February 24, 2006

Mr. David Bernhart
Assistant Regional Administrator
for Protected Resources
NOAA's National Marine Fisheries Service
Southeast Regional Office
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SUBJECT: BIOLOGICAL ASSESSMENT FOR THE REINITIATION OF A FORMAL CONSULTATION FOR CONTINUED OPERATION OF THE ST. LUCIE NUCLEAR POWER PLANT (TAC NOS. MC7266 AND MC7267)

Dear Mr. Bernhart:

The U.S. Nuclear Regulatory Commission (NRC) staff has prepared the enclosed Biological Assessment (BA) to reinitiate formal consultation, under Section 7 of the Endangered Species Act, regarding the continued operation of the St. Lucie Nuclear Power Plant. In your May 4, 2001, Biological Opinion (BO), the current Incidental Take Statement (ITS), as clarified by letter dated July 30, 2002, authorizes the annual take limit for injured and dead (due to plant operations) loggerhead and green turtles by percentage, up to one percent of the annual total loggerhead and green turtles (combined). Additionally, there are limits causally related to plant operations of two lethal takes of Kemp's ridley turtles each year and of one hawksbill or leatherback turtle injured or killed every two years. There is an annual maximum of 1000 takes for all sea turtle species combined, regardless of cause. The take limits for sea turtles have not been met or exceeded. However, a smalltooth sawfish (*Pristis pectinata*) take occurred on May 16, 2005. Because the smalltooth sawfish is listed as Federally endangered and is not addressed in the current ITS, this take triggered reinitiation of a Section 7 consultation. Therefore, the NRC is requesting a reinitiation of formal consultation with the submission of the enclosed BA.

On September 29, 2005, representatives of the NRC, NOAA's National Marine Fisheries Service, and the Florida Power & Light Company (the licensee that maintains and operates the St. Lucie Nuclear Power Plant) met for a site tour and discussion of the smalltooth sawfish take and rescue. The site tour focused on the intake canal and rescue transportation route from the intake canal over the dune to the Atlantic Ocean. At the meeting the specific sequence of events associated with the sawfish sighting and rescue were discussed in addition to potential mitigation measures, which are described in detail in the enclosed BA.

If you have any questions regarding this BA or the staff's request, please contact Ms. Harriet Nash of the Environmental Branch, at 301-415-4100 or by e-mail at hln@nrc.gov.

Sincerely,

/RA Pao-Tsin For/

Frank Gillespie, Director
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos.: 50-335 and 50-389

Enclosure: As stated

cc w/encl.: See next page

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St. Lucie

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Biological Assessment

St. Lucie Units 1 and 2
Reinitiation of Section 7 Consultation

St. Lucie County, Florida

February 2006

Docket Nos. 50-335 and 50-389

U.S. Nuclear Regulatory Commission
Rockville, Maryland

1.0 Introduction and Summary of Conclusions

This Biological Assessment (BA) was prepared in support of reinitiating a formal consultation between the U.S. Nuclear Regulatory Commission (NRC) and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) in compliance with Section 7 of the Endangered Species Act of 1973, as amended (ESA). The purpose of this BA is to examine the potential impacts on ESA-listed species associated with the continued operation of the St. Lucie Nuclear Power Plant's circulating seawater cooling system, and to support the NRC's July 8, 2005, request to NMFS for reinitiation of formal Section 7 consultation regarding the St. Lucie Nuclear Power Plant. The NRC has been consulting with NMFS regarding sea turtle takes at the St. Lucie Nuclear Power Plant since 1982; several BAs and Biological Opinions (BOs) have been issued since 1982 resulting in periodic revisions to the Incidental Take Statement (ITS), as appropriate. All previous consultations with NMFS have addressed sea turtle takes; however, this reinitiation of formal consultation was triggered by a take of a smalltooth sawfish (*Pristis pectinata*) on May 16, 2005.

Florida Power and Light Company (FPL) is the licensee that operates the St. Lucie Nuclear Power Plant and conducts an ongoing turtle capture-and-release program in the station's intake canal. There have been no procedural changes in the operation of the St. Lucie Nuclear Power Plant's circulating seawater cooling system since the last BO, dated May 4, 2001, which was clarified by letter dated July 30, 2002. Therefore, the NRC staff suggests maintaining the 2001 ITS for sea turtles with an addendum for the smalltooth sawfish. The 2001 BO analyzed the effects of operation of the St. Lucie Nuclear Power Plant's circulating seawater cooling system on loggerhead turtles (*Caretta caretta*), green turtles (*Chelonia mydas*), Kemp's ridley turtles (*Lepidochelys kempi*), leatherback turtles (*Dermochelys coriacea*), and hawksbill turtles (*Eretmochelys imbricata*). This BA provides a brief update of information regarding interactions of the cooling system with these sea turtle species. However, the central focus of this BA is to identify potential impacts of cooling system operation on the smalltooth sawfish, which was listed as endangered on November 16, 2005, based on NMFS's final determination dated April 1, 2003.

The St. Lucie Nuclear Power Plant is located on Hutchinson Island in St. Lucie County, Florida. The island is a barrier island bounded by the Atlantic Ocean to the east and the Indian River Lagoon to the west. The cooling system withdraws water from the Atlantic Ocean to cool the condensers of the two operating reactors, St. Lucie Units 1 and 2, which began operating in 1976 and 1983, respectively. The intake portion of the cooling system consists of three intake structures with velocity caps in the ocean, three buried pipelines, a common intake canal, and two intake well structures (one for each unit). In the intake canal is a series of nets, trash bars, and screens to prevent debris and organisms from being impinged on the intake screens.

Animals occasionally enter the canal system of the St. Lucie Nuclear Power Plant along with seawater that is withdrawn from the Atlantic Ocean for condenser cooling. The intake structures and velocity caps for the plant are located about 365 meters (m) (1200 feet [ft]) offshore where they also serve as artificial reefs. As such, these structures attract turtles and other marine life by providing food and shelter. If an animal passes through the vertical plane of the velocity cap, the animal would enter the intake pipeline, which travels under the ocean floor and barrier island and debouches in the intake canal on the western side of the beach dunes.

Once in the intake canal, the animals cannot escape due to the high flow rates in the intake pipes and must be rescued and returned to the ocean. Therefore, FPL has a capture-and-release program to retrieve sea turtles and return them to the ocean. The capture program includes conservation efforts and collaboration with research organizations, sea turtle stranding programs, and Federal and State agencies. FPL has an existing agreement with Florida Fish and Wildlife Conservation Commission (FFWCC) regarding case-specific decisions on how and where to treat injured turtles that are not healthy enough to be returned immediately to the ocean. The FFWCC is also consulted to conduct turtle necropsies when needed. NRC's long history of consultations with NMFS regarding the St. Lucie Nuclear Power Plant and FPL's commitment to minimize sea turtle injury and mortality have resulted in the modification and addition of barrier nets over time.

According to FPL, the smalltooth sawfish take on May 16, 2005, is the only known occurrence of the species in the St. Lucie Nuclear Power Plant intake canal since the cooling system began operating in 1976. Although the smalltooth sawfish was not listed under the ESA until 2005, the NRC staff believes that a sighting of this species most likely would have been reported given the unusual morphology of the rostrum. Once in the intake canal, the smalltooth sawfish was ensnared in a tangle net used to retrieve turtles. FPL biologists acted quickly to retrieve the specimen, take measurements and photographs, and return the animal to the ocean using the turtle stretcher and cart. The animal appeared healthy and immediately swam away upon release. On September 29, 2005, representatives of NMFS, NRC, and FPL met at the St. Lucie Nuclear Power Plant to discuss the smalltooth sawfish take. The meeting included a tour of the intake canal and the beach. Discussions focused on the series of events immediately following the take and on possible rescue strategies in the event of a future smalltooth sawfish take. Because the occurrence of the smalltooth sawfish at St. Lucie Nuclear Power Plant is rare (one take since 1976), because the FPL biologists acted with vigilance to rescue the animal successfully, and because FPL committed to put proper procedures in place to deal with any future smalltooth sawfish takes, the NRC staff believes that the continued operation of the St. Lucie Nuclear Power Plant's cooling system would not jeopardize the continued existence of the smalltooth sawfish.

2.0 Purpose

This BA is submitted to NMFS in compliance with Section 7 of the ESA, and in support of the NRC's July 8, 2005, request to NMFS for reinitiation of formal Section 7 consultation on ESA-listed species at the St. Lucie Nuclear Power Plant, which is licensed to FPL.

The purpose of this BA is to examine the potential impacts of continued operation of the St. Lucie Nuclear Power Plant's cooling system on ESA-listed species. Since 1982, the NRC has been consulting with NMFS regarding sea turtle takes at St. Lucie Nuclear Power Plant. Historically, the operation of the plant's cooling system has resulted in takes of several sea turtle species: loggerhead turtle (*Caretta caretta*), Kemp's ridley turtle (*Lepidochelys kempii*), green turtle (*Chelonia mydas*), leatherback turtle (*Dermochelys coriacea*), and hawksbill turtle (*Eretmochelys imbricata*). FPL has a program in place to retrieve entrapped turtles and return them to the ocean if they are in healthy condition. If the turtle is injured or dead, FPL coordinates treatment or necropsy with FFWCC. If the turtle is unharmed, it is measured, tagged, and returned to the ocean.

The incidental take limits for turtles have not been exceeded, and FPL's specific protocols designed to retrieve and rescue turtles are in place and followed regularly. This Section 7 consultation reinitiation is in response to a take of smalltooth sawfish (*Pristis pectinata*) that occurred on May 16, 2005. The smalltooth sawfish was measured, photographed, and rescued successfully by FPL biologists. It swam away freely upon release into the Atlantic Ocean. This BA will focus on the smalltooth sawfish.

3.0 Site Description

The St. Lucie Nuclear Power Plant is located on a 457-hectare (1130-acre) site on Hutchinson Island on Florida's east coast (see Figures 1 and 2). The plant is approximately midway between the Ft. Pierce and St. Lucie Inlets. It is bounded on the eastern side by the Atlantic Ocean and on the western side by the Indian River Lagoon, which is a long, shallow estuary. Hutchinson Island is a barrier island that extends 36 kilometers (km) (22.4 miles [mi]) between inlets and attains its maximum width of 2 km (1.2 mi) at the plant site. Elevations approach 5 m (16.4 ft) atop dunes bordering the beach on the eastern side of the island and decrease to sea level in the mangrove swamps that are common on the western side. The Atlantic shoreline of Hutchinson Island is composed of sand and shell hash with intermittent rocky promontories protruding through the beach face along the southern end of the island. Submerged coquinoid rock formations parallel much of the island off the ocean beaches. The ocean bottom immediately offshore from the plant site consists primarily of sand and shell sediments. The Florida Current, which flows parallel to the continental shelf margin, begins to diverge from the coastline at West Palm Beach. At Hutchinson Island, the current is approximately 33 km (20.5 mi) offshore. Oceanic water associated with the western boundary of the current periodically meanders over the inner shelf, especially during summer months.

4.0 Description of the St. Lucie Nuclear Power Plant

St. Lucie Units 1 and 2 consist of two 839-net megawatt-electric (MWe) nuclear-fueled generating units that use nearshore waters from the Atlantic Ocean for the plant's once-through condenser cooling system. The cooling water system removes heat from the condensers and other auxiliary equipment. Eight pumps (four per unit) located at the intake wells circulate water through the system. The pumping capacity ranges from 50,470 to 70,660 liters per second (800,000 to 1,120,000 gallons per minute) (NRC 2003).

Water for this system enters through three submerged intake structures located about 365 m (1200 ft) offshore at a depth of about 7 m (23 ft) (Figure 2). The intake structures have vertical cylindrical openings and are equipped with concrete velocity caps supported by columns extending about 1.8 m (6 ft) from the intake openings. The velocity caps minimize entrainment of fish and other organisms by eliminating vertical flow and slowing horizontal flow. Water passes through these structures and into submerged pipes (two 3.7 m [12 ft] and one 4.9 m [16 ft] in diameter) running under the beach. Flow velocities in the pipes range from 0.11 to 2.1 m/s (0.37 to 6.8 ft/s), depending on the pipe's orientation and size. The three pipes all deliver water into a 1500-m (4921-ft) long intake canal, which transports the water to the plant. The intake canal is a trapezoidal channel about 55 m (180 ft) wide and 9.1 m (30 ft) deep under normal conditions. FPL occasionally dredges the intake canal to remove accumulated sediments and maintain proper flow conditions; most recently, the canal was dredged in 2002 and 2005.

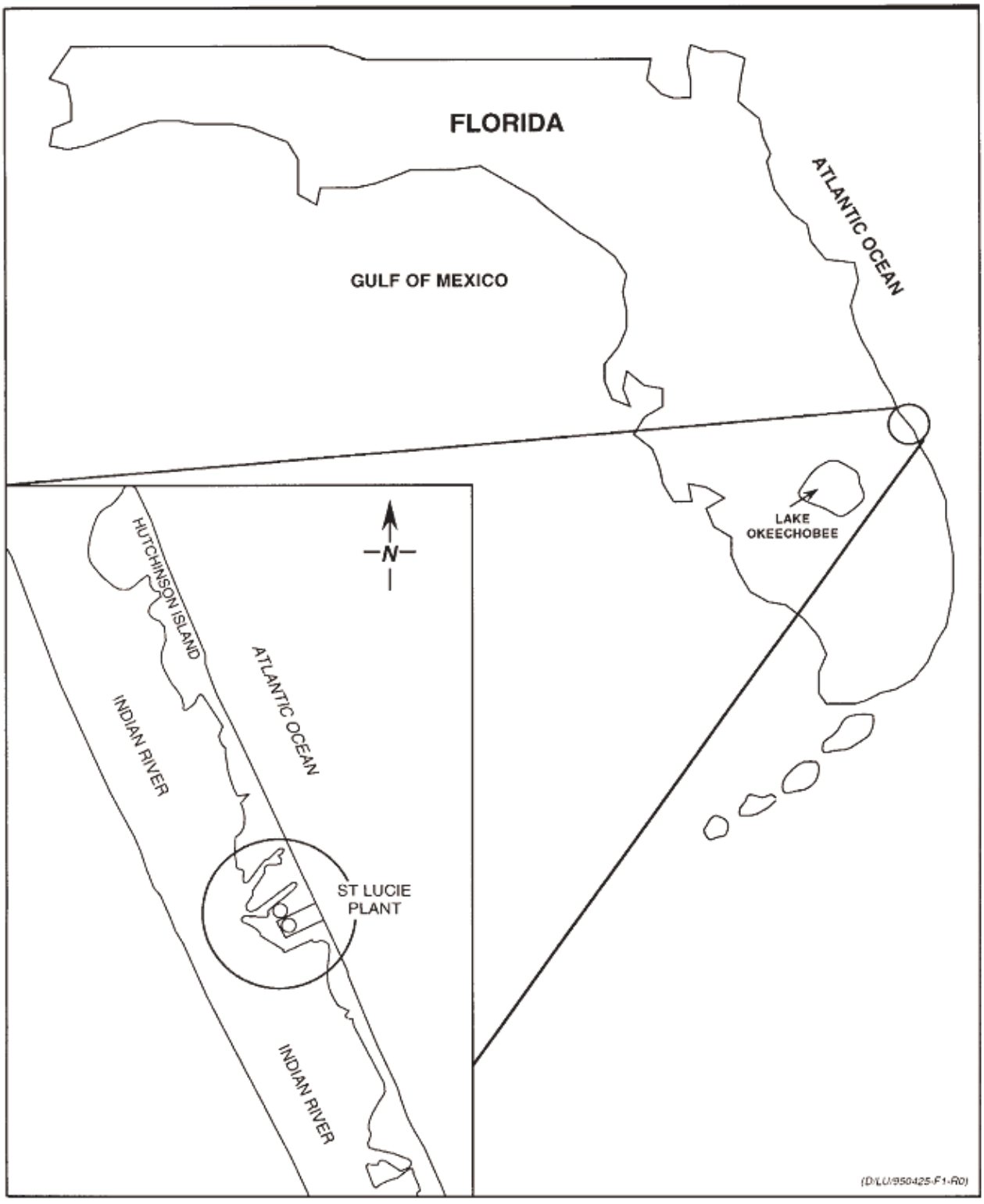

Figure 1. Location of St. Lucie Nuclear Power Plant

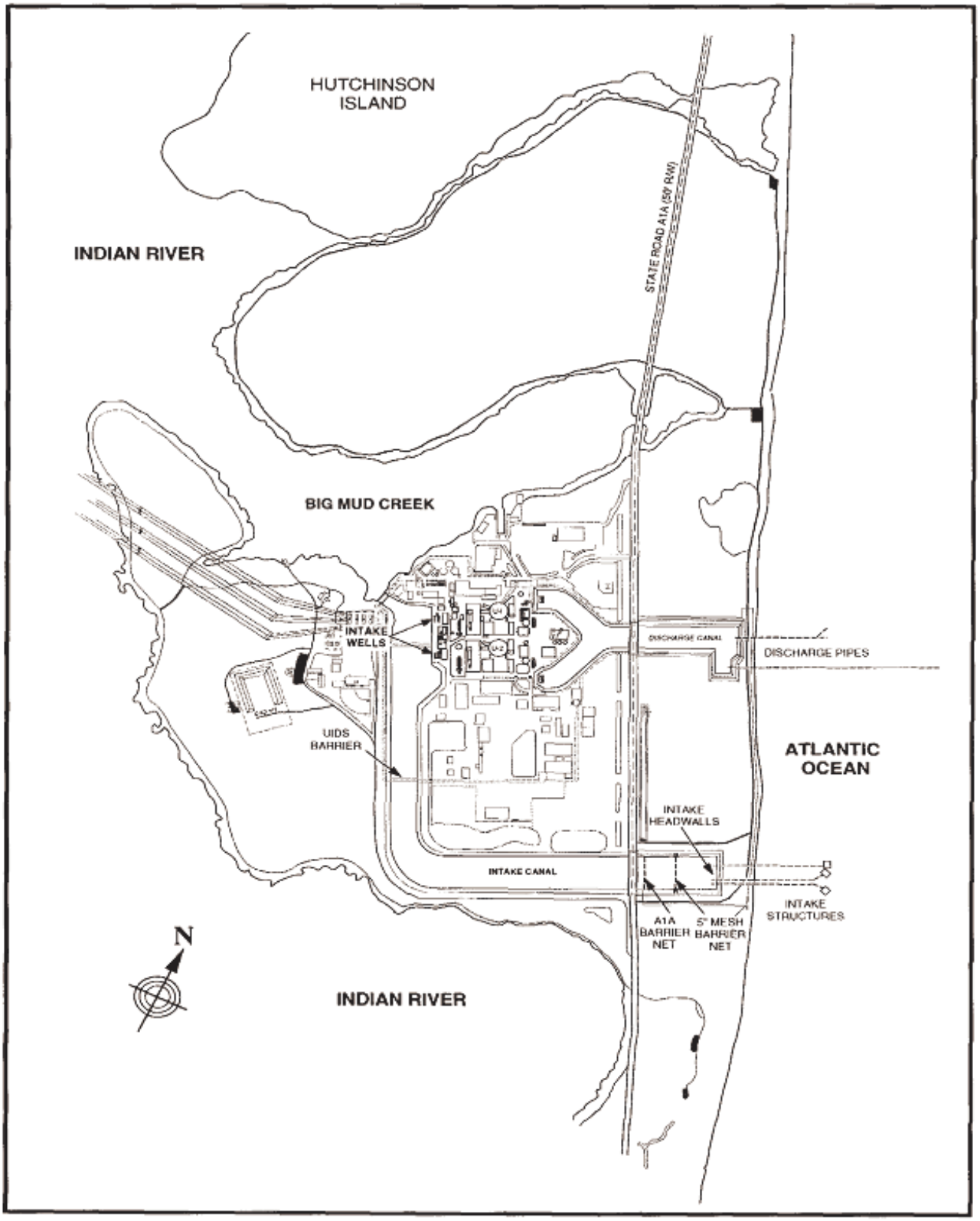

Figure 1. St. Lucie Cooling Water Intake and Discharge System

In addition to the velocity caps on the intake pipes, other measures are in place to minimize impingement of marine biota at the St. Lucie Nuclear Power Plant. In the intake canal, there is a series of barriers to prevent sea turtles and other biota from being impinged on the screens where the water enters the plant. Heading from the intake headwalls toward the intake wells in the intake canal, first there is a 12.7-centimeter (cm) (5-inch [in.]) mesh net that is taut and sloped to prevent turtles from being entangled in the net. The net is monitored hourly by sea turtle biologists who rescue any entrapped turtles. Next, there is a 20-cm (8-in.) mesh barrier net, and finally, there is a rigid security barrier closest to the plant. Additionally, sea turtle biologists deploy two 30.5-m (100-ft) tangle nets in daylight hours (with occasional night hours as well) seven days a week to capture sea turtles between the intake headwall (where the water enters the intake canal from the pipes) and the 12.7-cm (5-in.) mesh barrier net. The nets are set in adjacent eddies and flow with the current without any weights. The tangle nets are inspected at least hourly. The biologists also use dip nets and free diving to capture turtles. Underwater inspections on the 12.7- and 20-cm (5- and 8-in.) mesh barrier nets are conducted quarterly. During these inspections, any holes found in the nets are repaired.

At the plant, water enters through the eight intake wells (four per unit). In front of each well are trash racks (vertical bars spaced 7.6 cm [3 in.] apart) and 1-cm (3/8-in.) mesh traveling screens, which also prevent impingement and entrainment of organisms. Security personnel inspect the intake wells every three hours as an added precautionary measure. After passing through the plant, the heated water is discharged into a 670-m (2198-ft) long canal that leads to two buried discharge pipelines. These pass underneath the dunes and along the ocean floor to the submerged discharge pipes, the first of which is 3.7 m (12 ft) in diameter and terminates approximately 380 m (1250 ft) offshore. The second discharge pipe has a diameter of 4.9 m (16 ft) and ends about 936 m (3070 ft) offshore. The first discharge pipe has a two-port “Y” diffuser, and the second discharge pipe has a multiport diffuser for about the last 430 m (1415 ft) of the pipe. The discharge pipes are approximately 730 m (2400 ft) north of the intake. The diffusers facilitate rapid distribution of the heated water on a large spatial scale to mix efficiently with ambient waters. Discharge temperatures are kept within limits of the Industrial Wastewater Facility Permit for St. Lucie Units 1 and 2.

5.0 Affected Species

Smalltooth Sawfish

Since the St. Lucie cooling water system began operating in 1976, the only protected species under NMFS’s jurisdiction that have been affected by plant operations are five sea turtle species (loggerhead turtle, green turtle, Kemp’s ridley turtle, leatherback turtle, and hawksbill turtle) and the smalltooth sawfish. Sea turtle biologists discovered a smalltooth sawfish in the intake canal on May 16, 2005. Because the turtle limits have not been met or exceeded and there is no new information available, no changes to turtle incidental take limits are expected, and this section focuses on the smalltooth sawfish. The smalltooth sawfish take triggered the reinitiation of a Section 7 consultation for St. Lucie Units 1 and 2.

Sawfish belong to a group of fishes called elasmobranchs, fishes of the subclass Elasmobranchii that includes sharks, rays, and skates. All elasmobranchs have cartilagenous skeletons. The smalltooth sawfish are in the Suborder Pristoidea, Family Pristidae, Genus *Pristis*, and species *pectinata*. The sawfish family, Pristidae, comprises elasmobranchs that

have a unique rostral extension that is long and flat with teeth along the edges. The smalltooth sawfish has smaller teeth on the rostrum (saw) than most other species in the family. The smalltooth sawfish can have 24 to 32 teeth on each side of the rostrum, and once a sawfish loses its teeth, they do not grow back. These rostral teeth are technically dermal denticles (tiny skin teeth) that are common on shark skin. The rostrum of the smalltooth sawfish is approximately one-quarter the total length of the animal.

The sawfish are similar to sharks, especially the sawshark, in appearance. However, unlike the sawshark, which is a true shark with gills on the side of the head, the sawfish's gills are on the ventral surface like those of rays and skates as the sawfish has a flattened, ray-like head and trunk. While the smalltooth sawfish rests on the bottom, the spiracles, which are located behind the eyes on the dorsal surface, inhale water for breathing while the gills are laid against the bottom. Uncommon with rays and skates, sawfish have large dorsal and caudal fins like those of sharks.

5.1 Status

On April 1, 2003, the NMFS made the final determination to list the smalltooth sawfish *(Pristis pectinata)* as endangered under the ESA. The smalltooth sawfish was the first marine fish to be listed under the ESA; the actual listing occurred on November 16, 2005. After review of the scientific and commercial information available, the status review team determined the U.S. population segment of the smalltooth sawfish was in danger of extinction throughout all or a significant portion of its range. Four factors contributed to the listing of the sawfish: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) the inadequacy of existing regulatory mechanisms; and (4) other natural or manmade factors affecting its continued existence.

The smalltooth sawfish is also listed as critically endangered on the Red List of Threatened Animals issued by the World Conservation Union (IUCN) (Simpfendorfer 2002).

5.2 Distribution

While the smalltooth sawfish is known to occur in the Pacific and Atlantic Oceans, the U.S. population is only known to exist in the Atlantic Ocean. Historically, the U.S. population was found from New York to the Mexican border (Simpfendorfer and Wiley 2005) with the most common occurrences being from Texas to North Carolina. Now the range of the smalltooth sawfish is limited to the Florida peninsula with the most common sightings occurring in the region of the Everglades in the southern part of the state. (NMFS 2005)

5.3 Abundance

Accurate abundance estimates are not available for this species. However, records from museums and anecdotal observations from fishermen indicate that this species was once common throughout its historic range and that smalltooth sawfish have declined dramatically in U.S. waters over the last century. The significant decline was not recognized immediately because the smalltooth sawfish had no commercial value. The decline can be documented by using the data from smalltooth sawfish landings by shrimp trawlers of Louisiana. Several

factors contributed to the decline. The most significant causes for the decline were recreational and commercial fishing and habitat loss. The smalltooth sawfish was taken regularly as bycatch in gillnet, trawl, and seine fisheries (Simpfendorfer 2002).

Information based on encounters with the smalltooth sawfish by fishermen, boaters, divers, and researchers from 1998 to 2004 indicate the majority of the population in Florida can be found from the Caloosahatchee River to Florida Bay. During that time period, 434 smalltooth sawfish encounters were reported throughout Florida, from St. Augustine to the Panhandle. In areas that had frequent historical accounts of the smalltooth sawfish, such as the Indian River Lagoon and the lower St. Johns River, sightings are now rare (Simpfendorfer and Wiley 2005).

5.4 Habitat

Sawfish habitat is found circumglobally in the tropics, and the fish typically reside in shallow or sheltered coastal areas and estuaries. Like only a few other elasmobranchs, sawfish are found in freshwater systems as well. Juvenile sawfish seem to prefer estuarine or freshwater shallows while adults are often found in waters 50 m (164 ft) or deeper (Simpfendorfer 2002). Smalltooth sawfish prefer muddy or sandy substrates close to shore. In the United States, the smalltooth sawfish can be found on inshore bars, mangrove edges, seagrass beds, and sometimes in deeper coastal waters.

5.5 Life History and Behavior

Very little is known about the life history of the smalltooth sawfish because it was not an important commercial species. However, large numbers were caught as bycatch in the early part of the 20th century, which likely contributed to the decline in the population (Poulakis and Seitz 2005). It is known that the smalltooth sawfish are slow-growing, late-maturing, long-living, and slow-reproducing fish, which are all life history characteristics contributing greatly to a potentially rapid population decline and a low recovery rate. Simpfendorfer (2000) calculated the population doubling time for the smalltooth sawfish to be 5.4 to 8.5 years, which would indicate that the recovery time for the depleted population would be very long.

Like all elasmobranchs, the smalltooth sawfish have internal fertilization and low fecundity. The smalltooth sawfish matures at about age 10 and lives 25 to 30 years (NMFS 2005). Typical sizes at maturation are about 270 cm (8.8 ft) for males and approximately 360 cm (11.8 ft) for females (Simpfendorfer 2002). Sawfish are ovoviviparous, and typically produce about 12 young per litter (Banister and Campbell 1985) although some smalltooth sawfish are found to have up to 20 embryos (Poulakis and Seitz 2005). Gestation is probably about one year, and it is thought that the female smalltooth sawfish gives birth during warmer months, thus allowing for continual reproductive cycles in parts of their range with warm waters all year (Passarelli and Curtis, 2005). The embryos resemble the adults, and during development the rostrum is soft and flexible, and its soft teeth are covered by a protective sheath until they are exposed shortly after birth. The rostrum straightens, and the teeth harden soon after birth. The smalltooth sawfish is approximately 2 ft long at birth and can grow up to 18 ft or more. There are no known formal studies on the growth and age of the sawfish, and the size at which the smalltooth sawfish reaches maturity is unknown.

The sawfish diet consists of schooling fish or crab, shrimp, or other benthic prey. The saw can be used to disrupt the bottom and make prey available by dislodging the animals from the substrate. Smalltooth sawfish can also use their rostrum to slash through schools of small fish wounding or stunning the fish to facilitate consumption. The toothed rostrum can also be used as a defensive mechanism by slashing the saw from side to side. Sawfish will defend themselves when threatened but are not known to aggressively attack humans unless they are provoked.

6.0 Incidental Captures

Since St. Lucie Nuclear Power Plant began operation in 1976, only six protected species under NMFS's jurisdiction that have been affected by operation of the plant's cooling water system. Of those six species, five are sea turtles: loggerhead turtle, green turtle, Kemp's ridley turtle, leatherback turtle, and hawksbill turtle. The sixth species is the smalltooth sawfish, which has only been observed once at the St. Lucie Nuclear Power Plant and is the focus of this BA and Section 7 consultation. All animals have entered the cooling water system's intake canal via the pipelines from the ocean. The series of barriers and the biologists' monitoring activities have ensured that the majority of the individuals have been returned to the ocean unharmed or have been treated for injuries.

6.1 Sea Turtles

From initial plant operation in 1976 through 2005, a total of 11,283 sea turtles (including recaptures), representing five different species, has been removed from the intake canal. The majority of the turtles captured were loggerheads (57.4 percent). Table 1 shows the sea turtle capture data over the last five calendar years, all of which have been subject to the existing ITS that took effect when the 2001 BO was issued. Variation in the number of turtles found during different months and years, including dramatic increases in green turtle captures in recent years, have been attributed primarily to natural variations in the occurrence of turtles in the vicinity of the plant, rather than to operational influences of the plant itself. Ongoing evaluations and improvements to the canal capture program during recent years have substantially decreased the amount of time entrapped sea turtles remain in the canal. Turtles confined between the barrier net and intake headwalls typically reside in the canal for a relatively short period prior to capture, and most are in good to excellent condition when caught.

The 12.7-cm (5-in.) mesh barrier net completed in January 1996 substantially reduced sea turtle residence times in the intake canal. However, during major influxes of seaweed and jellyfish, this net experienced design failure and caused mortalities. To prevent this problem, FPL constructed a new, improved barrier net with additional structural support. Construction of this net was completed in November 2002. The improved design and net material has withstood the seaweed and jellyfish events that caused previous design failure of the old barrier net. Additionally, recent dredging of the intake canal (completed in 2002 and in 2005) has reduced current velocities around the new barrier net. These actions have significantly reduced the potential for sea turtle mortalities in the plant's intake canal.

In correspondence regarding the ITS of the May 2001 Biological Opinion, there is language that turtle injury or mortality in the canal shall be counted when "resulting from plant operation." In

response to this requirement, a qualified veterinarian determines cause of death or injury in cases that are not readily apparent.

Table 1: Sea Turtle Takes* in Recent Years

Turtle Species	2001	2002	2003	2004	2005
Loggerhead	270 (1)	341 (0)	538 (0)	624 (1)	486 (1)
Green	321 (5)	292 (2)	394 (2)	285 (1)	426 (4)
Kemp's ridley	1 (0)	0	2 (0)	1 (0)	3 (0)
Leatherback	2 (0)	0	4 (0)	2 (0)	0
Hawksbill	6 (0)	3 (0)	6 (0)	2 (0)	1 (0)
TOTAL	600 (6)	636 (2)	944 (2)	914 (2)	917 (5)

* Note: Numbers in parentheses indicate the number of injurious or lethal takes that resulted from plant operations and, therefore, apply to the incidental take limit.
Sources: Quantum Resources and FPL 2005; FPL 2006.

6.2 Smalltooth Sawfish

On May 16, 2005, during the course of normal net-monitoring activities in the St. Lucie Nuclear Power Plant intake canal, a smalltooth sawfish (*Pristis pectinata*) became entangled in the northern tangle net at approximately 5:20 pm. The biologist on duty determined that the animal was too large to handle himself and called for assistance at approximately 5:30 pm. A crew of four biologists assembled at the intake canal at 6:00 pm and discussed a plan to remove the sawfish from the net and release it back to the ocean safely. The 30.5-m (100-ft) net was released from the western end anchor point and was pulled into the boat up to the location of the sawfish. The net was then released from the eastern end anchor point, and the remainder of the net was pulled into the boat leaving the entangled sawfish in the water along side the boat. The saw was the only part of the animal that was entangled in the net so the rest of its body remained unencumbered. The animal was pulled into the boat ramp area where the remaining net was offloaded. The animal remained in the shallow water of the boat ramp until preparations were made for its removal. A stretcher was laid out on the boat ramp, and a winch was attached to the remaining net to pull the sawfish onto the stretcher. At approximately 6:30 pm, the animal was pulled from the water up the boat ramp and onto the stretcher. The sawfish was then moved into the back of a trailer normally used for transporting large sea turtles. At this point the net was cut off the sawfish's rostrum to disentangle the animal, and measurements and photographs were taken. The sawfish measured 415 cm (13.62 feet) in total length, and the rostrum itself measured 86 cm (2.82 feet). The animal was then transported in the trailer via an all-terrain vehicle (ATV) across the dune and to the ocean, a distance of about 100 m (328 ft). Two biologists walked behind the trailer holding up the tail end of the stretcher to ensure the animal would not slide out. The trailer was then filled with ocean water by backing it into the nearshore trough at the beach, and the animal was able to float out of the trailer and swim away freely at approximately 6:45 pm. The area where the sawfish was released was monitored for 25 minutes to make sure that the animal had

acclimated and did not wash ashore. There was no sign of the sawfish in the area after it swam away at 6:45 pm.

After the sawfish was released safely by the biologists, FPL contacted NMFS to report the incident. NMFS requested that FPL send photographs and measurement data on the sawfish to Mote Marine Laboratory as a part of Mote's ongoing sawfish research. FPL did so on May 18, 2005. On June 7, 2005, NMFS indicated to FPL that a Section 7 consultation would need to be initiated between the NRC and NMFS concerning the event. On September 29, 2005, NMFS, NRC, and FPL met at the St. Lucie Nuclear Power Plant for a site visit and discussion regarding the smalltooth sawfish take and Section 7 consultation.

7.0 Assessment of Impacts on Threatened and Endangered Species

Impacts to sea turtles have not changed significantly since the last Section 7 consultation. The operation of the cooling water system and the biological monitoring program have not been modified since 2002 when improvements were made. NMFS approved such modifications in a letter dated May 9, 2003, which reiterated that the May 2001 BO and ITS remained valid. Also, FPL biologists conduct a very successful sea turtle tagging program, and the St. Lucie Nuclear Power Plant intake canal is often used as the primary study area for various research projects. The continued operation of the cooling water system for the St. Lucie Nuclear Power Plant is not expected to jeopardize the continued existence of loggerhead turtle, green turtle, Kemp's ridley turtle, leatherback turtle, or hawksbill turtle.

The 2005 smalltooth sawfish take is the only known interaction of the smalltooth sawfish with St. Lucie Units 1 and 2 and, thus, is considered anomalous. The fish was rescued in the intake canal and returned to the ocean where it rapidly swam away with ease. Due to the rarity of the smalltooth sawfish's entrapment in the intake canal (once in 29 years of operation) and FPL's commitment to return any future specimens rapidly to the ocean, the continued operation of the cooling water system for St. Lucie Nuclear Power Plant is not expected to jeopardize the continued existence of the smalltooth sawfish.

8.0 Mitigation Measures

Representatives of NMFS, NRC, and FPL discussed mitigation measures specific to the smalltooth sawfish at the September 29, 2005 meeting. Such measures could include:

- Minimize animal's time out of water by taking measurements in the intake canal
- Develop a method to ensure the animal's spiracles are kept wet during out-of-water transportation over the dunes to the ocean
- Send one or more FPL representatives to an aquarium (such as Sea World) that routinely interacts with the smalltooth sawfish to learn safe handling and transportation techniques (such as using a neoprene sleeve to cover the saw)
- Develop and periodically exercise a rescue and transportation plan, including maintenance and operation of appropriate equipment. Such a plan would reduce the fish's out-of-water time to less than ten minutes.

9.0 Recommendation for Revised Incidental Take Statement

Consistent with the agreement reached in a meeting held with NRC and the NMFS Southeast Region's Regional Administrator on September 26, 2002, the NRC staff has provided suggestions for the revised ITS. The limits for sea turtles have not been met or exceeded, and the NRC staff does not recommend modification of the take limits for sea turtles. The sea turtle take limits are up to one percent of the annual loggerhead and green takes for injurious or lethal loggerhead and green takes, two lethal takes of Kemp's ridley turtles annually, and one lethal take of hawksbill or leatherback every two years. There is also a maximum annual take limit of 1000 for all sea turtle species combined regardless of causation. The NRC staff recommends that the ITS for the St. Lucie Nuclear Power Plant be revised to allow one non-lethal take of the smalltooth sawfish on an annual basis.

Additionally, the NRC staff recommends incorporating into the revised ITS the following reasonable and prudent measures for the protection of the smalltooth sawfish:

1. FPL shall have a transportation plan in place to transport rapidly any future takes of smalltooth sawfish from the intake canal to the ocean for release.

2. FPL shall report all smalltooth sawfish captures and any mortalities per permit conditions.

The NRC staff also recommends adding to the ITS the following terms and conditions:

1. All measurements of individual specimens of smalltooth sawfish captured in the intake canal shall be made while the specimen is in the water in the intake canal.

2. The spiracles of the smalltooth sawfish are to be kept wet during transport of specimens for release into the ocean.

3. The transportation plan shall be exercised annually with the goal of reducing the fish's out-of-water time to less than ten minutes.

The NRC staff finds that these reasonable and prudent measures and terms and conditions would adequately protect any smalltooth sawfish captured in the intake canal and that there is reasonable likelihood that the rescue and release into the ocean would not cause injury or mortality. Therefore, implementation of such measures would ensure that the continued operation of the St. Lucie Nuclear Power Plant's cooling water system would not jeopardize the continued existence of the smalltooth sawfish in U.S. waters.

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