

FPL TURKEY POINT

• BREAKDOWN •

BACKGROUND



- Built in 1971, the Turkey Point Power Plant sits directly on the shores of Biscayne Bay in between Biscayne National Park and Everglades National Park-- and atop the Biscayne Aquifer,¹ South Florida's primary source of drinking water.
- The plant is owned and operated by Florida Power and Light (FPL) – a private energy company.
- In the 1970's, water used to cool the nuclear core was drawn from Biscayne Bay, heated by the reactor, and then discharged at high temperature back into the Bay. Realizing this was harming the Bay's seagrass and fish, the Department of Justice required that a "closed loop" cooling system be built.²
- Instead of installing cooling tower commonly associated with nuclear plants, FPL constructed miles of unlined cooling canals that act as a giant radiator to cool the reactor. This is the only cooling canal system for a nuclear reactor in the world.³
- However, over the years this canal system has had severe impacts on the surrounding environment, including groundwater contamination and habitat decline for listed species.⁴

GROUNDWATER POLLUTION

- Due to the porous nature of our limestone and transmissivity of water through it, the cooling canal system (CCS) is connected to the Bay and groundwater.
- As a result, industrial waste and large amounts of salt in the cooling canals are sinking into the porous aquifer below and seeping out to the Bay.
- This "hypersaline plume" has spread for miles from FPL's property, through the Biscayne Aquifer, and continues to move at a rate of over a foot a day.
- The plume is currently moving towards the drinking water wellfield for the entire Florida Keys which is located 9.5 miles west of the CCS.⁵

CANAL COLLAPSE

- In 2014, FPL implemented an "uprate" where they tried to increase power output from the existing plant.
- The CCS has had difficulty cooling the plant post-Uprate and FPL received emergency permission to put millions of gallons of fresh water from a nearby canal into the CCS to "freshen" the system.
- In 2014, the CCS experienced an ecosystem collapse with salinity spiking to over 95 parts per thousand (ppt), or the amount of dissolved salt in the water. For comparison, Biscayne Bay's salinity is around 30 ppt. The canals experienced an algae bloom as a result.



Photo Credit: Google Earth

¹Michelle Rome Moser, BIOLOGICAL ASSESSMENT FOR THE TURKEY POINT NUCLEAR GENERATING UNIT NOS. 3 AND 4; PROPOSED SUBSEQUENT LICENSE RENEWAL (U.S. Nuclear Reg. Comm'n, Dec. 2018).

²United States v. Fla. Power and Light Co., No. 70-328-CA (S.D. Fla. September 10, 1971); Consent Order at 2, Fla. Dep't of Env'tl. Prot. v. Fla. Power and Light Co., No. 16-0241 (Fla. Dep't of Env'tl Prot. 2016).

³Nat. Res. Def. Council's, Friends of the Earth's, and Miami Waterkeeper's Petition for Waiver of 10 C.F.R. §§ 51.53(C)(3) and 51.71(D) and 10 C.F.R. PART 51, Subpart A, Appendix B, Nos. 50-250-SLR & 50-251-SLR (U.S. Nuclear Reg. Comm'n 2019).

⁴Consent Agreement, at 2, Miami Dade County v. Fla. Power and Light Co., (S. D. Fla. Oct. 6, 2015).

⁵McThenia et al., Rising Tides and Sinking Brines: Managing the Threat of Salt Water Intrusion, 68 Fla. Water Res. J. 32 (2017).

FPL TURKEY POINT

• BREAKDOWN •



WILDLIFE IMPACTS

- Crocodiles, hatchlings, and nests have been observed at Turkey Point since the mid-to late 1970s and Turkey Point has historically produced a third of crocodile nests statewide.
 - This is because the cooling canal banks, or berms, provide nearly ideal nesting conditions for the crocodiles.
 - Survival of crocodiles and the success of their nests have been linked to regional hydrographic conditions including rainfall, water level, and salinity.
 - FPL reported an overall decrease in the number of crocodiles in the CCS. The total number of nests decreased from between 20-25 nests over the last five years to eight nests in the latest report (2017), coinciding with salinity spikes we saw in the CCS post-uprate.

Photo Credit: NPS, D. Diaz

MIAMI WATERKEEPER ACTIONS

- We have one legal challenge at the moment against FPL's Turkey Point plant in response to FPL's request to continue operations of the nuclear units an additional 20 years.
- These reactors were slated for decommissioning in 2033, but currently, FPL is attempting to get an unprecedented second extension of the reactors' licenses until 2052.
- Miami Waterkeeper, alongside NRDC and Friends of the Earth, is challenging the license renewal application for Turkey Point's nuclear generating units.
- Miami Waterkeeper challenged this license on the grounds that it doesn't consider sea level rise, listed species, and pollution from the cooling canal system.

SEA LEVEL RISE AND STORM SURGE IMPACTS

- Turkey Point is already highly susceptible to flooding and storm surge, and the most conservative projections from the Army Corps of Engineers show chronic, daily, sea level rise flooding at Turkey Point by the year 2040—12 years before the predicted end of this new operating license.
- Miami Waterkeeper believes that FPL does not adequately consider sea level rise projections in planning for the longer life of these plants.
- Flood waters, rains, or hurricanes could compromise the cooling system at Turkey Point which could threaten the plant's safe operation and nearby ecosystems.

NEXT STEPS

- **The nuclear reactors at Turkey Point are deeply inappropriate and threaten our community's safety and our natural resources.**
- **We need to plan for a resilient future with a stable supply of safe, clean, and sustainable energy.**
- **Support our work by visiting www.miamiwaterkeeper.org**



MIAMI
WATERKEEPER®