



United States Department of the Interior



NATIONAL PARK SERVICE
Southeast Regional Office
Atlanta Federal Center
1924 Building
100 Alabama St., SW.
Atlanta, Georgia 30303

IN REPLY REFER TO:
SER-PC

JUL 23 2015

Ms. Cindy Bladey
Chief, Rules and Directives
Office of Administration, Mail Stop: OWFN 12 H8
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Col. Jason Kirk
District Commander
U.S. Army Corps of Engineers
701 San Marco Boulevard
Jacksonville, Florida 32207

Handwritten notes: 3/15/2015, @ FR 12043, 178

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Dear Ms. Bladey and Colonel Kirk:

The National Park Service submits the following detailed technical comments and information, included herein as Enclosures 1 and 2, as part of our review of the U.S. Nuclear Regulatory Commission and the U.S. Army Corps of Engineers Draft Environmental Impact Statement for Combined Licenses for Turkey Point Nuclear Plant Units 6 and 7 proposed by Florida Power & Light. These comments should be considered in addition to previous comments submitted on July 17, 2015.

Thank you for considering our comments and taking our views into careful consideration. Please contact Bryan Faehner at bryan_faehner@nps.gov or 202-513-7256 if you have any questions or concerns about our comments.

Sincerely,

Handwritten signature of Stan Austin

Stan Austin
Regional Director

Enclosures (2)

- 1. Specific NPS Comments Related to NRC and USACE Draft Environmental Impact Statement for Combined Licenses for Turkey Point Nuclear Plant Units 6 and 7

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Add= A. Williamson (ARW1)

2. NPS Statutes, Policy, and Park-Specific Information

- cc: Mark S. Delligatti, Deputy Director, Division of New Reactor Licensing, U.S. Nuclear Regulatory Commission
Alicia Williamson, Project Manager, U.S. Nuclear Regulatory Commission
Manny Comar, Project Manager, U.S. Nuclear Regulatory Commission
Audrey L. Klett, Project Manager, U.S. Nuclear Regulatory Commission
Tori White, Deputy, Regulatory Division, U.S. Army Corps of Engineers
Christina D. Storz, Assistant District Counsel, U.S. Army Corps of Engineers
Megan Clouser, Senior Project Manager, U.S. Army Corps of Engineers
Cindy Dohner, Regional Director, U.S. Fish and Wildlife Service
John M. Wrublik, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service
Patrick A. Pitts, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service
Virginia M. Fay, Assistant Regional Administrator, NOAA National Marine Fisheries Service
Jocelyn Karazsia, Fishery Biologist, NOAA National Marine Fisheries Service
Heinz Mueller, NEPA Program Office, U.S. Environmental Protection Agency
Jess Weaver, Southeast Regional Director, U.S. Geological Survey
Donald Jodrey, Senior Advisor to the Assistant Secretary for Fish, Wildlife, and Parks, Department of the Interior
Brian Carlstrom, Superintendent, Biscayne National Park
Pedro Ramos, Superintendent, Everglades National Park

Enclosure 1 - Specific NPS Comments Related to Nuclear Regulatory Commission (NRC) and U.S. Army Corps of Engineers (USACE) Draft Environmental Impact Statement (DEIS) for Combined Licenses for Turkey Point Nuclear Plant Units 6 and 7

The National Park Service provides the following detailed technical comments regarding the determinations reached in the DEIS. Based on our review of the DEIS, the NPS has identified updated information relevant to environmental concerns that were not included in the DEIS and need to be addressed to more fully incorporate environmental impacts of the proposed action into the decision-making process. The following issues should be considered in the revised document:

1) Water Modeling

Numerous DEIS assessments rely upon coarse-scale hydrologic models, whose scale and extent were too large to adequately determine localized environmental effects of the proposed action on NPS resources. Although the models utilized by the NRC answered some questions related to the effect of the proposed action on the regional hydrologic system, the scale of the model used by the NRC in conducting its impact assessment is not fine enough to effectively evaluate impacts to NPS resources located with portions of Biscayne NP from the removal or moderation of freshwater along the shoreline of the park, the removal of water within the park through groundwater withdrawal at the RCWs, and the potential for direct adverse impacts at the site of withdrawal on seagrass beds and seagrass faunal and benthic communities. The DEIS recognizes that each of the models used to evaluate the effects of the Unit 6 and 7 construction and operation (especially RCW operation) has shortcomings that result in significant uncertainty in the modeling results. In part, this limitation stems from model calibration, with crucial data being derived from a single, seven-day Aquifer Performance Test. During this non-replicated, short-term test, pumping rates were less than 10% of that proposed for the RCW and some monitoring equipment failures occurred. Given the variability of watershed and marine hydrologic conditions, additional tests were needed in order to better calibrate models and produce sufficiently accurate simulations.

The DEIS was informed by two hydrologic models developed by Florida Power and Light (FPL) and the U.S. Geological Survey (USGS):

FPL Model

The FPL model is a local (fine) scale, constant density groundwater model. Given the wide range of water body densities in the region (including low density freshwater, mesohaline-marine bay water, and hypersaline Industrial Wastewater Facility (IWF) water), this model could not simulate the effect of proposed Unit 6 and 7 construction and operations on saltwater movement in the Biscayne Aquifer, salinity in Biscayne Bay, and regional surface-water and groundwater levels. Consequently, the NRC commissioned additional modeling by the USGS.

USGS Model

The USGS model is a regional model, with a model grid too coarse to accurately simulate conditions within and under the IWF or adjacent to the RCWs. The model's accompanying report identified limitations that included: 1) the sizing of the model cells in 500 x 500 grids; 2) simulating surface water as a single layer with a single salinity value; and 3) an inability of the model to track the ultimate sources of water that flow to the RCWs. The report recommended

that finer spatial discretization and additional evaluation tools, such as particle tracking, were needed to estimate and evaluate RCW water sources, and that additional simulations of extreme dry periods, wet periods, and effects from regional restoration efforts were needed in order to fully represent RCW effects on the system.

This model utilized calibration data from 1997-2004; however, newer groundwater data is available that would improve model calibration and validation. This data includes:

- Salinity, temperature, and depth data collected at 15-minute intervals as part of the NPS salinity monitoring network;
- Data from South Florida Water Management District (SFWMD) Comprehensive Everglades Restoration Plan (CERP) wells in the area;
- Conductivity, temperature, and depth data collected hourly as part of the Turkey Point Units 3 and 4 Uprate Monitoring efforts.

These data show that average values do not represent the conditions that most affect biota in Biscayne Bay, which is better represented by finer scale hourly to daily salinity and temperature values. The modeling used to evaluate impacts from the RCWs would be improved to the appropriate scale for the necessary applications by calibrating with the available 15 minute salinity data from the Bay. The groundwater model would be improved if it used data for calibration and validation from groundwater wells installed as part of the Turkey Point Units 3 & 4 Uprate Monitoring which would improve the ability of the model to more accurately predict the effects of the proposed action on adjacent natural resources. These wells are located at shallow medium and deep locations in the Biscayne Aquifer. They are numbered 1-15 and are located through the model domain from just west of US highway 1 to three clusters located in Biscayne Bay (10, 14, 15). They provide hourly data for conductivity temperature and depth. Empirical findings from past work, such as the distribution and trends of tritium concentrations, have established that IWF waters are found in near-surface shallow groundwater (25 to 30 ft. deep) in wetlands adjacent to Biscayne Bay (Figure 1). The NPS is concerned that since this is the same depth at which RCW intake pipes are expected to be located, that it is possible for IWF water to impact resources within Biscayne National Park (NP).

The NPS recommends that the NRC utilize improved model extent, model scale, and model calibration to accurately evaluate the appropriate spatial extent of these potential impacts to better characterize operations of the RCWs and the relative localized impacts of resulting movement of the hypersaline plume on surface waters and ground waters in the park and under the IWF, as well as the relative effects of sea-level rise on operations of the RCW system. This improved analysis will provide better information as to the effect of the proposed action in terms of changes in salinity and other impacts to near shore resources that occur within Biscayne NP in the vicinity of the RCWs.

2) Evaluation and Analysis of the Extended Operation of the RCW

The NPS is concerned about the potential for adverse impacts to park resources from continued and extended operation of the RCWs, particularly operating scenarios involving either the combination of RCW water with the primary wastewater supply or using RCW water in place of reused wastewater for the primary source of cooling. It is reasonably foreseeable that future wastewater supplied for reuse by Miami-Dade County may have unforeseen limitations. For

example, sea-level rise and saltwater intrusion could decrease the availability and raise the cost of this water supply – a risk that was not assessed in the DEIS. As stated in the DEIS (page 3-9, lines 1-9), FPL intends to use RCW water in combination with wastewater or as a replacement for wastewater should it become less available or unavailable in the future. More specifically, the NPS is concerned that the DEIS does not contain information to evaluate whether the operation of the RCW could draw the subterranean hypersaline plume further eastward into Biscayne NP.

Although the model spatial resolution may be too coarse to describe local impacts, results indicate the potential for RCW operation to affect the regional hydrologic system within the boundaries of Biscayne NP and Biscayne Bay Coastal Wetlands (BBCW) restoration project. The model report shows that continuous pumping scenarios yielded year round effects on water stages and salinity, especially to the northwest of the RCW site. In addition, all USGS model scenarios of RCW effects assumed that waters within the IWF, also known as the cooling canal system, had a constant salinity of 65 psu. Recent IWF salinity, following implementation of the uprate of Units 3 and 4, has risen to 90 psu and FDEP recently ordered actions (water additions to the IWF) to decrease salinity to 35 psu. Such action will increase head pressure difference and decrease the salinity and density difference between IWF and Biscayne Bay waters, possibly increasing RCW operational influence on transporting water from the IWF waters toward the bay which in turn could affect resources of Biscayne Bay NP.

The NPS recommends that additional scenarios that extend the period of RCW operation and that vary IWF stages and salinity should be assessed with an appropriately scaled model to quantify this uncertain risk to Biscayne NP. This analysis should include an adequate assessment of how these operations could affect freshwater availability for current and future BBCW restoration projects.

3) Evaluation of Water Quality Impacts and Associated Cumulative Impacts from the IWF

The NPS is concerned that the DEIS does not fully analyze water quality impacts to NPS resources, especially cumulative impacts associated with the IWF. Recent developments relating to the operation of the IWF and subsequent environmental concerns were not analyzed in the DEIS. The hyper-salinity and temperature in the IWF, including the use of regional system water under recent orders and actions now underway to address this issue, must be evaluated as part of the past, present and future cumulative impacts. These recent actions of increased withdrawals from the regional system have currently decreased the amount of freshwater going to Biscayne NP and Biscayne Bay. This information should be included in a revised DEIS along with appropriate adjustments to impact assessments that include this updated baseline condition. Additionally, the levees surrounding the IWF are relatively low in height. Therefore, the transport of high salinity and high temperature IWF water into Biscayne NP and Biscayne Bay with sea level rise and storm conditions should be considered in an updated analysis related to the effect of anticipated sea level rise.

We are concerned that operation of the RCWs has the potential to affect the salinity of Biscayne Bay. Ecological responses to salinity depend upon both the magnitude and variability of salinity exposure. The CERP is attempting to restore both of these components by decreasing high

salinity peaks in the dry season and changing the seasonal timing of low salinity (extending low salinity well into the dry season, and decreasing harmful rapid drops in salinity). For BBCW, there is particular focus on salinity in the near-shore zone within 500 meters of the shoreline, where hypersalinity and high variability occur. The modeling in the DEIS demonstrated that RCW operations influenced salinity at a broad spatial scale. However as described previously, modeling salinity variability at a finer scale would provide more insight into localized potential ecological effects in southern Biscayne Bay. For these reasons, the NPS recommends that additional modeling be conducted to include more recent salinity data, assumptions concerning redistributed freshwater flow into the park as a result of the BBCW Project, and at an appropriate scale to determine the extent to which RCW operations will effect salinity changes and have potential adverse impacts to resources in near-shore coastal waters of Biscayne NP.

The DEIS concludes that changes in the hydrology and chemistry of the IWF caused by construction of Unit 6 and 7 will not impact Biscayne NP and Biscayne Bay. We have concerns regarding the methodology used to draw this conclusion and how pulses of nutrients and dissolved organic matter from dewatering and stored muck could potentially move toward the bay, thereby increasing the risk of near-shore algal blooms. Our concerns regarding the impact of Units 6 and 7 construction activities are now heightened by changes in IWF hydrologic management. These construction activities, when combined with planned freshwater or brackish water additions from canals and the Florida aquifer, intended to decrease IWF salinity, will raise water levels in the IWF. This will change both head and density differences among water parcels of the IWF, groundwater, and bay water, changing patterns of advection and dispersion and associated water quality risks. This scenario was not evaluated in the DEIS. The NPS is concerned that these changes in water levels, combined with nutrient and other material inputs from construction, will significantly increase the risk of industrial waste water and materials being transported or dispersed into adjacent Biscayne NP and Biscayne Bay, consequently increasing the risk of ecological impacts.

Release of Chemicals of Emerging Concern (CECs)

The NPS has a number of questions/concerns relating to the release of CECs originating from reclaimed water and released via the operation of Units 6 and 7 onto the Turkey Point facility and into Biscayne NP and how they are analyzed in the DEIS:

Page 5-10

- Lines 19-20: The DEIS states, "This conservative approach assumes no loss of contaminants via removal ..., biodegradation, or volatilization." Since biodegradation of some compounds (e.g., 4-nonylphenol, triclosan) can result in more toxic compounds than the parent compound, we suggest that more information be included along with additional discussion of how biodegradation of contaminants are affected by drift deposition.
- Lines 30-31: The DEIS states that "... the review team first performed a screening-level assessment to identify chemicals and constituents likely to occur at ecologically relevant concentrations in both reclaimed water and Biscayne Bay seawater obtained from the RCW system." NPS requests an explanation of how the review team determined which chemicals and constituents were likely to occur at ecologically relevant concentrations; how these concentrations were determined; and how the review team determined which species and which endpoints to use for these ecologically relevant concentrations. Revisions to the DEIS

should include an outline of the screening-level assessment process in addition to the information regarding these questions.

- Lines 41-44: The DEIS states, "...were compared to existing EPA freshwater and marine water-quality criteria, which are readily available for many compounds and believed to be protective of aquatic life." Were freshwater water-quality criteria applied to marine species if marine water-quality criteria were not available? Lines 22-25 on p.5-53 highlight this possibility. If this was done, the screening-level assessment needs to be conducted again since the toxicity of compounds are greater in seawater and brackish waters than in freshwater.

Page 5-11

- Table 5-1 contains footnote (c) that indicates the contaminant with the lowest environmental effect concentration. However, there does not appear to be a contaminant (or concentration) annotated with a (c) in the table.

Page 5-51, Section 5.3.1.6, Summary of Impacts to Terrestrial Resources

- Lines 2-5: The DEIS states, "Salinity within the IWF or other area wetlands would not change enough to alter prey populations consumed by wading birds. Deposition of emerging pollutants ... would also be below levels expected to affect the terrestrial ecosystem." There is insufficient information provided in the DEIS to be able to make such a conclusion. While salinity may not have an effect on prey populations consumed by wading birds such as the Wood Stork, reclaimed water put back into the IWF, as well as the addition from the drift, may have an effect. Some of these contaminants are endocrine disruptors, which cause effects such as immune suppression and developmental and reproductive effects at very low concentrations. The DEIS should include additional discussion about contaminants in the reclaimed water that not only exceed toxicological benchmarks and EPA water quality criteria, but also those that bioaccumulate. These contaminants have the potential to not only impact the wood stork and crocodile, but other species foraging in the project area as well.

Page 5-60.

- Lines 14-18: The DEIS states, "When toxicological benchmarks were used, no-observed effect concentration (NOEC) levels were chosen for sensitive, representative aquatic species to provide a conservative assessment." How is sensitive defined here and how were the most representative aquatic species determined? For what endpoints (e.g., growth, reproductive success, mortality, etc.) were the NOECs selected and for what period of time (e.g., 96-h, 7-d, etc.)? Depending on the answers to these questions, the NOECs selected may NOT provide the most conservative assessment. Revisions to the DEIS should include a discussion regarding this topic.
- Lines 21-24: The DEIS states, "For chemicals without established water-quality criteria, including most CECs, those present at >1/10 of a toxicological benchmark chosen by the review team to be protective of aquatic resources were included in the fate and effects evaluations (Table 5-4)." How were these toxicological benchmarks selected and what criteria were they based on? How were selected benchmarks determined to be protective of aquatic resources? Specifically, what aquatic resources were included in the above benchmark selection process? Revisions to the DEIS should include a discussion regarding this topic.

- This section does not discuss the impacts of contaminants on species present in the mangrove wetlands. This type of habitat is known to be a nursery for a multitude of fish species and two, if not three, of the contaminants mentioned in Table 5-1 are endocrine disruptors (EDCs). Only very small concentrations of EDCs are needed to cause developmental effects and potentially reproductive effects.

Page 5-136

- Table 5-23 (under the Terrestrial Ecosystems) states, "Herbicide use would be in accordance with manufacturer specifications and carried out by licensed applicators." Additionally under the Aquatic Ecosystems heading, the DEIS states "... procedures would include adherence to strict guidelines established by Federal, State, and local resource agencies regarding the use of herbicides." However, the document does not identify which herbicides would be used, when would they be used, how often would they be used, how they would be applied, if more than one herbicide would be used at a time or in conjunction with other chemicals, or whether any of the herbicides proposed for use have aquatic labels and will be applied over water, including any wetland. Revisions to the DEIS should address these questions and discuss known potential interactive effects of these chemicals.

Page 5-140

- Table 5-24 (under Aquatic Ecosystems) states, "The use of reclaimed water from Miami-Dade County to operate the cooling system would not result in noticeable impacts on onsite and offsite aquatic resources." How was this determined? The revised DEIS should discuss known potential interactive effects of these chemicals not only with other pesticides, but also with other chemicals expected to be present from drift or other means. (See comments above regarding EDCs and their effects.) Revisions should include a discussion of the contaminants present in the reclaimed water, their environmental fate and transport and their potential environmental effects.

4) Evaluation of Sea-Level Rise, Future Hurricanes and Storms, and Climate Change Impacts

The NPS is concerned that the DEIS does not include a sufficient analysis of how sea-level rise, hurricanes and storms, and climate change may impact the proposed project and NPS resources affected by these changing conditions. These potential environmental impacts should be included in the DEIS. The DEIS does not include an analysis of sea-level rise as it pertains to the proposed action or the present facility, and its conclusions do not contain information which would indicate the effect of sea-level rise, including hurricanes and storms, demonstrating the potential effect on park resources. As discussed earlier, the concerns related to the IWF include the transfer of IWF water into the bay as a result of storm surge, including hurricanes.

As the NRC and USACE are aware, there is a broad range of sea-level rise projections for South Florida. While predicted sea-level for the life of the project varies, projections agree about one key feature – sea-level is rising and it will continue to rise at an increasing rate. Most importantly, sea-level rise at a particular site is not a smooth, steady rate of increase, but rather it will be varied and include pulses from climatic events (notably storm surge from hurricanes) that could connect, as noted earlier, the IWF with Biscayne Bay and release pollutants from the IWF

and other facilities that are not elevated and strongly reinforced. The DEIS currently has no analysis or discussion of the impacts on movement of materials (especially toxic materials, nutrients, and turbidity) from the Units 6 and 7 to Biscayne NP and Biscayne Bay that may occur with hurricanes, storms, and storm surge on the site. The impact of these higher, more forceful storm surges must be evaluated.

The rate of sea-level rise in the region of the IWF is currently 2.4 mm/year and increasing. Projections by the Intergovernmental Panel on Climate Change (IPCC Fifth Assessment, 13.5, 2013) show coastal water levels gaining between 0.40 and 0.63 m by the end of the century, with related increases in coastal erosion and additive impacts on storm surge. Additionally, sea-level in Miami is directly affected by the flow rate of the Florida Current / Gulf Stream system. Reductions in flow rate and associated increases in sea-level along the East Coast of North America above the global sea-level rise rates are predicted for this system. At a minimum, a monitoring and adaptive management program that tracks local sea-level, measures connectivity between the IWF and the Bay, and acts to minimize risk from IWF contaminants to Biscayne NP (by decreasing these contaminants and the connectivity between the IWF facility and Bay waters), should be in place.

Although the DEIS generally acknowledges that there is a range of potential sea level rise of 1 to 4 feet by the end of this century (the U.S. National Climate Estimate predicted up to 6.6 feet), there is no analysis of the impacts of even within this range of sea-level rise on the Turkey Point Facility, its infrastructure, IWF, or access roads. The DEIS contains no elevation comparisons with the estimated sea-level rise, showing how much of the site land would be lost under the estimated sea level rise scenarios. The analysis needs to consider how this land loss would affect plant operations. The NRC should analyze whether the plant will be able to operate under these various sea level scenarios and, if so, how environmental risks vary with differing operational and sea-level scenarios. Sea-level rise assessment should also include consideration of the South Miami-Dade Waste Water Treatment Plan, as this facility is proposed as the primary source of cooling water for the proposed Units 6 and 7.

Draft climate change guidance from the Council for Environmental Quality (CEQ) on how to consider the effects of greenhouse gas emissions and climate change in the evaluation of federal actions, as well as, guidance related to sea level rise and siting infrastructure from National Oceanic and Atmospheric Agency (NOAA) are available. Further guidance on this subject is provided by USACE Engineering and Construction Bulletin No. 2014-10 "*Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects*"; Regulation No 1100-2-8162, "*Incorporating Sea Level Change in Civil Works Programs*"; and ETL 1100-2-1 Technical Letter 1100-2-1, "*Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation*." The NPS recommends that NRC review these documents and update the DEIS as appropriate to account for climate change/sea level rise.

The DEIS should include assessment of how climate change and sea-level rise vulnerability changes risks associated with the proposed project and its long-term operations both in the analysis of alternatives as well as cumulative impacts. In this evaluation, climate change and sea-level rise related risks are dismissed as a criterion for risk assessment, with a statement (page 9-41) that equates the risk of all alternatives: "The inland alternative sites could experience fewer impacts from sea-level rise, but may also experience greater impacts from other climate change indicators, such as rising temperature."

Because the NPS is required to manage parks for "future generations," we recommend that a revised DEIS provide more detail as to how radioactive waste would be stored before and after the forty-year license expire. Storing hazardous waste adjacent to Biscayne NP indefinitely poses great concern, especially because the region will face increased storm events and possibly more intense resulting from climate change and sea-level rise and it is unclear whether the storage facilities are capable of withstanding increased storm events resulting from climate change and sea-level rise.

The NPS acknowledges that a storm-related analysis may be contained in the NRC's Safety Report and will not receive a public review. To increase transparency with the public, this information should be clearly articulated in revisions to the DEIS. We recognize the NRC may be constrained by their regulations and guidance to include applicable environmental information in their DEIS.

5) Analysis of Visual, Lighting, and Noise Impacts

The DEIS does not sufficiently analyze impacts to NPS scenery, night skies, nocturnal habitat, acoustic environment and wildlife health to determine impacts to these resources and values. Effects to these resources are of particular importance to the NPS because they affect wildlife movement and habitat use, and the visitor experience within both NPs. NPS recommends NRC update its analysis of impacts to these resources and values, as well as, develop photo simulations.

As discussed, the DEIS virtually dismisses the visual impacts of the plant construction, plant profile, powerline corridor and other powerline infrastructure on Biscayne and Everglades NPs. Moreover, we contend that the computer illustration of the facility found in the DEIS is inadequate and that a full visual analysis that include photo simulations is warranted. As a result, the NPS and the public have not been able to assess how this major energy project will impact the viewscape at Biscayne and Everglades NPs. Photo simulations are routinely completed for environmental reviews relating to energy infrastructure and are a critical component that informs the NEPA process as to the relationship of people with the natural and physical environment. The NPS requests that a visual analysis be included in a revised DEIS that includes development of photo simulations of the proposed project and examines the visibility of project components and the level of change in the existing landscape.

The NPS is happy to collaborate with the NRC to identify important vantage points from within Biscayne and Everglades NPs for these simulations. Based on our experience working with other agencies, we can also share with you our suggested guidelines on site photography, simulations, and output. Furthermore, the NRC can utilize photo simulations included in the NPS's Acquisition of FPL land in the East Everglades Expansion Area DEIS. FPL's Eastern Corridor would include the addition of a 230 kV (up to 90 ft. tall) powerline. The Eastern Corridor crosses a portion of Biscayne NP along a FPL easement and crosses the road

¹ 40 CFR part 1508.14

leading to the entrance to the park's visitor center. The conclusion that locating the Eastern Corridor along U.S. Highway One and the metro rail line would result in minimal visual impacts is unsubstantiated. FPL's West Preferred and West Consensus corridors cross lands located within and near the Everglades NP boundary. Either route would contain two 500 kV transmission lines (up to 160 ft. tall) and one 230 kV (up to 90 ft. tall) powerline. Importantly, the NPS's Acquisition of FPL land in the East Everglades Expansion Area DEIS found that the construction and operation of three powerlines and associated fill pads and access roads in West Preferred Corridor would result in minor to major impacts on park visual resources.

If powerlines are built in FPL's West Preferred Corridor, they would be located west of the L-31N levee road on roadless wetlands currently inside Everglades NP (not east of the canal on SW 187th Ave). The NPS DEIS found that the introduction of three powerlines, fill pads, and access roads inside the current NPS boundary would result in minor to major adverse impacts on visual resources. The most severe impacts would be where the powerlines cross Tamiami Trail and from the L-31N canal levee road. See NPS DEIS pages 364-370, and photo simulations of powerlines looking west from the L-31N Canal (Figure 59 on page 361) and looking northwest from the L-31 N Canal (Figure 63 on page 369), and looking west on Tamiami Trail (Figure 61 on page 365).

If powerlines are built in the West Consensus Corridor, east of L-31 N canal along SW 187th alignment, the impacts to park visual resources could be less depending on how much of the Consensus Corridor is used. The NPS questions how a horizontal road would "attenuate" the visual contrast of a powerline, which has vertical structures and elevated horizontal conductors. Because the access road along the levee isn't substantially elevated and is generally unnoticeable from the park, we maintain this statement should be revised to indicate the expected level of contrast and visibility of the powerline.

The NPS also encourages the NRC to further analyze potential increases in light pollution and resultant impacts related to construction and operation of Turkey Point Units 6 and 7. As construction would likely be ongoing throughout the night, construction lighting under standard practices can adversely affect night sky quality by contributing to glare and atmospheric scattering (light domes). Glare can directly affect nearby wildlife and visitors while light domes can affect wildlife habitat quality, overall photic environmental conditions, and scenic and scientific views of the night sky. The reflective nature of water can exacerbate the scattering of construction lighting more so than an equivalent project on land. Impact from artificial light can be reduced by limiting where lighting will occur, limiting hours of operation, limiting nighttime operation during seasonally sensitive periods (e.g., bird migration), limiting total lumen output of artificial lighting (either per fixture or by calculating lumens per acre), and directing lighting downward and shielding the fixtures.

In addition to the lighting design criteria discussed in section 5.3.1, the NRC should consider other lighting areas and lighting color. Warmer lighting colors typically have less ecological impact and adequate lighting can be achieved with less amount of lighting than is often used. We also encourage the NRC to consider whether illumination of Units 6 and 7, which would be sited within a key area within the Atlantic Flyway, would impact migratory birds. This evaluation should address whether new lighting may also increase illumination of existing structures, thereby increasing risk to migratory birds. The NPS requests that lighting plans, analysis of lighting impacts, and mitigation techniques be included in revisions to the DEIS.

NPS recommends that section 5.3.1 be updated to include information related to the effects of noise on NPS resources and acoustic environment in Biscayne NP. Currently, only a day-care facility and Homestead Bayfront Park are categorized as "sensitive receptors," however we maintain that NPS resources should also be considered sensitive to noise. Changes in overall decibel levels, maximum decibel levels, and audibility can have effects on the acoustic environment, wildlife interactions, and park visitors. The DEIS does not appear to analyze noise impacts on Biscayne NP. We encourage the NRC to consider the relationship between increased noise generated at the facility compared with the natural ambient baseline sound levels for Biscayne NP. The NPS recommends that further documentation and environmental analysis include:

- Determination of the natural ambient acoustic condition that exists in Biscayne NP;
- Assessment of the cumulative noise output of all noise sources on site during construction and under full operating conditions;
- Determination of the distance at which noise will attenuate to natural ambient levels. The inclusion of a noise map with contours would be helpful;
- Calculation of noise levels at the park boundary and comparison with natural ambient levels;
- Assessment of the effects that these increased noise levels would have on park wildlife and visitors; and
- The use of an analytical framework for evaluating impacts that is appropriate for a national park setting (e.g., not a community noise framework).

The NPS's "Baseline Ambient Sound Levels in Biscayne National Park" report from November 2011, which has already been shared with the NRC, should prove helpful in gathering this information.

6) Analysis of Impacts to CERP Projects and the BBCW Project

One of the goals of the CERP is to increase freshwater flow to Biscayne NP to achieve more natural hydrologic conditions within the park that has been negatively impacted by implementation of the regional water supply and flood control project. Given the lack of specific localized information regarding the effect of the RCWs on nearshore salinity levels, the NPS disagrees with NRC's conclusion that the proposed action would have minimal effect on CERP and Phase 1 of the BBCW project. NPS remains concerned that the cumulative impacts resulting from this project could potentially negate current or potentially future efforts to increase freshwater flows to rehydrate wetlands and reduce point source pollution discharge into Biscayne NP and Biscayne Bay. A second phase of the BBCW project remains to be planned and authorized, but is reflected in overall salinity restoration target goals for the park. Detailed review of modeling results from the DEIS analysis show a potential for impacts to groundwater sources for CERP, as well as movement of the groundwater masses related to RCW operations. The BBCW Project Phase 1, which is intended to redistribute existing freshwater flows to Biscayne NP, is now entering the construction phase with operation to shortly follow.

This is an example where a model with finer spatial scale on the operation of the RCWs would

provide information to determine whether the effects of the RCW operation negate or diminish efforts to rehydrate near shore coastal wetlands through the implementation of the BBCW Project, phase 1, authorized under the Water Resources Development Act of 2014. Generally the BBCW Project will divert an average of 59 percent of the annual coastal structure discharges from the S-123, S-21, S-21A and S-20F structures into Biscayne Bay. Anticipated environmental benefits include, among other things, improving the probability that the water within 500 meters from the shoreline will meet a desired salinity concentration of less than 20 psu. The NPS recommends development of a model with additional data, better calibration, and a finer scale will better show the likely potential localized impacts.

Although the BBCW Project is in the implementation phase, the CERP assumes a second phase for the project that would provide additional fresh water to Biscayne Bay. We recognize the difficulty in determining the environmental effects of the proposed action on a plan that is not yet planned or implemented with specificity including additional volumes of fresh water to be discharged, however, NPS believes it is important to acknowledge the future potential for this planned additional work to reintroduce more fresh water to the bay to benefit the various wildlife species that depend on the wetlands and on a healthy bay.

Additional information on the progress of the CERP may be obtained in the National Academy of Sciences' report "Progress Toward Restoring the Everglades: The Fifth Biennial Review, 2014."

7) Description of the Affected Environment, Especially Relating to the State of Florida Site Certification Process

The DEIS does not provide accurate geographical descriptions, hydrology, and Western Corridor language pertaining to the Florida Site Certification Process and up-to-date information relating to the Western Corridor which represents the location for the transmission power lines that was approved in the Siting Order. Although the Final Siting Order has been appealed, the DEIS should be updated to include not only the Final Siting Order as it relates to the proposed expansion and the location of the powerlines, but also the Conditions of Certification for these features that are the subject of this DEIS as it provides the anticipated framework for the implementation of these features.

Geographical Inconsistencies

In the description of the affected environment there is an extensive discussion of the locational environment around southeastern edge of Everglades NP, however there is no description of Biscayne NP's watershed which is contiguous to the plant which would include a discussion of the surface and groundwater flow to Biscayne NP as well as the surface water operations contiguous to the plant site that affect the near shore coastal environment. The watershed to the west and northwest of the plant is the Central & Southern Florida Project canals, Miami-Dade County canals and the groundwater made up of the Biscayne Aquifer an unconfined aquifer. Together these components control the water level and water flow of this area and are responsible for the ecological structure of Biscayne NP and its adjacent wetlands. In turn, these systems are operated to accommodate the dense population of Miami-Dade County.

In some portions of the document, there are descriptions of the area within the 50-mile radius as highly developed, densely populated, with some of the highest incomes in the county. However, language in other sections of the document identifies the proposed plant site location as if it were located within a completely undeveloped area. Turkey Point lies within 12 miles from the Cities of Homestead and Florida City, within 8 miles from the developed area Ocean Reef on North Key Largo, 16 miles from the city of South Miami, and 20 miles from downtown Miami. The 50-mile radius, the Gateway to both National Parks, includes Miami-Dade County with the highest and densest (by land area) population in the State of Florida. That population is in large part concentrated along the coast and along U.S. Highway One north of the parks. The DEIS does not sufficiently evaluate this population and its location particularly with respect to use and economic contribution of their travel to the NPs.

Status of State of Florida Site Certification Process Pertaining to Western Corridors

Introductory text on pages 1-1 to 1-2 regarding the State of Florida's May 2014 certification of the Turkey Point project is incomplete. As written, it suggests the certification process has concluded and FPL has all the State, regional and local permits needed for the project. We encourage a revision of this section to note that Miami-Dade County has appealed the certification of the West Preferred Corridor for transmission lines and three municipalities have appealed the location of transmission lines in the Eastern Corridor. Certification of the West Consensus Corridor was not appealed. The appeal process is anticipated to continue through the fall of 2015 or longer. Until there is a non-appealable Final Order, FPL does not have the State, regional, and local approvals needed to use the West Preferred Corridor as the backup location for its western transmission lines.

Text on page 2-18 regarding the Site Certification Process is incomplete. We recommend adding the following text to describe the Final Order and the Siting Board's direction to maximize use of the West Consensus Corridor to avoid siting transmission lines in Everglades NP:

On May 19th, 2014, Florida's Governor and Cabinet, sitting as the Siting Board, issued a Final Order (FO) of Certification that approved FPL's application to construct and operate two new nuclear generating units at Turkey Point, approved the transmission lines to be located in the East Preferred Corridor, and approved the western transmission lines to be located in the West Consensus Corridor with the West Preferred Corridor as the backup location if a right-of-way in the West Consensus Corridor cannot be obtained in a timely manner and at a reasonable cost. The FO directs FPL, the affected rock mining companies, and the South Florida Water Management District to pursue the option of fully accommodating the western transmission right-of-way to the east of the L-31N canal to avoid siting any transmission lines in Everglades NP. In areas where FPL is unable to build and maintain its structures east of the L-31N canal (outside of ENP), the FO directs that FPL shall only use the minimum amount of land west of the L-31N canal (inside the current boundaries of ENP) that is necessary to build and maintain the structures, and FPL shall return to installing structures to the east side of the L-31N canal at the first available and practicable location. The Siting Board's certification of the West Preferred Corridor and the East Corridor is currently under appeal. The timeline for a decision by the Appeals Court is anticipated to continue through the fall of 2015.

Section 2.2.2.1. Western Corridors

We are concerned with the accuracy and completeness of information regarding the West Preferred transmission corridor on page 2-17. Text on lines 5-7 states FPL has “two options for the West Preferred corridor that differ primarily with respect to where the corridor would pass near Everglades NP” (even though no part of the corridor would actually pass through the park). The last half of this sentence is inaccurate. The West Preferred and West Consensus corridors overlap and traverse five to six miles of lands currently within the park boundary.

Similarly, the West Preferred Corridor text (page 2-17, lines 13-24) states that the West Preferred Corridor runs just east of the park boundary. This is inaccurate at the present time. The West Preferred Corridor north of SW 120 St. and west of the L-31 N canal includes 260 acres of NPS park land along 6.5 miles of the eastern park boundary. NPS is currently preparing an EIS that considers exchanging park lands in the West Preferred and West Consensus corridors for FPL lands farther west in the park. The Final NPS EIS and Record of Decision on the potential land exchange are anticipated to be complete in December 2015. Until the ROD is signed, the existing status of NPS lands in the West corridor should be described in the NRC’s EIS.

The West Consensus Corridor text (page 2-17, lines 25-31) states that portions of the Consensus Corridor “have been shifted to the east to avoid abutting the eastern perimeter of Everglades National Park.” This is partially accurate but omits noting that the Consensus corridor overlaps the West Preferred corridor for 5 miles and includes approximately 200 acres within the current park boundary. It may be several years after a non-appealable Final Order of Certification is issued before FPL knows if it will be able to use any of the Consensus Corridor for the west transmission lines. The following text is recommended to be included in a revised DEIS to provide a more complete description of the corridor:

The Consensus Corridor follows the West Preferred Corridor until it reaches a point approximately six miles south of Tamiami Trail. There, the Consensus Corridor expands the width of the corridor by 600 feet to the east of the West Preferred Corridor for a distance of about 5 miles until it reaches a point one mile south of Tamiami Trail. This segment includes approximately 200 acres of land within the current boundary of Everglades National Park and rock-mining lands on the east side of the L-31 N canal. Then, the Consensus Corridor turns to the east for a distance of about 2.5 miles, turns northeast through the Bird Drive Basin and passes through the Pennsuco wetlands north of Tamiami Trail to intersect with the West Preferred Corridor. The Consensus Corridor differs from the West Preferred Corridor in that it is wide enough to potentially allow FPL to locate the full right-of-way on the east side of the L-31 N Canal to avoid siting transmission lines within the current boundary of Everglades National Park. The alignment through the Bird Drive Basin and Pennsuco wetlands would locate transmission lines farther to the east of endangered Wood stork colonies in Everglades National Park and Water Conservation Area 3-B. This corridor still crosses a landscape consisting mostly of wetlands and disturbed wetlands, but FPL states that its use would reduce the potential for adverse impacts on multiple federally endangered species (FPL 2013-TN2941).

The NPS suggests that revisions to the DEIS consider the specific purposes the Everglades NP Protection and Expansion Act of 1989, which expanded the boundaries of the park to include approximately 109,600 acres. This analysis is especially important for USACE as they consider their public interest review. The NPS’s DEIS found that the construction and operation of

powerlines in the West Preferred Corridor would have adverse impacts on park resources and values that would be inconsistent with the Expansion Act purposes. (See DEIS pp 54-55 Table 2, How Alternatives Meet Project Objectives.)

References to the State of Florida Site Certification Process

The NPS recommends that the hydrology and ecology sections in the DEIS be strengthened by including references to important documents from the State of Florida Site Certification Process, especially as it relates to the cooling tower plume issue. We also encourage the NRC to draw from the extensive technical and scientific literature of the SFWMD who are the local sponsors of the C&SFP with the USACE and are the local experts on hydrology and water operations. They are also the primary water operations regulatory agency of the State of Florida. This extensive collection of materials is both peer reviewed and online and should be included in the DEIS.

8) Consideration of Threatened and Endangered Fauna and Flora

The DEIS provides only limited information related to potential impacts of construction of Units 6 and 7, associated powerlines, and other related infrastructure on avian populations and other fauna. Additionally, the DEIS did not analyze the effects of the proposed action upon the federally listed Red Knot. The NPS recommends that NRC provide additional information and data related to species and habitat use, especially for habitats that will be used for construction such as the mudflat.

Risk to Wood Storks, Snail Kites, and other Avian Species from Powerlines

The wood stork was originally listed as endangered, primarily due to loss, fragmentation, and degradation of the wetland habitats on which they depend. Since listing, the wood stork population has shown signs of improvement, and the range has been expanding northward. In June 2014, the U.S. Fish and Wildlife Service downlisted the wood stork from endangered to threatened in recognition of the expansion of the stork's population. Range-wide, the stork population reached the recovery criterion for downlisting of a 3-year running average of more than 6,000 nesting pairs. However, wood stork nesting falls well below the recovery criterion of more than 10,000 nesting pairs. In addition, the 5-year average stork nesting in the Everglades and Big Cypress Systems remains below the 2,500 nesting pairs that is another benchmark for delisting, as nesting in south Florida remains variable. While there have been improvements in wood stork nesting in the Everglades region, the majority of increases in wood stork nesting have occurred further north, outside of the species' historic range in the southeastern U.S.

In the Everglades, nesting success tends to be irregular, with occasional "big" nesting years interspersed with several poor years, and in the big years, the success of the South Florida colonies is significant. In 2001, the Tamiami West colony supported approximately 25 percent of all wood stork nesting in the U.S.^{2 3} As a result, increases in risk, particularly to adult storks,

² NPS. 2011. Everglades National Park Colonial Wading Bird Nesting Monitoring Data. 2011. South Florida Natural Resources Center at Everglades National Park.

³ U.S. Fish and Wildlife Service. 2012. Endangered and Threatened Wildlife and Plants; Reclassification of the Continental U.S. Breeding Population of the Wood Stork From Endangered to Threatened. Federal Register 77(247): 75947-75966.

may substantially reduce the productivity and nesting that currently occurs. Because of the reproductive strategy of wood storks, in which adults do not fledge young in every year, losses of breeding adults may have population-level consequences. Thus, we encourage the NRC to reconsider language in DEIS section 5.3.1 relating to the impact of FPL's proposed powerlines on wood storks and the role of FWS. While Section 7 consultation addresses projects that have the potential to "jeopardize" the existence of a species, this project could change the trajectory of the stork population and still not rise to a level of jeopardy.

In the DEIS for the Acquisition of FPL Land in the East Everglades Expansion Area, the NPS concluded that impacts could be major for some species such as the threatened wood stork. This conclusion was reached due to the close proximity of the proposed powerlines to Everglades NP. For instance, the proposed powerlines pass within five miles of several wading bird colonies (species highly susceptible to collision) in an area where there are no existing powerlines. The proposed route travels within one mile of one of the largest and most consistent wading bird colonies in South Florida, which can support around ten thousand pairs of wading birds of several species. Taking into account site-specific detail, "minimal" may not adequately describe impacts to avian resources. The NPS maintains that since wetlands are recognized as areas where birds congregate – the large amount of wetlands in the corridor (and proximity to the Everglades) makes risk much higher than "normal." Some species, such as wood stork, may be more susceptible to collisions, especially with guy wires, leading to potentially high mortality and population-level changes.

The proposed powerlines could also harm snail kites, which forage by flying over suitable marsh habitat at an elevation of 10–16 feet above vegetation. Like wood storks, they may be vulnerable to collisions with guy wires. Forage flights at this elevation would occur well below the expected transmission-line heights of 80–90 feet (230 kV) and 140–160 feet (500 kV). Because the snail kite population is severely depressed, even the loss of a few individuals may have population-level impacts. We suggest the NRC include a discussion in section 5.3.1 regarding the value of not using guy wires for portions of the western corridor near sensitive bird habitat, which could significantly limit collision risks for wood storks and snail kites. The NPS recommends that the EIS also consider impacts on the piping plover and red knot. Both species would be expected to use the project site and vicinity for migratory habitat.

Although birds from a wide range of taxa and feeding guilds are exposed to these direct risks, wading birds (such as herons, egrets, storks, and cranes) are of particular concern because they make up such a large and important component of the birds found in Everglades region of South Florida. Wading birds are behaviorally predisposed to collision due to their large size, which makes it difficult for them to take evasive action when confronted with flight obstacles.

Collision with powerlines was identified as the most significant source of wood stork mortality in an evaluation of causes of death.⁴ During nesting season when foraging conditions are good east of Everglades NP, the thousands of pairs of these nesting wading birds will fly past the powerlines, often two or more times daily, for periods of weeks to months. Use of flight diverters and line markers may reduce, but not eliminate, collision mortality for wading birds.

The resulting expectation is that considering the elevated collision risk of wood storks and wading birds, the fact that thousands of these species are nesting within the normal foraging

⁴ Forrester, D.J. and Spalding, M.G. 2003. Ibises, Spoonbills, Flamingos, and Storks: Trauma. Pp.227-228 *In*: Parasites and diseases of wild birds in Florida. Univ. Press of Florida, Gainesville. 1132 pp.

distances of these wading birds, the presence of powerlines will cause a sustained level of mortality for these species for the life of the powerlines. This sustained mortality may be punctuated by more significant mortality events when weather conditions or other factors cause increased risk of collision. Over time, this mortality may result in measurable population declines. In the NPS DEIS regarding land exchange and the subsequent construction of new powerlines within the west preferred corridor, the impacts of powerlines on wildlife and wood storks was determined to be moderate to major.

The NPS is also concerned that bird surveys conducted at the mud flats where Units 6 and 7 would be built are inadequate. Avian surveys referenced in the DEIS were conducted over a two-day span during June 2009. The use of this limited period of time for avian surveys is wholly inadequate to analyze annual or migratory use and the potential for avian impacts due to the plant construction or operations. This limited review did not include spring migration, fall migration, or wintering use birds. June is traditionally the least likely month to observe the diversity of birds in south Florida, and a mere two days could have been heavily impacted by weather and light conditions. Spring, fall, and winter surveys should be performed, not just on the proposed site for Units 6 and 7 itself, but also in the pipeline corridors, the transmission line corridors, the road areas, the fill source location, as well as other impacted sites. In an analysis of the potential for avian impacts, the more broadly available data for migration and winter or summer habitat use is available from the NPS, Tropical Audubon Society, or university researchers and should be consulted.

Risks to Threatened and Endangered Species in Biscayne Bay

An additional area of concern is how project-related changes to water quality might affect threatened and endangered species that are found within Biscayne NP. Because there is much uncertainty about exactly what environmental changes could occur as a result of the proposed project, further investigation is needed to better elucidate potential negative impacts to imperiled species. For example, it is currently unknown if the proposed expansion will result in substantial changes to the water quality and/or temperature of water in Biscayne Bay in the vicinity of the cooling canals. It is possible that alterations to water quality and/or temperature could affect the relative incident and prevalence of Fibropapillomatosis (FP), a tumor-forming disease linked to a herpesvirus that is often lethal for juvenile sea turtles, particularly green sea turtles (*Chelonia mydas*). Eutrophication and increased temperatures have been implicated in triggering the emergence of FP tumors. Similarly, the endangered smalltooth sawfish (*Pristis pecinata*) is a benthic-dwelling species that could feasibly be affected by groundwater seepage from the plant. Comparable concerns also exist for manatees (*Trichechus manatus*), which are known to populate the southwest part of the bay (southeast cooling canals and associated external canals) during the winter. The potential impacts of activities at the plant need to be considered as part of a bigger picture, as there is concern that project-related effects could exacerbate the effects of other stressors present in the system and not related to Turkey Point.

Risks to Other Threatened and Endangered Species

The NPS continues to be concerned that the construction of new powerlines, roads, and other infrastructure relating to the licensing of Turkey Point Units 6 and 7 would impact a great many federally threatened and endangered species. Below are concerns relating to a few of these species (list is not inclusive):

Florida Panther

The Florida panther utilizes habitat in the project area, illustrated by sightings, mortality, and behavior of radio-collared animals. Although there may be no confirmed observations on FPL land, the panthers have been seen on nearby lands and FPL lands can reasonably be considered natural and active range for panthers. Lack of sightings does not necessarily indicate a lack of use of habitat. Increased road traffic and construction activity can reasonably be considered to affect current use of the area by this highly endangered species. Furthermore, access can increase threats to the endangered cats from poachers. For instance, a 5-year-old male panther was shot to death and found discovered alongside Immokalee Road in the Naples area on March 22, 2015. Lastly, new research relating to how wildlife see and are impacted by ultra-violet light flashes emitted from powerlines should be analyzed as it is pertinent to the discussion on the Florida panther, as well as other wildlife and avian species.

American Crocodile

The current status of American Crocodiles within Biscayne Bay and nearby areas of South Florida is well below restoration targets set by CERP. The overall crocodylian indicator status for American crocodiles within Biscayne Bay dropped from “yellow” in 2012 to “red” in 2014. Given recent information on the declining trends of crocodylians within Biscayne Bay and other areas of South Florida (see Brandt et al. 2014), potential impacts to American crocodiles of the proposed project need to be better assessed; and NPS recommends that local populations be monitored either through establishment of a new program or through funding continuation of existing work. Potential impacts of the proposed activity on population sizes, growth rates, hatchling survival rates, and body condition for American crocodiles within Biscayne Bay must be better understood.⁵

The NPS encourages the NRC to clarify in revisions to the DEIS that crocodiles utilize Biscayne Bay and thus move in and out of Biscayne NP. Section 5.3.2 discusses variations in salinity from the pumping of the RCW and mentions there was a transient increase near two practical salinity units (psu). The EIS should clarify whether those areas included critical habitat for the American crocodile. Additionally, the 2014 report for the System-wide Ecological Indicators for Everglades Restoration states that Biscayne Bay has moved into the red (highest concern) ranking (down from yellow in previous years), and system-wide survival of hatchlings beyond 6 months old is less than 3%. This downward trend is disturbing and should be considered when analyzing direct and cumulative impacts on crocodiles from this project.

Eastern Indigo Snake

The NPS continues to be concerned with potential impacts to the Eastern indigo snake. Increased traffic during construction and operation of Units 6 and 7 would almost certainly impact Eastern indigo snake vehicle-related mortality near and on the site. Furthermore, power block construction and muck disposal, which could bury snakes, could affect eastern indigo snake populations as well. Short hydration periods for wetlands on site could also play an important role. Out of concern that increased traffic would lead to more vehicle-related wildlife mortality, the NPS has previously recommended to the State of Florida that herpetological

⁵ Brandt, L.A., J. Beauchamp, M. Cherkiss, A. Clark, R.F. Doren, P. Frederick, E. Gaiser, D. Gawlik, S. Geiger, L. Glenn, E. Hardy, A. Huebner, R. Johnson, K. Hart, C. Kelble, S. Kelly, K. Kotun, J. Lorenz, C. Madden, F.J. Mazzotti, L. Rodgers, A. Rodusky, D. Rudnick, B. Sharfstein, R. Sobszak, J. Trexler, A. Volety, 2014. System-wide Indicators for Everglades Restoration. 2014 Report. Unpublished Technical Report.

surveys be conducted along the public roads leading to the site for at least a year prior to and during construction activities. These surveys would inform the placement of snake and reptile underpasses, as appropriate.

9) Cumulative Impacts Analysis

The DEIS does not adequately describe the cumulative impacts of constructing and operating Units 6 and 7. Information should be included related to impacts from other ongoing actions as we have indicated herein, federal or non-federal, that are likely, when added to the incremental effects of the proposed action, to have an impact on the affected environment. This view is consistent with the CEQ regulations for implementing NEPA which defines cumulative impacts as, "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." Most notably, the analysis does not fully consider the following impacts: effects of sea level rise and storm surge, and impacts from the IWF hypersaline plume, freshwater utilized to alleviate IWF emergencies, operation of the RCWs on NPS resources, impacts on surface water and groundwater, and effects on imperiled flora and fauna and aquatic resources. The NRC should update its cumulative impacts analysis in revisions to the DEIS. Many of the specific cumulative impact concerns are described in previous comments on specific topics such as sea-level rise and climate change, water quantity and quality.

10) Mitigation

The construction and operation of Units 6 and 7 and related infrastructure has the potential to adversely affect NPS resources and potentially make more difficult ongoing federal, state, and county efforts to restore the broader everglades ecosystem via GERP and the BBCW Project. This section provides the NRC and USACE concepts for mitigation that would be necessary if Units 6 and 7 and supporting infrastructure were approved. Upon review, the NPS maintains that FPL's Turkey Point Units 6 & 7 Mitigation Plan Rev. 2, which was prepared in July 2011, is far from being sufficient to offset the potential for the impacts to NPS resources for which we have expressed concern.

While the NPS understands that the NRC and USACE will be considering mitigation that complies with their own internal guidance, we encourage you to consider Secretarial Order Number 3330 Improving Mitigation Policies and Practices of the Department of the Interior (DOI). A central component of DOI's strategy is taking "a landscape-scale approach to identify and facilitate investment in key conservation priorities in a region." Another component encourages agencies to focus "on mitigation efforts that improve the resilience of our Nation's resources in the face of climate change." Because NPS lands and resources would be significantly impacted by this project, we assert that an innovative mitigation package that contains measures that take a landscape-scale approach and account for climate change would be essential if the project and associated infrastructure were to be approved.

The NPS understands that it is difficult to compare this project to other projects elsewhere in the country that would similarly impact a national park, let alone two parks. Nonetheless, we

encourage both agencies to consider the following two case studies as they may provide helpful context:

- Skagit River Project, Washington

In 1995, the Federal Energy Regulatory Commission (FERC) accepted several settlement agreements (SA) to mitigate various environmental, operational, and recreational issues relating to the relicensing of the Skagit River Hydroelectric Project (FERC Project No. 553), which is located within Ross Lake National Recreation Area and along the Skagit River in northwest Washington State. Under the SA, Seattle City Light (SCL), the licensee that operates the dams, helped fund the construction of the North Cascades Environmental Learning Center, which has become an internationally renowned center for environmental education and a source of pride for SCL. They also set aside \$17 million for land acquisition to conserve wildlife habitat in the Skagit River watershed. Since relicensing, over eight thousand acres of high-value conservation lands have been acquired. The SA also included an additional \$17 million to support recreation access along the river. According to Dean Shumway, the former Director of FERC's Office of Hydropower Licensing, the SA have been recognized by many as a national model and have been called "the most comprehensive set of Settlement Agreements for the public good ever submitted to FERC."

- Susquehanna to Roseland Transmission Line Upgrade, Pennsylvania, New York, and New Jersey

In 2012, the NPS approved construction of the 4.5 mile section of the proposed 146 mile Susquehanna-Roseland Transmission Line across Delaware Water Gap National Recreation Area. Importantly, the new transmission line is located entirely along existing rights-of-way held by the companies for decades and that predate the parks' establishment. In an effort to minimize impacts to the park, the companies partnered with The Conservation Fund and contributed \$56 million for the acquisition of critical lands within and near the park. An additional \$10 million was provided to mitigate for visual impacts of the project to the Appalachian National Scenic Trail. Lastly, the applicants funded a number of NPS staff for five years for construction monitoring.

Biscayne Bay Coastal Wetlands Projects – Phase 1 and Phase 2

As set forth above, implementation of the BBCW Project is crucial to realizing the suite of direct restoration benefits provided by the project. Although Phase 1 of this project has been previously described, Phase 2 includes the critical component of locating and providing a source of much needed additional freshwater to Biscayne NP and Biscayne Bay. To implement BBCW Phase 2, additional lands will be needed, as well as planning, design, and construction funding. Some project lands needed to complete Phase 2 are in FPL ownership. The NPS urges the action agencies to consider requiring mitigation that would move Phase 2 of this crucial project forward. Mitigation could be donation of project lands or funding components of the project. The NPS wishes to begin a dialogue with the action agencies regarding these mitigation possibilities.

Miami-Dade County's Environmentally Endangered Lands (EEL)

The NPS supports the Miami-Dade County's request that certain FPL owned land be transferred and/or otherwise made available through easements to the County's Environmentally

Endangered Lands (EEL) Program's South Dade Wetlands Project Area. This request was outlined in letter from George M. Burgess, County Manager, to FPL dated April 22, 2010. EEL was approved by Miami-Dade County voters in 1990 and was created to "acquire, preserve, enhance, restore, conserve, and maintain environmentally-endangered lands for the benefit of present and future generations." According to the County, over 19,500 acres of land has been conserved since the establishment of the EEL program in 1990. The letter also identified that FPL owns 3,388 acres of non-mitigation lands that are on the EEL list. FPL's proposed mitigation plan indicates that they would dedicate 812 acres of land outside of mitigation banks for conservation. Importantly, the County's EEL map identifies conservation priority lands west of the Biscayne NP contained within the Biscayne Bay Greenprint (shown in Figure 2). We encourage close consideration of the County's request that FPL's entire 3,388 acres be given to EEL as a part of their mitigation package. Additionally, we encourage FPL to create a restoration fund to combat invasive species, reverse salt water intrusion, and restore the full ecological function of these lands.

Considerations for Mitigating Impacts from Project Infrastructure

Below are suggestions for mitigating impacts to NPS resources from proposed project infrastructure. We have aligned each topic area according to USACE's public notice from March 13, 2015:

- **New Transmission Lines:** As discussed previously, FPL's two western corridors are adjacent to and within Everglades NP. It would contain two 500 kV powerlines (up to 150 ft. tall) and one 230 kV (up to 105 ft. tall) powerline. FPL's eastern corridor would contain a single 230 kV (up to 90 ft. tall) powerline that would be built alongside an existing FPL powerline corridor. The corridor crosses a section of Biscayne NP. For wetland impacts in the western corridor, we support FPL's proposal to conduct mitigation within the "Hole in the Donut," which is within Everglades NP. We also recommend preparation of a planning study to consider the effectiveness of transferring soil to Miami-Dade County to use in raising the elevation of certain levees and for agricultural use to potentially reduce impacts of flooding. To offset added visual and ecological impacts to Biscayne NP from the eastern corridor, we suggest consideration be given to the purchase of the Ragged Keys, which are located on the end of Elliot Key. Ragged Key 5 and 2 are priority lands for the park and are the only fee-simple lands within the park boundary not yet owned by the NPS. The NPS recommends that FPL work with NPS to identify and remove unnecessary transmission infrastructure within Everglades NP, such as that which remains in the Chekika area of the park. In addition, we recommend FPL work with Everglades NP and other Everglades restoration partners to relocate the powerline located along the Old Tamiami Trail within the park, south of the current U.S. Hwy 41 west of the L-67 canal. Converting this powerline to an underground transmission line along the current U.S. 41 alignment could improve reliability of electrical service to the Miccosukee Reservation, allow for removal of the Old Tamiami Trail to achieve restoration benefits, and reduce impacts to wildlife from the current aerial transmission line.
- **Units 6 & 7 Site**

The Nuclear Island, which includes Units 6 and 7 and other reactor buildings, would encompass approximately 300 acres, most of which are mud flat wetlands that provide an important bird habitat. As discussed, nitrogen and phosphorus organics from the muck could further degrade the IWF. To offset ecological impacts related to the construction on Nuclear Island, the NPS encourages USACE to consider the NPS's ongoing efforts to eradicate invasive plants and restore three spoil islands and adjacent peninsulas within the Biscayne NP. These restoration projects involve stabilizing eroding shorelines, removing exotic vegetation, and planting native species. The resulting sites benefit submerged vegetation, such as seagrass, improve water quality of coastal waters, and provide high quality native habitat for coastal birds and wildlife. Further, spoil island restoration offers the community opportunities to learn about the benefits of environmental restoration, to "get dirty" in an actual restoration project, and to observe birds and wildlife in their native habitat.

- **Pipelines (potable and reclaimed water)**

Pipelines would be installed between the MDWASD South District Wastewater Treatment Plant and the reclaimed water treatment facility at the Turkey Point site. The potable water line would include approximately 10 miles of new pipeline, most of it along existing roads or corridors. Approximately 2.5 miles of pipeline construction would involve newland disturbance, and the pipeline would affect 326 acres, including 184 acres of wetlands. The reclaimed water pipeline would include approximately 9 miles of new pipeline, approximately 2.5 miles of which would be in a new pipeline corridor. According to the DEIS, approximately 1,886 ac of upland, forested, and wetland habitats would be affected as well as mangrove swamp, mixed wetland hardwoods, shrub and brushland, wetland shrubs, freshwater marsh, mixed rangeland, and herbaceous prairie. The NPS encourages land protection and restoration efforts, such as those under EEL (described above), to offset the pipeline-related impacts.

- **Equipment Barge Unloading Area**

The existing barge-unloading facility would be enlarged to accommodate the larger barges used to deliver components for the proposed units. According to the DEIS, "approximately 90 ft. by 150 ft. would be excavated on the northwest edge of the existing barge-turning basin resulting in a total disturbed area of 130 ft. by 250 ft. or 0.75 ac. The expansion of the barge-unloading facility would require dredging a 4,356 ft² (0.1 ac) area in the turning basin." A survey from 2008 indicated that some seagrasses are found in the project area. The NPS recommends that the area be resurveyed to enable more accurate estimation of potential impacts to submerged aquatic vegetation. The NPS suggests that USACE consider supporting NPS restoration of "orphan" vessel grounding injuries in Biscayne NP sea grass habitat to offset dredging impacts. Some progress has been made, but much more work remains. We contend that orphan site restoration will help support the integrity of the seagrass ecosystem, which in turn supports manatees, sea turtles, critical habitat, economically important fisheries, and other marine life.

- **Transmission line crossing under the Miami River**

According to USACE's public notice, "A short section of the proposed Davis-Miami 230-kV transmission line, at the crossing of the Miami River adjacent to the existing FPL Miami substation, is proposed to be constructed as an underground extruded dielectric cable system using cross-linked polyethylene insulating cables." The NPS encourages that consideration

be given to restoring the Key Hole and Elliot Key Spoils area within Biscayne NP. The area has high natural value but needs to be cut and filled for restoration.

- *Access Roads*

According to the DEIS, "approximately 3.3 miles of existing paved roads would be improved, and approximately 7 miles of unpaved roads would be paved to provide access to the site." Additionally, "a heavy-haul road would be created between the barge-unloading facility and the building site, which would disturb approximately 5 acres. The heavy-haul road would be 2 miles long and 24 ft. wide, and would include new heavy-haul bridges across the existing discharge and return cooling canals." A patchwork of new roads would further fragment important habitat for Florida Panthers and other wildlife, and create impediments for restoring hydrological flows. The NPS encourages land protection and restoration efforts, such as those under EEL, to offset these impacts.

- *RCWs located below Biscayne Bay, offshore Turkey Point*

Four radial collector well caissons located on the Turkey Point Peninsula would serve as a backup water supply. Each RCW caisson would be approximately 30 feet in diameter and extend beneath the surface of Biscayne Bay to a depth between -35 to -45 feet. The laterals would be extremely close to the marine boundary of Biscayne NP and be built in limestone terrain. Because FPL owns much of the land within the footprint for BBCW Phases 1 & 2, we once again encourage consideration of having this land transferred to EEL in preparation for the completion of both phases of BBCW project. We also strongly encourage the development of a comprehensive monitoring and adaptive management plan to ensure that any operational problems are judiciously addressed.

- *Pre-treatment building – associated with the reclaimed and potable water pipelines*

Location of the reclaimed water treatment facility is on 43 acres of wetlands. The DEIS states that there would be 328.12 acres of wetlands (not verified by the USACE as jurisdictional wetlands) that would be filled to prepare the site. A proposed restoration project would be to scrape down the Florida City Canal. Eradicating invasive species and restoring mangrove would benefit the ecological value of the area.

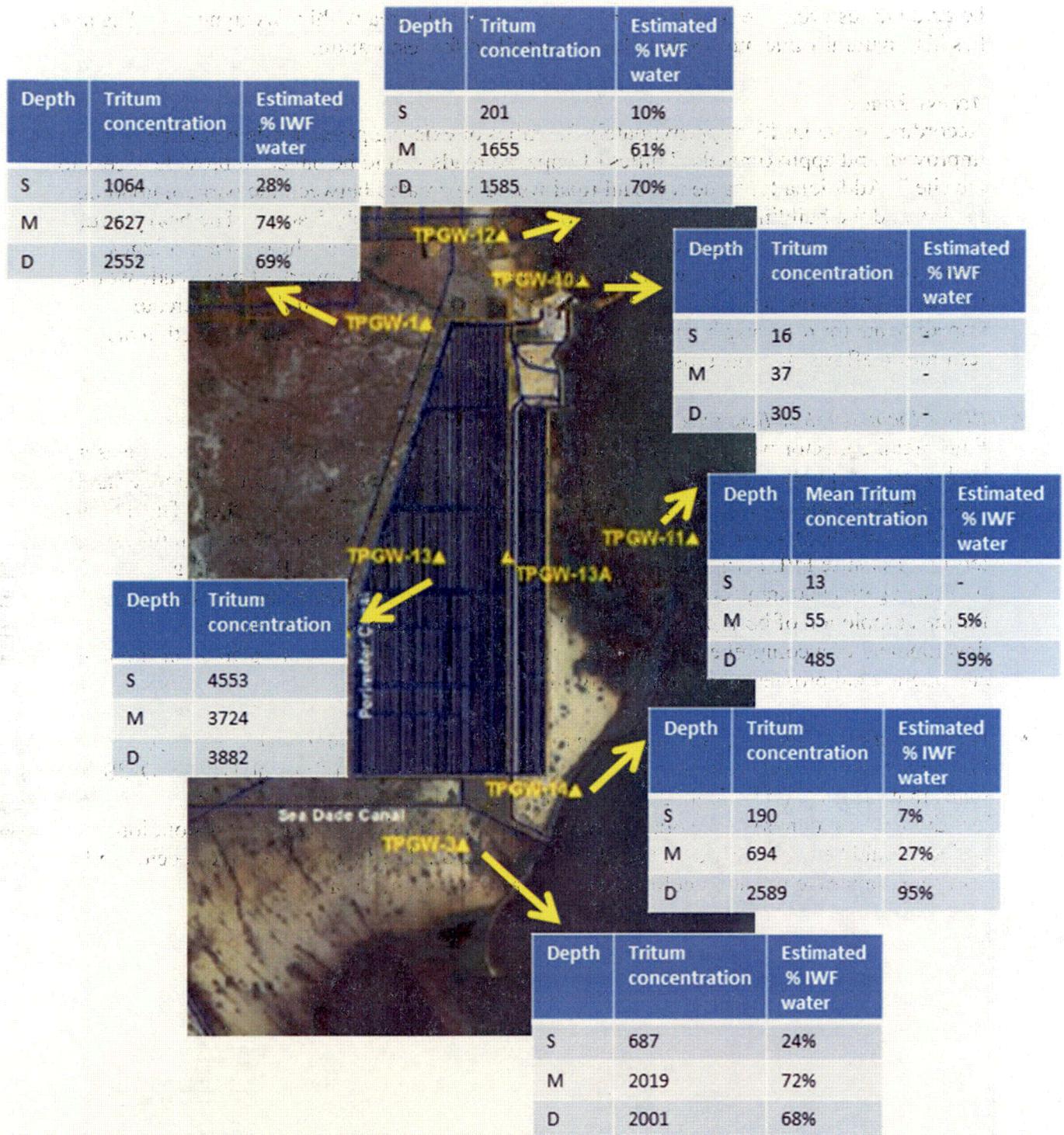


Figure 1. Tritium concentration time series in monitoring well clusters, showing increasing trends.

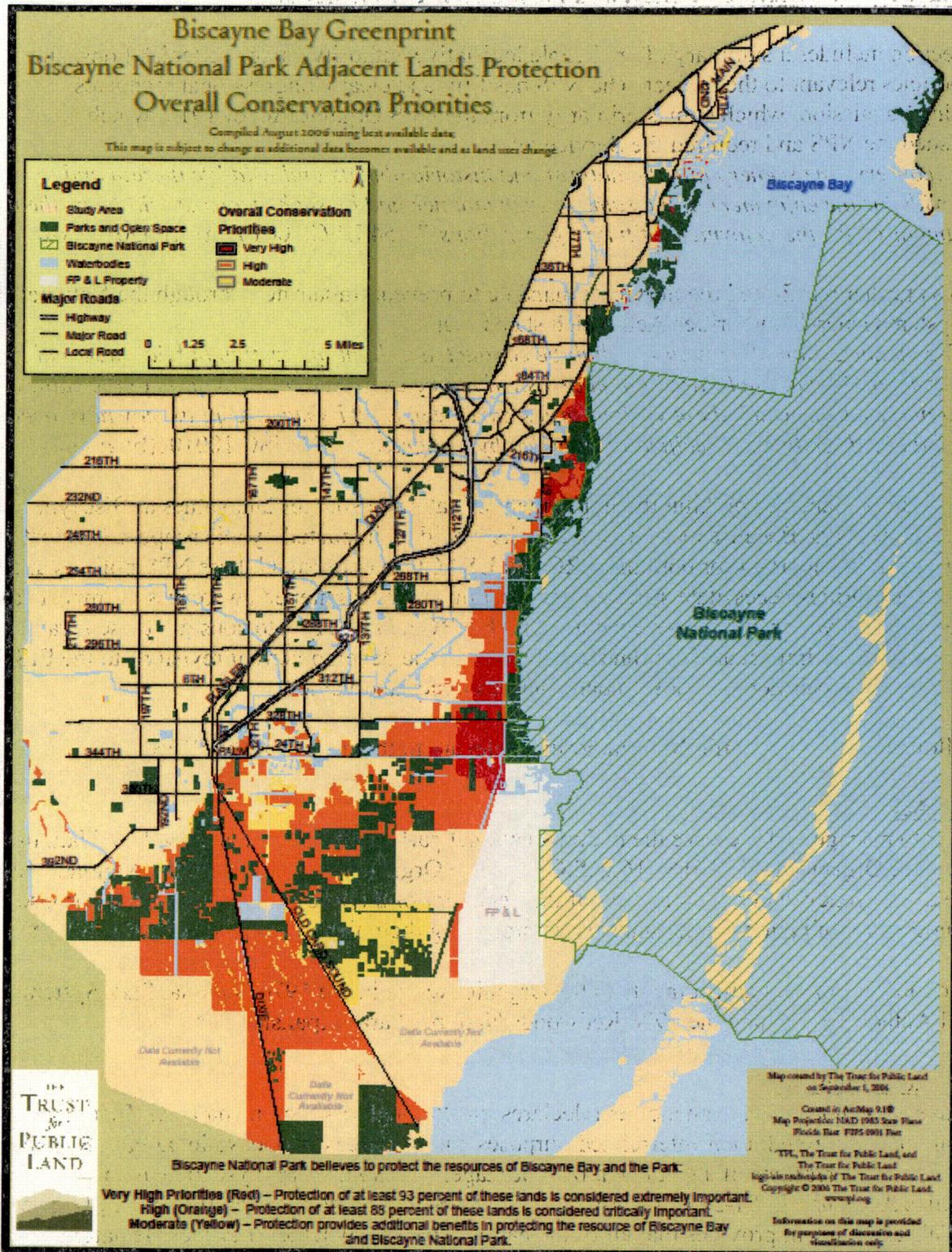


Figure 2. Biscayne Bay Greenprint Map.

Enclosure 2 – NPS Statutes, Policy, and Park-Specific Information

This section includes a summary of applicable legislative authority, enabling legislations, and NPS policies relevant to the project. The NPS has firm and clear Congressional mandates regarding its mission, which comes primarily from the NPS Organic Act of 1916, which established the NPS and required the Service to:

“...conserve the scenery and the natural and historic objects and wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” (54 USC 100101(a), 100301 *et seq.*)

Congress further reaffirmed the Service’s mandate to prevent impairment through the National Park System General Authorities Act, which stated that:

“The authorization of activities... shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.” (54 USC 100101(b) *et seq.*)

These statutory mandates prohibit the impairment of natural resources and values at Biscayne and Everglades NPs. Because these national parks would be impacted by this proposed project, we maintain it is important for both the NRC and USACE to understand these NPS policies and how these authorities necessitate special consideration and a heightened awareness of impacts to NPS resources in your review. We encourage both NRC and USACE to consider these legal requirements in the impact analyses and conclusions in the development of revisions to the EIS to help prevent impairment of NPS fundamental resources and values.

The following outlines specific NPS authorities relevant to the review of the DEIS.

Organic Act

“In order to manage and preserve the nation’s national park lands, Congress passed the National Park Service Organic Act in 1916. 16 U.S.C. §1. The Organic Act established the National Park Service as an agency under the direction of the Secretary of the Interior with the stated purpose of promoting use of national park lands while protecting them from impairment.” (16 U.S.C. §1)

The two most significant amendments to the Organic Act lie in the 1970 National Park System General Authorities Act and the 1978 Redwoods National Park Expansion Act.

General Authorities Act

The General Authorities Act amendment declares that “though distinct in character, [national parks] are united through their interrelated purposes and resources in one National Park System as cumulative expressions of a single national heritage.” National Park System General Authorities Act, Pub. L. 91-383, August 18, 1970, 84 Stat. 825, codified as 16 U.S.C. §1a-1 to 1a-7. This amendment provides that all of the nation’s parks – whether they include natural, cultural, or historic resources – are united under the mission, purpose, and protection of the Organic Act.

Redwoods Act

The Redwoods Act amendments, which expanded Redwood National Park to address the impacts of resources from logging outside the park, also amended the Organic Act. The

amended provision states that all park management activities shall be [C]onducted in light of the high public value and integrity of the National Park System and not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress. Pub. L. 95-250, Title I, §101(b), Mar. 27, 1978, 92 Stat. 166 (amending 16 U.S.C. §1a-1). This amendment reaffirms the mandate set forth in the Organic Act and directs the National Park Service to manage park lands in a manner that would not degrade park values.

In addition to Servicewide legislation, units of the National Park System are created by Congress through a park's enabling legislation, which outlines purposes for each park's establishment. The following summarize the enabling legislation for Biscayne and Everglades NPs:

Biscayne NP Enabling Legislation

Biscayne NP was first designated a national monument in 1968 before being expanded and redesignated a national park in 1980. The park was established "to preserve and protect for the education, inspiration, recreation, and enjoyment of present and future generations a rare combination of terrestrial, marine, and amphibious life in a tropical setting of great natural beauty." Biscayne NP is home to a large segment of the Florida reef tract (the only living coral reef tract in the continental United States), contains the majority of Biscayne Bay, and is an Outstanding Florida Water (OFW). The park supports an incredible array of wildlife, including more than 600 species of fishes, many of which are commercially and recreationally utilized, over 200 species of birds, and 21 federally threatened or endangered species. Biscayne NP is home to the longest protected stretch of mangrove shoreline along the eastern coast of the United States.

Everglades NP Enabling Legislation

Everglades NP was created in 1934 as a "public park for the benefit of the people. It is set aside as a permanent wilderness, preserving essential primitive conditions including the natural abundance, diversity, behavior, and ecological integrity of the unique flora and fauna." Public concern for the Everglades unique flora and fauna, which the wading birds epitomize, were the primary motivation for the establishment of Everglades NP, as well as the addition of Northeast Shark River Slough (NESRS) and the East Everglades to the Park in 1989 (Everglades Expansion Act, 1989). Through these Acts, Congress intended to improve the protection of these resources and the ecosystems upon which they depend.

The East Everglades Expansion Area (EEEA) contains the headwaters of the NESRS and Taylor Slough, which, along with western Shark Slough, are the primary sources of water flow to the park. The Expansion Act authorized the NPS and the USACE to acquire lands within the EEEA and improve water deliveries into the park to help achieve the purposes of the Act which include:

- Increasing the level of protection of the outstanding natural values of the park;
- Enhancing and restoring the ecological values, natural hydrologic conditions, and public enjoyment of such areas by adding the area commonly known as the NESRS and the East Everglades; and

- Ensuring that the park is managed to maintain the natural abundance, diversity, and ecological integrity of native plants and animals, as well as the behavior of native animals, as a part of their ecosystem.

The NESRS is also part of the recharge area for the Biscayne Aquifer which is the sole source of potable water in Miami-Dade and Broward Counties. The aquifer is exposed at the surface of this area or is covered by a thin layer of peat and plant material. Because the health, safety, and welfare of present and future residents of the Miami-Dade County depend upon protecting the hydrology and ecology of this area, the County designated it an Area of Critical Environmental Concern in 1981.

The park's unique ecosystems support 34 native species that are listed as federally threatened or endangered, or are candidates for listing. Seven of these species are currently considered to be extirpated from the park, and the remaining 27 species may occur in the park today. In addition, critical habitat is designated within Everglades NP for 10 of these species, and well over half of the park is designated critical habitat for one or more species. Everglades NP supports the entire range of the endangered Florida leafwing butterfly and nearly all of the remaining population of Cape Sable seaside sparrows.

Everglades NP's rich biodiversity has been recognized by United National Educational, Scientific, and Cultural Organization (UNESCO) as a World Heritage Site and an International Biosphere Reserve. The World Heritage statement of significance for the Park states:

"Everglades National Park is the largest designated sub-tropical wilderness reserve on the North American continent... It contains the largest mangrove ecosystem in the Western Hemisphere, the largest continuous stand of sawgrass prairie and the most significant breeding ground for wading birds in North America."

Due to alterations of the hydrological regime (quantity, timing, and distribution of Shark Slough inflows); adjacent urban and agricultural growth (flood protection and water supply requirements that affect the property's resources by lowering water levels); and increased nutrient pollution from upstream agricultural activities, UNESCO has added the park to its list of World Heritage Sites in Danger in 2014. Of the 22 World Heritage Sites in the United States, it is the only site in danger. The park is also designated a Ramsar Wetland of International Importance, Specially Protected Area under the Cartagena Convention, an OFW, and includes the Marjorie Stoneman Douglas Wilderness, the largest wilderness area east of the Rocky Mountains.

The broader Everglades Ecosystem, which includes Biscayne NP, has been in decline and many of the species found in the two park's fragile ecosystems are in danger of extinction or regional extirpation. Additionally, because so little of the historic Everglades ecosystem remains, including wetland habitats in both Everglades and Biscayne NPs, and because so many of its components species are in danger, any impact to the remaining portions has magnified consequences. Thus, major activities on the landscape may have serious ecological consequences. The Comprehensive Everglades Restoration Plan (CERP) is a major restoration initiative that is intended to restore the quantity, quality, timing, and distribution of fresh water in an effort to reverse decades of unintended environmental decline. The Biscayne Bay Coastal Wetlands (BBCW) project is an effort under CERP that will rehydrate wetlands and reduce point

source discharge to Biscayne Bay. CERP is vital to restoring habitat within Everglades and Biscayne NPs and while this program is led by the USACE and the South Florida Water Management District, the Department of the Interior is a major Federal partner in all CERP projects and system-wide assessments. At a cost of more than \$10.5 billion and with over 35 year time-line, this is the largest ecosystem restoration project ever undertaken in the United States.

The NPS strongly encourages the NRC to consider the important anthropocentric value (i.e. enjoyment) of wildlife that is reflected in the NPS Organic Act and the enabling legislation that established both Biscayne and Everglades NPs. The Organic Act states that "wildlife" must be conserved for the "enjoyment" of future generations. Biscayne NP's enabling legislation states the NPS must "preserve and protect...for the enjoyment of present and future generations a rare combination of terrestrial, marine, and amphibious life. Lastly, Everglades NP was established as a "public park for the benefit of the people" that preserves the "ecological integrity of the unique flora and fauna." This statutory context, and the fact the NPS is a cooperating agency, makes the EIS for Units 6 and 7 unique among environmental reviews the NRC may have prepared in the past. It also elevates the value that should be given by the NRC to the human environment, which includes the relationship of people with the environment.

NPS Management Policies

We contend the NRC and USACE may also benefit from a better understanding of NPS policies, which give context for our concerns and govern NPS stewardship and management of resources entrusted to NPS for conservation. The NPS Management Policies, which were updated in 2006, direct the management of units of the National Park System so that the NPS Organic Act is adhered to and resources are left "unimpaired for the enjoyment of future generations." Two key underlying principles described in Management Policies are that "conservation will be predominant when there is a conflict between protection of resources and their use" and that we "pass on to future generations natural, cultural, and physical resources that meet desired conditions better than they do today, along with improved opportunities for enjoyment."

Importantly, NPS Management Policies specifically prohibit the NPS from allowing the "impairment" of park resources and values unless "...directly and specifically provided for by legislation or by the proclamation establishing the park." (Section 1.4.4) According to Section 1.4.5, impairment can "result from sources or activities outside the park" and is an impact:

"...that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts."

Section 1.4.5 also states that an impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; or

- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified in the park's general management plan or other relevant NPS planning documents as being of significance.

Since the threshold at which impairment may occur is not always apparent, park managers are instructed in Section 1.4.7.1 to:

“Apply a standard that offers greater assurance that impairment will not occur. The Service will do this by avoiding impacts that it determines to be unacceptable. These are impacts that fall short of impairment, but are still not acceptable within a particular park’s environment. Park managers must not allow uses that would cause unacceptable impacts...”