has been provided for smalltooth sawfish and Kemp's ridley sea turtles in the February 9, 2018, *Request to Reinitiate Endangered Species Act Section 7 Formal Consultation for FPL St. Lucie Plant, Units 1 and 2*.**

Yes, the NRC also requests that the NMFS revise the level of allowable captures of green sea turtles (*Chelonia mydas*) in the incidental take statement of the March 24, 2016, biological opinion.<sup>1</sup> The NRC's justification is below.

Green Sea Turtle Incidental Takes

The NMFS's biological opinion allows for the capture of 500 green turtles annually, of which the NMFS anticipates that 7 green turtles will have sustained severe causal injuries and 5 will have died causally related to plant operations. As of February 28, 2018,<sup>2</sup> Inwater Research Group (Inwater) biologists have captured 161 green turtles. Of these, no individuals had severe causal injuries. Five of the collected individuals were dead, and Florida Power & Light Company (FPL) reported those deaths as causally related to plant operations. An additional dead green turtle was collected on January 29, 2018. However, Inwater biologists, in consultation with the Florida Fish and Wildlife Conservation Commission, determined that death of this individual was not attributable to plant operations. Therefore, FPL has met, but not exceeded, the incidental take statement limit for dead green turtles causally related to plant operations. FPL remains within the allowable limits for green turtle total captures and severe causal injuries.

On January 4, 2018, Inwater biologists recovered a dead juvenile green turtle from the east side of the St. Lucie intake canal 8-inch turtle barrier net.<sup>3</sup> A Doctor of Veterinary Medicine performed a necropsy the same day and determined that drowning was the cause of mortality. The turtle was also likely in a weakened cold-stunned condition because it was underweight with depleted fat reserves and because water temperatures were acutely lower at the time of death due to a cold front. FPL performed hourly inspections of the 5-inch net

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<sup>1</sup> National Marine Fisheries Service. Biological Opinion for Continued Operation of St. Lucie Nuclear Power Plants, Units 1 and 2 in St. Lucie County, Florida. March 24, 2016. Agencywide Documents Access and Management System (ADAMS) Accession No. ML16084A616.

<sup>2</sup> Numbers are current as of February 28, 2018.

<sup>3</sup> FPL installed a 5-inch net overlay on the 8-inch net as a temporary countermeasure, which at that time had been in place since October 2017. FPL has since removed the 5-inch overlay.

during daylight hours and maintained constant surveillance of the intake canal's two tangle nets. Additionally, FPL increased the inspection frequency between the 5-inch and 8-inch nets.<sup>4</sup>

On January 18, 2018, Inwater biologists collected two dead green turtles from the St. Lucie intake canal 8-inch turtle barrier net. At that time, FPL began removing the 5-inch overlay from the 8-inch net because it was not improving the protection of sea turtles in the intake canal. FPL also expedited the replacement of the 5-inch net. Once Inwater biologists initiated 24 hour monitoring on January 19th, the tangle nets were removed for a few weeks so that the biologists could solely focus on capturing turtles before they passed through the 5-inch net. Two additional dead green turtles were collected from the 8-inch net on January 20, 2018, and February 10, 2018. All turtles ranged from moderately to severely decomposed. Necropsies could not be performed due to the various states of decomposition, and, therefore, FPL conservatively assumed that all four deaths were causally related to plant operations.<sup>5</sup>

The replacement of the 5-inch net was completed on February 9, 2018.

### Discussion

Sea turtles that enter the St. Lucie intake canal first encounter the 5-inch turtle barrier net. An additional 8-inch turtle barrier net serves as a backup to the 5-inch net, as required by Term & Condition 4 of the biological opinion. Per that condition, both the 5-inch and 8-inch nets must be inspected at least quarterly and repaired or replaced as necessary to ensure the integrity of the nets. While it is uncommon for sea turtles to travel beyond the 5-inch barrier net, this net had been compromised in the fall of 2017 due to severe weather conditions experienced during Hurricane Irma. FPL undertook several stages of net repairs and replacements beginning in September 2017, as described briefly below. Additionally, the hurricane storm surge pushed a large amount of sedimentation, seaweed, and other debris into the intake canal, which further affected net integrity and reduced visibility in the canal for the Inwater biologists that retrieve captured sea turtles. The issues associated with these events likely contributed to the five causal mortalities of green turtles in January and February 2018.

In September 2017, St. Lucie experienced a large storm surge associated with Hurricane Irma. Following the storm, Underwater Engineering Services, Inc. personnel inspected the turtle nets in the St. Lucie intake canal. Personnel removed debris and inspected and cleaned the 5-inch net to restore its integrity. No holes were identified in this net during the post-storm inspection. Underwater Engineering Services, Inc. personnel also removed and replaced the 8-inch net, which was severely damaged, over a two-week period. The 8-inch net replacement was completed on September 29, 2017, and an additional inspection of the 5-inch net was performed at that time to ensure that the net had no holes. Inwater biologists

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<sup>4</sup> Florida Power and Light Company. Letter to NRC, St. Lucie, Units 1 and 2, Environmental Protection Plan Report for January 4, 2018, Unusual or Important Environmental Event – Turtle Mortality. January 18, 2018. ADAMS Accession No. ML18018A379.

<sup>5</sup> Florida Power and Light Company. Letter to NRC, St. Lucie, Units 1 and 2, Environmental Protection Plan Report for January 18, 2018, January 20, 2018, and February 10, 2018, Unusual or Important Event – Turtle Mortalities. February 16, 2018. ADAMS Accession No. ML18047A020.

also inspected the entire length of the intake canal at least twice daily during the course of net repairs to identify any turtles that may have traveled past the nets. Additionally, Inwater biologists made an effort to proactively capture turtles with dip nets east of the 5-inch barrier net; however, visibility was low and this effort did not yield much success.

On October 5, 2017, after three sea turtles had been found at the intake wells, FPL initiated another inspection of the 5-inch net that included net cleaning, independent verification to identify holes in the net, as well as twenty random measurements of net dimensions. The inspection again confirmed that there were no holes in the net; however, the divers' measurements found that some net openings had been elongated in size due to increased tension associated with sedimentation and seaweed buildup following the hurricane storm surge. Thus, small turtles were able to breach the 5-inch net through the elongated openings, and the organic matter buildup likely created areas of extreme velocity near the net that helped force the turtles through these openings. In response, FPL installed a 5-inch net overlay onto the 8-inch net to prevent turtles from reaching the intake wells. Installation was completed in late October 2017.

In late January 2018, following the collection of three dead green turtles during net inspections, FPL determined that sea turtles in the intake canal were not being spotted by Inwater biologists due to insufficient visibility and that this was leading to increased residence time and, thus, an increased susceptibility to becoming tangled in the nets. As a short-term solution, FPL removed the 5-inch overlay on the 8-inch net to allow turtles to pass the 8-inch net. Connected with this effort, FPL instituted additional monitoring and protocol at the intake wells because removal of the 5-inch overlay increased the potential for turtles already in the intake canal to pass the 8-inch net and travel to the intake wells. FPL also replaced the permanent 5-inch net in February 2018. The new net is more securely anchored than the last net, was installed with higher tension, and is made of a fiber with less stretch to reduce the potential for turtles to breach the net in the future. As a long-term solution, FPL has initiated a dredging project, as described in the NRC's February 9, 2018, request to reinstate consultation.<sup>6</sup>

Over the past several generations, the green sea turtle may have declined by as much as 48 to 67 percent according to a conservative estimate of mature nesting females.<sup>7</sup> However, the NMFS and U.S. Fish and Wildlife Service's (FWS) most recent 5-Year Review of the species indicates that of 26 threatened nesting concentrations, 12 are increasing, 10 are stable, and 4 are decreasing.<sup>8</sup> In the review, the NMFS and FWS conclude that nesting populations are doing relatively well in the Pacific, Western Atlantic, and Central Atlantic Ocean but are doing relatively poorly in Southeast Asia, Eastern Indian Ocean, and

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<sup>6</sup> U.S. Nuclear Regulatory Commission. Letter to NMFS, Request to Reinitiate Endangered Species Act Section 7 Formal Consultation for St. Lucie Plant, Units 1 and 2. February 9, 2018. ADAMS Accession No. ML18029A143.

<sup>7</sup> Seminoff JA. "Chelonia mydas." The IUCN Red List of Threatened Species 2004: e.T4615A11037468. Southwest Fisheries Science Center, U.S. Available at <<http://dx.doi.org/10.2305/IUCN.UK.2004.RLTS.T4615A11037468.en>>.

<sup>8</sup> National Marine Fisheries Service and U.S. Fish and Wildlife Service. Green Sea Turtle (*Chelonia mydas*) 5-Year Review: Summary and Evaluation. August 2007. 105 p. Available at <[http://www.nmfs.noaa.gov/pr/pdfs/species/greenturtle\\_5yearreview.pdf](http://www.nmfs.noaa.gov/pr/pdfs/species/greenturtle_5yearreview.pdf)>.

the Mediterranean. Green turtles captured at St. Lucie are part of the North Atlantic distinct population segment (DPS), which the NMFS recently down-listed to federally threatened. In the final rule designating green turtle DPSs, the NMFS estimated that this DPS contains 167,424 nesting females at 73 sites with long-term nesting data indicating increases at all major nesting sites.<sup>9</sup>

St. Lucie remains within the total annual capture incidental take limit for green turtles but has met the causal mortality limit. The collection of the five dead green turtles in January and February 2018 is most likely correlated with Hurricane Irma and subsequent issues with the turtle barrier nets and low visibility in the intake canal due to excess debris that entered the intake canal during the storm. The dead turtles may have died prior to entering the St. Lucie intake canal and were washed into the canal during the storm surge, or the individuals may have subsequently died in the intake canal due to lack of food and other resources.

Additionally, although St. Lucie remains within the incidental take limit for total green turtle captures at this time, total captures in 2018 are already approaching the total number of green turtles captured within recent years. Between January 1, 2018, and February 28, 2018, FPL has captured 161 green turtles. In the past five years, FPL has captured 182 (2017), 159 (2016), 181 (2015), 134 (2014), and 196 (2013) green turtles. Thus, while the collection of the five dead green turtles in 2018 may primarily be attributable to the hurricane event, it may also be correlated more broadly with the upward trend in the North Atlantic DPS's population. In either case, the NRC staff believes that additional captures of dead green sea turtles in the St. Lucie intake canal whose mortalities are causally related to plant operations within calendar year 2018 are possible.

#### Request to Revise Incidental Take Statement

In its February 9, 2018, letter to the NMFS, the NRC requested that the NMFS revise the incidental take statement of the March 24, 2016, final biological opinion for continued operation of St. Lucie. With this response to additional information, the NRC staff amends its previous request to include the level of allowable captures of dead green turtles causally related to plant operations. Accordingly, the NRC requests that during the reinitiated formal consultation, the NMFS revise the incidental take statement of the St. Lucie biological opinion to address the following:

- the level of allowable captures of smalltooth sawfish,
- the level of allowable captures of Kemp's ridley sea turtles,
- the level of allowable causal mortalities of green sea turtles, and
- the terms and conditions related to the testing and implementation of excluder devices.

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<sup>9</sup> 81 FR 20058. U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration. Endangered and threatened wildlife and plants; final rule to list eleven distinct population segments of the green sea turtle (*Chelonia mydas*) as endangered and threatened and revision of current listings under the Endangered Species Act. 81(66):20058-20090. April 6, 2016.

- 2. NMFS requests FPL's final report on the excluder device testing. We reserve the right to request additional information after we have an opportunity to read the final report.**

FPL provided a draft of this report, entitled *Test Evaluation Report: Test Failure of Fixed Barrier Device for St. Lucie Nuclear Plant (SLNPP) Intake Pipe Velocity Caps*, for agency review and comment on March 23, 2018. The NMFS was on the e-mail distribution for this report. As discussed during the March 22, 2018, inter-agency meeting between the NRC and NMFS staff, the relevant parties plan to meet to discuss the draft report in May 2018.