## TurkeyPoint34SLREISCEm Resource

**From:** Stanley, Joyce <joyce_stanley@ios.doi.gov>
**Sent:** Monday, May 20, 2019 5:42 PM
**To:** TurkeyPoint34SLREIS Resource
**Subject:** [External_Sender] Comments and Recommendations on the Draft Supplemental Environmental Impact Statement (SEIS) for the License Renewal of Nuclear Plants for Turkey Point Nuclear Generating Unit Numbers 3 & 4 - ER 19-0139
**Attachments:** Turkey Point Nuclear Generating Unit Nos. 3 and 4 - ER 19-0139.docx

Joyce A. Stanley, MPA
Regional Environmental Officer
US Department of the Interior
Office of Environmental Policy and Compliance
(404) 331-4524 - Office
(404) 331-1736 - Fax
(404) 852-5414 - Mobile
joyce_stanley@ios.doi.gov
http://www.doi.gov/oepc/atlanta.html

**Federal Register Notice:** 84FR13322
**Comment Number:** 1773

**Mail Envelope Properties** (CAEfS9K_fnU4g13Nsb9fxz+zKZ-bO6-5rqqqvtew8taawnNPgnQ)

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**Sent Date:** 5/20/2019 5:42:29 PM
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# United States Department of the Interior

**OFFICE OF THE SECRETARY**
**Office of Environmental Policy and Compliance**
**Richard B. Russell Federal Building**
**75 Ted Turner Drive, S.W., Suite 1144**
**Atlanta, Georgia 30303**

ER 19/0139
9043.1

May 20, 2019

Mr. William Burton
Office of Administration (TWFN-7-A60M)
ATTN: Program Management
Announcements and Editing Staff
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Comments and Recommendations on the Draft Supplemental Environmental Impact Statement (SEIS) for the License Renewal of Nuclear Plants for Turkey Point Nuclear Generating Unit Numbers 3 & 4

Dear Mr. Burton:

The U.S. Department of the Interior (Department) has reviewed the Draft Supplemental Environmental Impact Statement (SEIS) to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Subsequent License Renewal for Turkey Point Nuclear Generating Unit Nos. 3 and 4 (EPID No.L-2018-LNE-0001) Docket ID NRC-2018-010.

The Department appreciates the opportunity to be a cooperating agency with the U.S. Nuclear Regulatory Commission (NRC) in the review and development of the SEIS for the 20-year subsequent license renewal for Turkey Point Nuclear Plant, Units 3 and 4, which is located directly adjacent to Biscayne National Park (BNP) in south Florida. Florida Power and Light (FPL) has requested an extension of the operating license for the two units, with Unit 3 from 2032 to 2052 and Unit 4 from 2033 to 2053. We offer the enclosed comments on the Draft SEIS for your consideration in the development of the Final SEIS.

We look forward to continuing to work with NRC and FPL as a cooperating agency on the SEIS. If you have any questions or need additional information regarding our comments, please contact Joseph Llewellyn, Acting Superintendent, Biscayne National Park, via email at joseph_llewellyn@nps.gov, or by phone at 786-335-3634. I can be reached at (404) 331-4524 or via email at joyce_stanley@ios.doi.gov.

Sincerely,

Joyce Stanley, MPA
Regional Environmental Officer

cc: Christine Willis – FWS
Michael Norris - USGS
Steven M. Wright – NPS
Chester McGhee – BIA
Andy Imboden, Special Assistant, Nuclear Regulatory Commission
Joseph Llewellyn, Acting Superintendent, Biscayne National Park
OEPC – WASH

Turkey Point Nuclear Generating Unit Nos. 3 and 4 – ER 19-0139

**Enclosure 1**

The Department comments on the Draft Supplemental Environmental Impact Statement (SEIS) to the Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Subsequent License Renewal for Turkey Point Nuclear Generating Unit Nos. 3 and 4 (EPID No.L-2018-LNE-0001) Docket ID NRC-2018-010.

1) The Department recommends several changes to the proposed Environmental Impact ratings as shown on Table 2-2 of Draft SEIS (page 2-22). These Impact areas (resources) are listed below with the justification and recommendation for a change in rating:

**Geologic Environment**
The descriptions of geologic setting are incomplete. The geologic environment has a direct connection to the operation of the Cooling Canal System (CCS) and the ongoing surface and ground water remediation activities currently occurring on the site. The Draft SEIS does not include a description of the transmissivity of limestone or the importance of the Biscayne aquifer in the water needs of the region. The Biscayne aquifer is considered one of the most transmissive aquifers in the world and provides a direct connection for the flow of water between the CCS and Biscayne Bay through multiple pathways. Geologists have identified three types of voids occurring in Biscayne aquifer: matrix porosity, touching-vug porosity, and conduit porosity. Water flow porosity occurs primarily through the touching-vug porosity and larger conduits (Wacker et a. 2014.) Solution cavities found in the Biscayne aquifer include vertical pipes, which are approximately a foot in diameter, and larger caves (Cunniham and Lee. 2009). Several caves have been identified recently in Biscayne Bay near the Turkey Point site and are being investigated for a direct connection between Biscayne Bay and the CCS. The Department recommends changing the impact rating for the geologic setting from "Small" to "Moderate-Large" based on the aforementioned connectivity between the CCS and Biscayne Bay.

**Surface Water Resources**
The information presented is incomplete and inaccurate. The CCS connection to surface water including the surrounding wetlands and Biscayne Bay is not recognized in the document. The document incorrectly states in multiple locations that there is no connection of the CCS to surface waters, which has been described in the previous comment. The description of the CCS and its operation is also incomplete and inaccurate. In Section 3.1.3.2 of the SEIS, the water budget and CCS operations are not described, which is relevant to both the consumption of surrounding surface waters and the impact of water quality of the surrounding surface waters. Several connections to Biscayne Bay have been documented, including in a State consent order.

The water quality impact to Biscayne Bay surface waters is not adequately addressed because the state of the nutrient condition in the Turkey Point area of Biscayne Bay is not presented. The numeric nutrient criteria for Biscayne Bay is not referenced or discussed in relation to the operation of the CCS, and the water use required by the CCS in daily

operations from sources of the surrounding wetlands and Biscayne Bay is not adequately described. The Department recommends providing additional detail and analysis regarding the status and condition of surface water, and recommends changing the impact rating for surface water from "Small" to "Moderate-Large."

**Groundwater Resources**

FPL, through guidance by the Florida Department of Environmental Protection (FDEP), uses the presence of tritium to trace water movement from the CCS into surrounding areas. As tritium in natural conditions is expected to be lower than 20 pCi L-1, concentrations in sampled waters indicate higher levels that are attributable to the CCS. Groundwater sampled in a series of wells within the CCS and Card Sound show that concentrations are exceptionally higher than the background level (Figure 1). These extremely elevated levels of tritium are a clear indicator of CCS water infiltration into the bay and ultimately a signal of the adverse impacts the bay is experiencing as a result of operations of the CCS. This is further evident in the elevated groundwater samples concentrations for Total Nitrogen (TN) in Figure 2 and Total Phosphorus (TP) in Figure 3.

The Draft SEIS states that new technology established in May 2018 will limit CCS waters to the boundary of the CCS and prevent intrusion into the bay in five to 10 years and as such Groundwater impacts were identified as "small to moderate." Assumptions about the effectiveness of these remediation efforts to make predictions about future conditions introduce uncertainty. Instead, this technology should be tested and the assertion that the hypersaline plume will recede back to the boundary of the CCS should be assessed in the identified five-years. With the high levels of tritium already persisting in Card Sound groundwaters, the Department recommends changing the impact rating for surface water to "Moderate-Large."

**Terrestrial Resources**

The surrounding mangroves, and wetland areas continue to be impacted by CCS operations. Figure 3-1 from the Continuous Survey Electromagnetic (CSEM) baseline report, a survey of subsurface salinity in the region, (Appendix G of the 2018 Annual Monitoring Report) shows there are high salinity zones which are indications of CCS upwelling in the mangrove wetlands within BNP. The mangroves in this area appear visibly stressed and the cause of this stress is currently under investigation. Surrounding wetlands have abnormal hydro-periods due in part to CCS operations. Water levels, CCS operations, and effects of sea level rise in the area may have an environmental impact over the course of proposed extension. The Department recommends changing this impact rating from "Small" to "Moderate-Large."

**Visual Resources**

The proximity of the Turkey Point Plant location to BNP, BNP Visitor Center and Headquarters, and Homestead Bayfront Park is missing from Section 3.1.1 entitled, External Appearance and Setting (SEIS, Page 3-1) and only briefly mentioned in passing in last paragraph of Section 3.2. BNP supports nearly 500,000 visitors annually who

> enjoy the park for various recreational activities such as sightseeing, snorkeling, boating and fishing. The BNP Visitor Center, as well as Homestead Community Bayfront Park, have clear views of the FPL facility including Units 3 and 4. Page 3-25 of the Draft SEIS should provide additional information regarding the proximity of Turkey Point to BNP, the benefits of BNP to the local economy and communities, and a description of the visual impact of seeing the FPL facility from the water within BNP. The Department recommends changing the impact rating for this topic from "Small" to "Moderate."

2) Cooling and Auxiliary Water Systems – An accurate and thorough water budget is necessary to identify all sources and losses of water to understand the full impact of the operations of the CCS. Section 3.1.3.2 of the SEIS describes the operation of the CCS as "closed," which is inaccurate as described previously. The salt within the system comes from the ocean and is a clear indication of water flowing into the CCS from Biscayne Bay while the salt plume beneath the system in the Biscayne Aquifer is an indicator of the free flow of water out of the system into the surrounding environment. Using the term "closed" when these two connections are clearly known is a mischaracterization of the system misrepresentation of the conclusions of the SEIS. The presence of a water budget within the Final SEIS would greatly clarify this situation and provide a sound basis for determining impacts.

A brief history of the operations of the CCS and some of the difficulties that have been observed should be included in the SEIS. For example, in the application for the first license extension, which included power uprate of Units 3 and 4, FPL incorrectly predicted that there would be no impact on the operation of the CCS. This prediction was incorrect and while there is some argument over the specific cause, the immediate result was higher than expected temperature and salinity in the CCS. A variance on temperature was necessary to remain in operation and, to this day, we understand that the CCS remains reliant on additions of water in order to reduce salinity, control temperature, and continue to operate.

3) Water Quality Impacts Biscayne Bay – The numeric nutrient criteria, established by the Florida Department of Environmental Protection, does not appear to be taken into account when scoring the impacts to surface water resources in Biscayne Bay in the EIS. Review of these nutrient criteria over the past few years shows that Total Nitrogen (TN) and Chlorophyll-a (Chl-a) have exceeded these criteria. Calendar year 2017 is a prime example of these conditions. Monitoring for the Turkey Point Cooling Canal System (CCS), shows that TN concentrations in the surrounding canals were greater than the TN numeric criterion (0.33 mg $L^{-1}$) by as much as three times (Figures 4 and 5). Similarly, sample locations established as transects from the east side of the CCS within Card Sound, all show TN concentrations that exceed the criterion with the highest values found in the locations closest to the CCS (Figure 4). Transects established from the east boundary of the CCS into Card Sound also show that Chl-a concentrations exceed the criterion (Figures 6 and 7). Given these elevated bay conditions appear to be linked via groundwater transport (see comments in the groundwater section) to the CCS, the rating established in Table 2-2 appears to underestimate the existing impacts of the CCS on Card Sound and the score, based on existing data, should be elevated to "Large."

4) Combination Alternative (Natural Gas Combined – Cycle and Solar) Section 2.2.2.3 – If FPL creates solar power generation facilities, impacts to birds would be a concern as bird deaths from solar arrays in other areas reach thousands per year. BNP is in the Atlantic migratory bird flyway, and has a designated as an Important Bird Area due to its significant population of protected species and its migratory stopover habitats (https://www.audubon.org/important-bird-areas/biscayne-bay). If this alternative is selected, impacts to birds at Turkey Point would affect populations of these species well outside the project area. Therefore, it is critically important that any potential solar facilities follow recommendations for reducing avian mortality, such as "clearing vegetation around solar towers to make the area less attractive to birds, retrofitting panels and mirrors with designs that help birds realize the solar arrays are not water, suspending operations at key migration times, and preventing birds and bats from roosting and perching at the facilities." (https://www.scientificamerican.com/article/solar-farms-threaten-birds/) Best management practices may reduce but likely will not eliminate this impact. Therefore, we recommend that the SEIS evaluation of environmental impacts from the proposed solar facility include specific ratings on avian mortality, particularly in this important habitat.

5) Wildlife Section 3.6.2 – Alternatives that affect listed species also indirectly impact wildlife in the adjacent BNP. For example, American crocodiles that hatch inside FPL-owned property often spend juvenile years inside NPS boundaries, contributing to the ecosystem there. Similarly, Least Terns that nest on FPL property are observed foraging in park waters. Efforts to reduce wildlife mortality (such as keeping temperatures low enough in the cooling canals to sustain American crocodiles) will help sustain park wildlife. Minimizing boat (including barge) traffic and any nearby construction activity during Least Tern nesting season would reduce disturbances to this colony, one of the largest ground-nesting colonies in eastern Florida.

The SEIS states in this section (bottom of page 3-89) that FPL conducted bird surveys on May 23, 2016. This is late in the year and would not accurately capture the presence of spring migrant species or nesting species. We recommend FPL conduct early-morning avian surveys in late April and early May and include this information in the SEIS.

6) Table 3-7 – The Department suggests changing the name of "screen owl" to its correct name of Eastern screech owl and adding Northern mockingbird, blue jay, Northern cardinal, mangrove cuckoo, yellow-billed cuckoo, black-bellied plover, red knot (a federally-listed species), whimbrel, Western sandpiper, least sandpiper, laughing gull, ring-billed gull, great black-backed gull, lesser black-backed gull, downy woodpecker, and the full suite of eastern warblers (black-and-white, American redstart, black-throated blue, etc.) to the list of migratory birds likely to occur at Turkey Point.

7) Important Habitats, Section. 3.6.3.3 – Please change the name from "Biscayne Bay National Park" to "Biscayne National Park." Additionally, the Department recommends adding information regarding BNP's significance as being designated as an Important Bird Area (https://www.audubon.org/important-bird-areas/biscayne-bay).

8) Section 3.7.2 – The Department suggests adding information to this section that identifies the southern part of Biscayne Bay hosting its own family group of bottlenose dolphin (*Tursiops truncatus*).

9) Section 3.10.3 – The Department suggests adding information that identifies the closest residential area to Turkey Point as the Convoy Point housing at BNP headquarters.

10) Noise Sections 4.3.3.2, 4.3.4.2, 4.3.5.2, 4.3.6.2 – Construction noise could impact nesting activity at the nearby least tern colony. The Department recommends consideration of mitigation measures that include limiting construction in the vicinity of the colony to non-breeding season months.

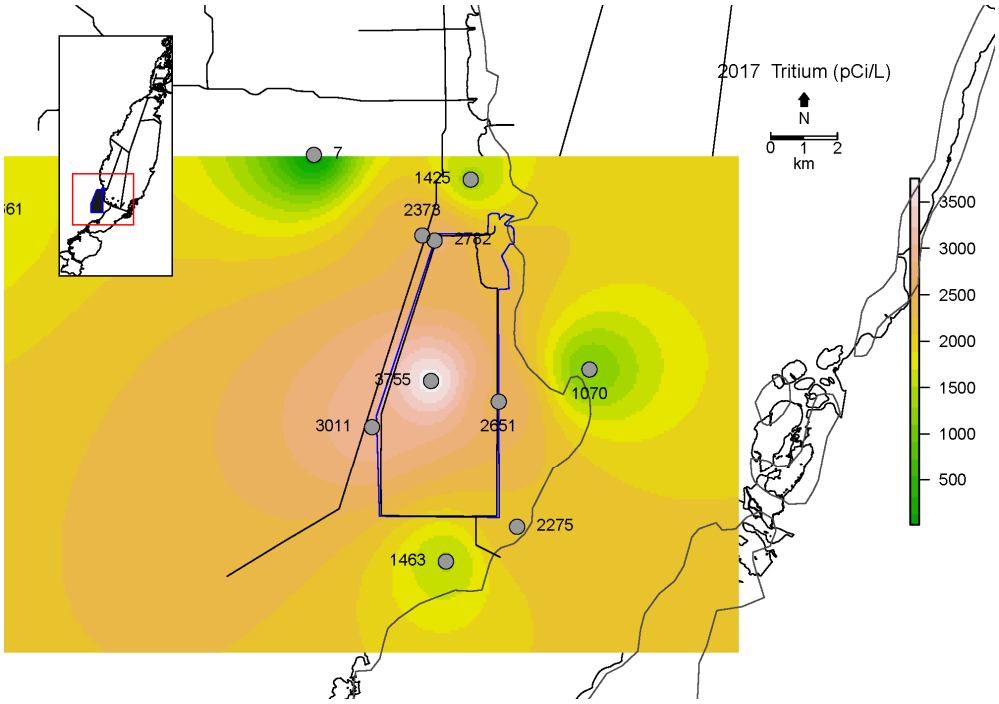


**Figure 1**. Groundwater tritium concentrations in the Turkey Point Cooling Canal System, adjacent areas, and within the Card Sound region of Biscayne Bay.

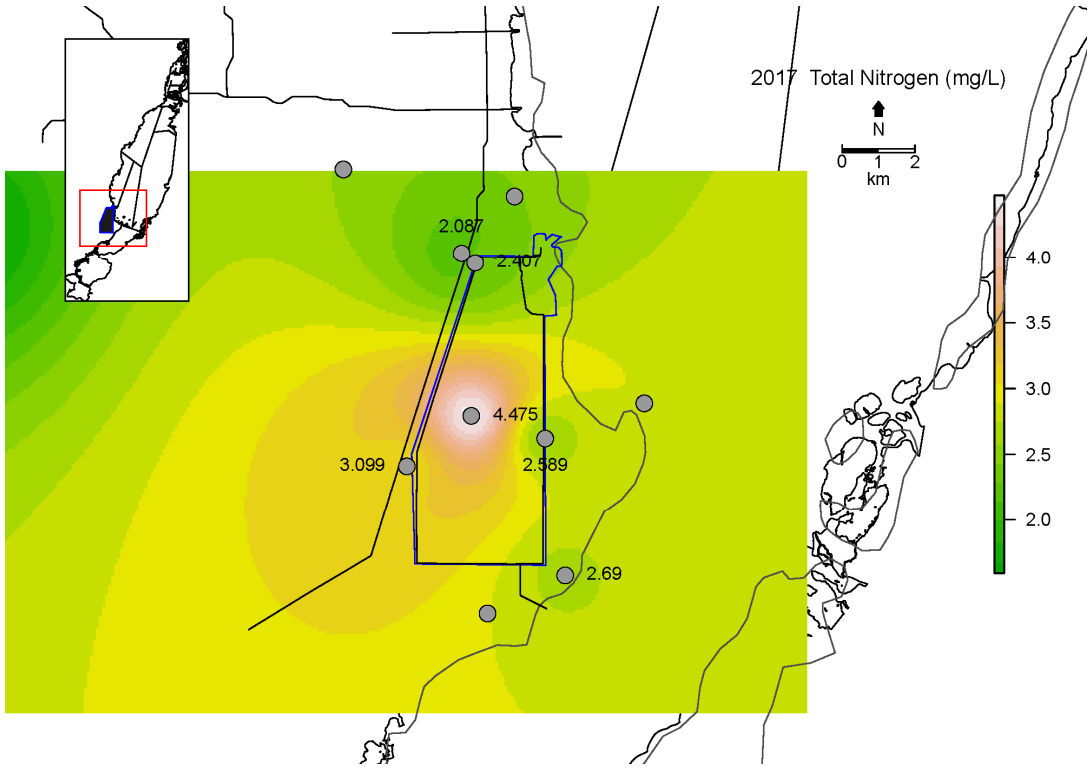


**Figure 2**. Groundwater total nitrogen concentrations in the Turkey Point Cooling Canal System, adjacent areas, and within the Card Sound region of Biscayne Bay.

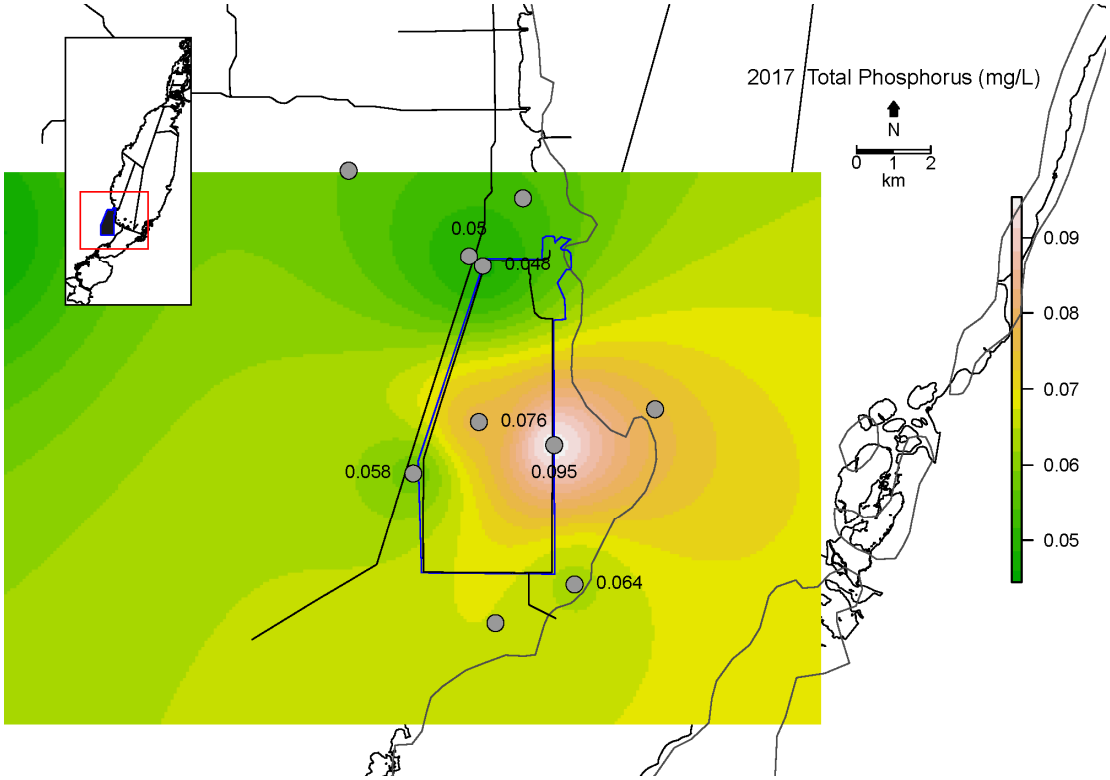


**Figure 3**. Groundwater total phosphorus concentrations in the Turkey Point Cooling Canal System, adjacent areas, and within the Card Sound region of Biscayne Bay. Points with no number indicates a missing sample.

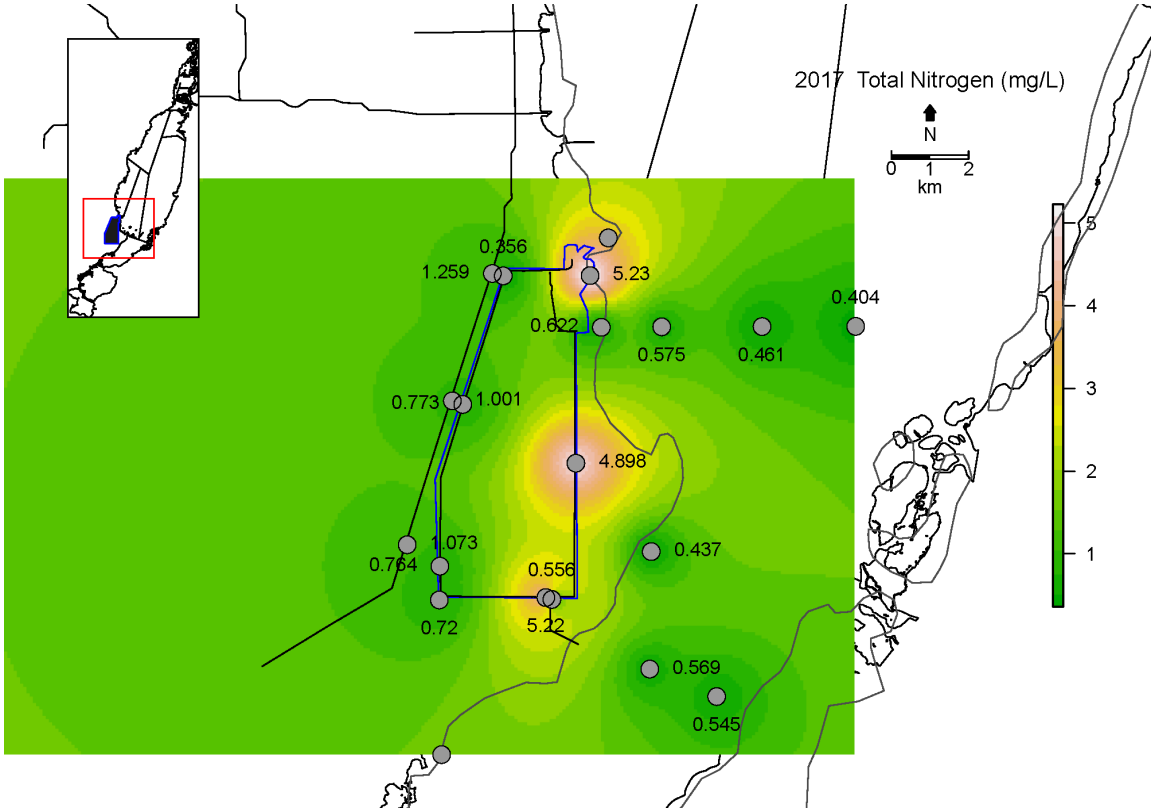


**Figure 4**. Total nitrogen in Turkey Point Cool Canal System and adjacent surface water in Card Sound region of Biscayne Bay.

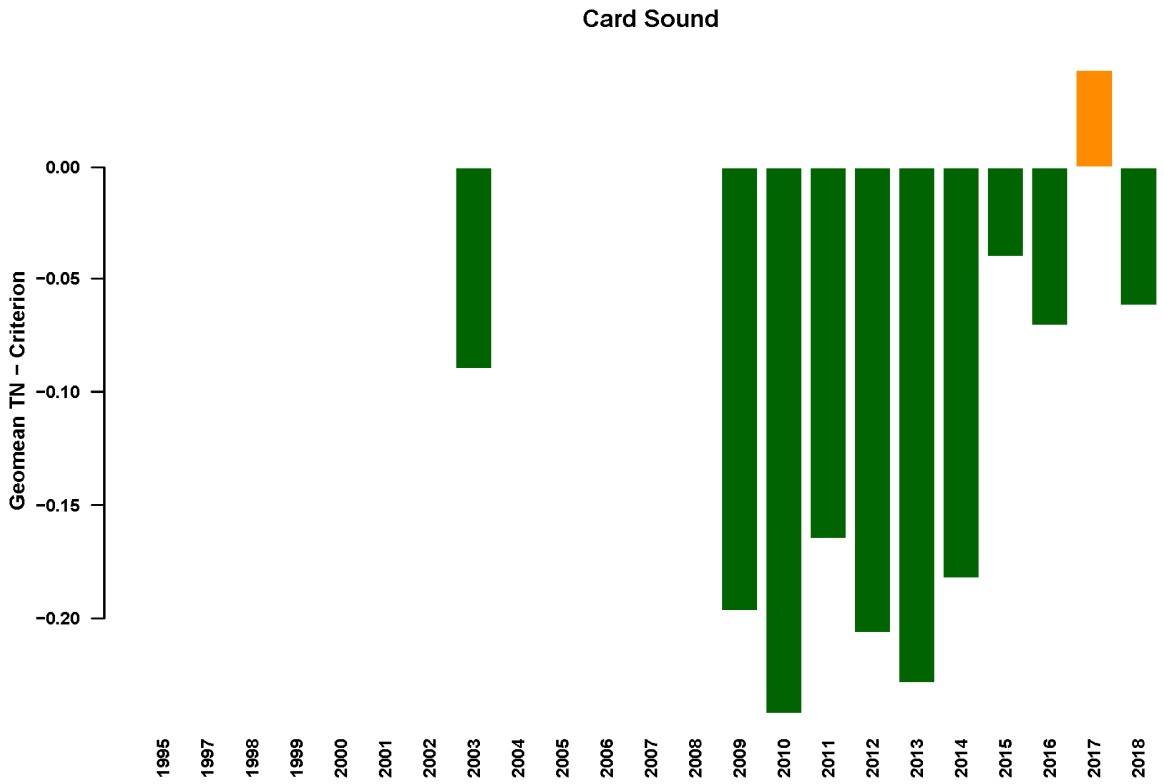


**Figure 5**. Total nitrogen compliance determination relative to the total nitrogen numeric criterion (0.33 mg $L^{-1}$) for Card Sound. Yellow bars indicate the criterion was exceeded and green bars indicate the criterion was met.

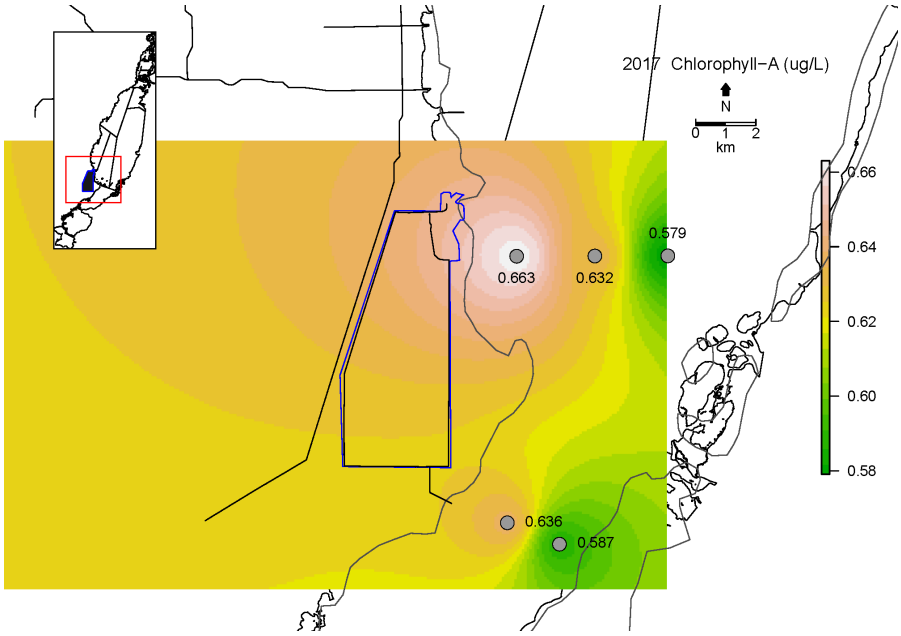


**Figure 6**. Chlorophyll-a concentrations as transects from eastern boundary of the Turkey Point Cooling Canal System into the Card Sound region of Biscayne Bay.

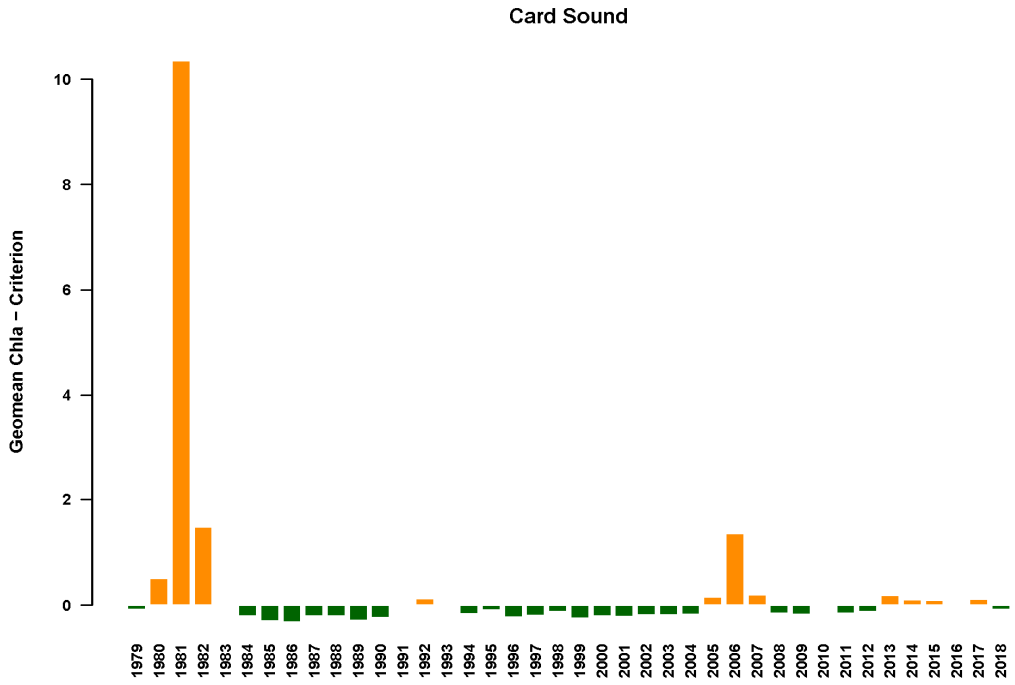


**Figure 7**. Chlorophyll-a compliance determination relative to the chlorophyll-a numeric criterion (0.5 □g $L^{-1}$) for Card Sound. Yellow bars indicate the criterion was exceeded and green bars indicate the criterion was met.