

**Florida Power & Light Company
Biological Plan of Study Implementation
for St. Lucie Plant EPU
Post-Upgrade Event 7 Data Report**

**Report to
Florida Power & Light Company**

June 2014

**Submitted by
Ecological Associates, Inc.
Post Office Box 405
Jensen Beach, Florida**



INTRODUCTION

During January 2014 and February 2014, Ecological Associates, Inc. (EAI) conducted the seventh post-uprate field sampling event in accordance with the St. Lucie Plant EPU Biological Plan of Study. Sampling was conducted on six days between January 27, 2014 and February 25, 2014. Data collected included general environmental data; water quality data; numbers and sizes of fish and shellfish collected by gill net, trawl, and beach seine; numbers of fish eggs and larvae and commercially or recreationally important decapod crustacean larvae collected by plankton net; and, numbers and sizes of sea turtles observed. Results of the seventh post-uprate sampling event are provided in this report. All data should be considered preliminary until quality assurance checks have been completed.

SAMPLING LOCATIONS

Sampling was conducted within three separate sampling sites: SL1 located midway between the St. Lucie Plant and the Ft. Pierce Inlet, SL2 located in the vicinity of the St. Lucie Plant cooling water discharge, and SL3 located midway between the St. Lucie Plant and the St. Lucie Inlet.

For the purposes of gill netting and trawling, three transects were established within each of the three sampling sites: Transect A was located approximately 600 ft from shore on the beach terrace in water depths of 8-32 ft, Transect B was located approximately 4,000 ft. from shore in water depths of 34-45 ft, and Transect C was located approximately 8,000 ft. from shore in water depths of 31-47 ft. Plankton samples were collected concurrently with trawl samples at all three sites but only on Transects A and C.

Three stations were also established within each of the three sampling sites for the purpose of beach seining: Station A was located 0.5 mi. north of the center of the site, Station B was located at the center of the site, and Station C was located 0.5 mi. south of the center of the site. At all stations, seines were pulled to the beach from a water depth of approximately 4 ft.

For the purpose of boat-based sea turtle surveys, one transect was established in each of the three sampling sites. The transects were located along nearshore hardbottom habitat in each site.

RESULTS

Environmental data were recorded at each station during each day of sampling. Data recorded included sea conditions, air temperature, wind speed and direction, and sky conditions.

Environmental data are summarized by day in Table 1. Values reflect the range of values recorded throughout each day of sampling.

Water quality data were recorded at three locations and three depths along each of the nine transects established for trawl and gill net sampling. Data recorded included specific conductivity, water temperature, salinity, pH, and dissolved oxygen (DO). Water quality data are provided in Table 2.

Trawls were towed for 15 minutes along each of the nine transects. The scientific and common names of all specimens captured by all gear types are listed in Table 3. The numbers of fish and invertebrates collected in each 15-minute tow are presented in Table 4. Because of variations in tow speed, the distances the trawl traveled during a 15-minute tow varied (based on GPS readings). In order to compare abundances among stations in terms of catch per unit effort, the numbers collected per kilometer of bottom sampled were calculated and are presented in Table 5.

The numbers of fish and invertebrates collected by gill net on each of the nine transects is given in Table 6. At each transect the gill net began to be retrieved 30 minutes after it was set. However, the total soak time (time from when the net first entered the water until the time it was completely removed from the water) varied among transects because of differences in retrieval times associated with variations in the number of fish present in the net. In order to compare abundances among stations in terms of catch per unit effort, the numbers collected per hour of total soak time were calculated and are given in Table 7.

Beach seines were deployed at each of the nine stations previously described. The numbers of fish and invertebrates collected at each station are presented in Table 8.

A maximum of 25 representative specimens of each Representative Important Species (RIS) of fish collected at each transect/station by trawl, gill net, and beach seine were measured (total length) and a batch weight for those specimens was obtained. Average lengths and average weights of each RIS at each station/transect for each gear type are presented in Table 9.

Bongo nets were used to collect fish eggs and larvae as well as commercially or recreationally important invertebrate larvae at each of the six transects previously described. Nets were pulled for 15 minutes and the volume of water filtered determined by means of flow meters. Numbers of individuals per cubic meter of water filtered are given in Table 10.

To quantify the number of sea turtles present in each of the three sampling sites, one one-kilometer-long transect in each sampling site was traversed by boat twice. The numbers of sea turtles sighted during each pass along each transect are presented in Table 11.

Table 1. Environmental Data, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Luice Plant EPU Biological Study. Values reflect the range of values recorded throughout each day of sampling.

Sampling	Date	Sea Conditions	Air Temp	Wind Speed and Direction	Sky Conditions
Trawls/ Ichthyoplankton	1/27/2014	0-2 ft swells	19.2-24.4°C	1-5 mph, NNW to SSW	Clear to Partly Cloudy
Trawls/ Ichthyoplankton	1/28/2014	0-2 ft swells	18.2-20.4°C	0-3 mph, W to SW	Clear to Partly Cloudy
Gill Nets	1/27/2014	1-2 ft Swells	20.2-25.1°C	3-12 mph, S-SW	Clear
Gill Nets	1/28/2014	1 ft Swells	20.8-24.0°C	3-5 mph, SW	Clear
Beach Seines	2/25/2014	1-2 ft Swells	23.0-27.4°C	5-10 mph, N to NE	Clear to Mostly Cloudy
Sea Turtle Transects	2/25/2014	2-3 ft Swells	24.4-25.4°C	5-10 mph, NE	Partly Cloudy

Table 2. Water Quality Data, Post Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study.

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL1 A	North	Surface	53.4	20.2	34.8	8.4	6.4
		Mid-Depth	53.3	20.0	34.9	8.4	6.4
		Bottom	53.3	19.4	34.8	8.4	6.4
	Middle	Surface	53.3	20.5	34.9	8.4	6.4
		Mid-Depth	53.3	20.1	34.8	8.4	6.4
		Bottom	53.3	19.5	34.8	8.4	6.4
	South	Surface	53.4	20.4	34.9	8.4	6.4
		Mid-Depth	53.3	20.3	34.9	8.4	6.4
		Bottom	53.3	19.8	34.9	8.4	6.4
Trawl SL1 B	North	Surface	53.4	21.1	35.0	8.4	6.4
		Mid-Depth	53.4	20.7	35.0	8.4	6.4
		Bottom	53.5	19.2	35.0	8.4	6.6
	Middle	Surface	53.4	21.2	35.0	8.4	6.2
		Mid-Depth	53.4	20.9	35.0	8.3	6.3
		Bottom	53.4	19.3	35.0	8.3	6.3
	South	Surface	53.5	21.2	35.0	8.4	6.1
		Mid-Depth	53.5	21.0	35.0	8.4	6.2
		Bottom	53.4	19.6	34.9	8.4	6.3
Trawl SL1 C	North	Surface	53.7	22.3	35.3	8.4	6.2
		Mid-Depth	53.5	22.2	35.2	8.4	6.2
		Bottom	53.5	21.6	35.1	8.4	6.3
	Middle	Surface	53.6	22.4	35.2	8.4	6.3
		Mid-Depth	53.5	22.3	35.2	8.4	6.2
		Bottom	53.5	22.1	35.2	8.4	6.3
	South	Surface	53.5	22.6	35.2	8.4	6.3
		Mid-Depth	53.5	22.5	35.2	8.4	6.3
		Bottom	53.5	22.1	35.2	8.4	6.3
Trawl SL2 A	North	Surface	53.3	18.8	34.8	8.3	6.7
		Mid-Depth	53.3	18.8	34.8	8.3	6.7
		Bottom	53.3	18.8	34.8	8.3	6.7
	Middle	Surface	53.3	18.7	34.9	8.3	6.6
		Mid-Depth	53.3	18.8	34.8	8.3	6.6
		Bottom	53.3	18.8	34.8	8.3	6.7
	South	Surface	53.3	19.4	34.8	8.4	6.7
		Mid-Depth	53.3	19.1	34.8	8.4	6.7
		Bottom	53.3	18.9	34.8	8.4	6.7

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL2 B	North	Surface	53.6	23.1	35.2	8.3	6.4
		Mid-Depth	53.6	22.2	35.2	8.3	6.4
		Bottom	53.5	22.0	35.1	8.3	6.4
	Middle	Surface	53.6	23.1	36.3	8.4	6.3
		Mid-Depth	53.6	22.2	35.2	8.3	6.3
		Bottom	53.6	22.0	35.1	8.3	6.4
	South	Surface	53.6	23.1	35.3	8.4	6.1
		Mid-Depth	53.6	22.2	35.1	8.4	6.3
		Bottom	53.6	22.0	35.1	8.4	6.3
Trawl SL2 C	North	Surface	53.6	23.6	35.4	8.4	6.2
		Mid-Depth	53.6	22.2	35.2	8.4	6.2
		Bottom	53.5	21.9	35.1	8.4	6.3
	Middle	Surface	53.6	23.6	35.3	8.3	6.2
		Mid-Depth	53.5	22.1	35.2	8.3	6.3
		Bottom	53.5	21.9	35.1	8.3	6.4
	South	Surface	53.6	23.6	35.3	8.3	6.2
		Mid-Depth	53.6	22.6	35.2	8.3	6.2
		Bottom	53.5	21.9	35.2	8.3	6.4
Trawl SL3 A	North	Surface	53.1	21.4	34.8	8.3	6.5
		Mid-Depth	53.1	21.3	34.8	8.3	6.5
		Bottom	53.1	21.1	34.8	8.3	6.5
	Middle	Surface	53.1	21.4	34.8	8.3	6.5
		Mid-Depth	53.1	21.5	34.8	8.3	6.4
		Bottom	53.1	21.5	34.8	8.3	6.5
	South	Surface	53.1	21.2	34.8	8.4	6.4
		Mid-Depth	53.1	21.2	34.8	8.4	6.4
		Bottom	53.1	21.2	34.8	8.4	6.4
Trawl SL3 B	North	Surface	53.4	23.4	35.1	8.3	6.4
		Mid-Depth	53.4	23.3	35.1	8.3	6.4
		Bottom	53.4	20.1	35.1	8.3	6.4
	Middle	Surface	53.4	22.9	35.1	8.3	6.4
		Mid-Depth	53.4	23.0	35.1	8.3	6.4
		Bottom	53.4	20.1	35.1	8.3	6.3
	South	Surface	53.6	23.1	35.2	8.3	6.3
		Mid-Depth	53.5	23.2	35.1	8.3	6.2
		Bottom	53.5	20.1	35.1	8.3	6.3

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL3 C	North	Surface	53.8	23.9	35.4	8.3	6.4
		Mid-Depth	53.7	23.7	35.4	8.3	6.4
		Bottom	53.7	23.0	35.3	8.3	6.4
	Middle	Surface	53.7	23.9	35.3	8.3	6.4
		Mid-Depth	53.7	23.7	35.3	8.3	6.4
		Bottom	53.6	22.5	35.2	8.3	6.5
	South	Surface	53.6	23.9	35.3	8.3	6.4
		Mid-Depth	53.6	23.9	35.3	8.3	6.5
		Bottom	53.6	23.0	35.3	8.3	6.5
Gill Net SL1 A	East	Surface	53.4	22.6	35.1	8.1	6.2
		Mid-Depth	53.4	22.1	35.1	8.2	6.3
		Bottom	53.4	21.8	35.1	8.2	6.4
	Middle	Surface	53.3	22.7	35.0	8.1	6.3
		Mid-Depth	53.3	22.1	35.0	8.1	6.2
		Bottom	53.3	22.0	35.0	8.1	6.3
	West	Surface	53.3	22.1	35.0	8.1	6.3
		Mid-Depth	53.3	22.1	35.0	8.1	6.2
		Bottom	53.3	22.1	35.0	8.1	6.2
Gill Net SL1 B	East	Surface	53.4	22.6	35.1	8.2	6.3
		Mid-Depth	53.5	22.4	35.2	8.2	6.3
		Bottom	53.4	20.2	34.9	8.2	6.4
	Middle	Surface	53.3	22.7	35.0	8.1	6.4
		Mid-Depth	53.5	22.4	35.1	8.1	6.4
		Bottom	53.3	20.3	35.0	8.1	6.4
	West	Surface	53.3	22.7	35.0	8.1	6.4
		Mid-Depth	53.4	22.4	35.1	8.1	6.4
		Bottom	53.3	20.2	34.9	8.1	6.5
Gill Net SL1 C	East	Surface	53.5	23.1	35.2	8.2	6.3
		Mid-Depth	53.5	23.0	35.2	8.2	6.2
		Bottom	53.4	23.0	35.2	8.2	6.2
	Middle	Surface	53.5	22.9	35.2	8.1	6.5
		Mid-Depth	53.5	22.8	35.2	8.2	6.4
		Bottom	53.5	22.8	35.1	8.1	6.3
	West	Surface	53.5	22.8	35.2	8.1	6.4
		Mid-Depth	53.5	22.8	35.2	8.1	6.4
		Bottom	53.4	22.8	35.1	8.1	6.3

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Gill Net SL2 A	East	Surface	53.4	19.8	34.9	8.3	7.0
		Mid-Depth	53.4	18.9	34.9	8.3	7.1
		Bottom	53.3	18.7	34.9	8.3	7.1
	Middle	Surface	53.4	18.9	34.8	8.3	7.0
		Mid-Depth	53.3	18.6	34.8	8.3	7.0
		Bottom	53.3	18.6	34.9	8.3	7.0
	West	Surface	53.3	18.9	34.7	8.3	6.6
		Mid-Depth	53.3	18.6	34.8	8.3	6.9
		Bottom	53.3	18.6	34.8	8.3	6.9
Gill Net SL2 B	East	Surface	53.5	18.9	35.0	8.3	7.3
		Mid-Depth	53.5	18.8	35.0	8.3	7.2
		Bottom	53.5	18.8	35.0	8.3	7.2
	Middle	Surface	53.4	18.9	34.9	8.3	7.3
		Mid-Depth	53.4	18.8	34.9	8.3	7.2
		Bottom	53.4	18.8	34.9	8.3	7.1
	West	Surface	53.4	18.9	34.9	8.3	7.3
		Mid-Depth	53.5	18.8	35.0	8.3	7.2
		Bottom	53.5	18.8	35.0	8.3	7.1
Gill Net SL2 C	East	Surface	53.5	23.3	35.2	8.2	6.2
		Mid-Depth	53.5	23.3	35.2	8.2	6.2
		Bottom	53.5	23.4	35.2	8.2	6.2
	Middle	Surface	53.5	23.2	35.2	8.1	6.4
		Mid-Depth	53.5	23.2	35.2	8.1	6.3
		Bottom	53.5	23.3	35.2	8.1	6.2
	West	Surface	53.4	23.2	35.2	8.1	6.3
		Mid-Depth	53.5	23.2	35.2	8.1	6.2
		Bottom	53.5	23.3	35.2	8.1	6.2
Gill Net SL3 A	East	Surface	53.0	18.9	34.5	8.3	6.9
		Mid-Depth	53.1	18.8	34.7	8.3	6.9
		Bottom	53.3	18.7	34.7	8.3	6.9
	Middle	Surface	52.7	19.1	34.4	8.3	6.8
		Mid-Depth	53.1	19.3	34.8	8.3	6.9
		Bottom	53.2	19.0	34.7	8.3	6.9
	West	Surface	52.4	18.8	34.2	8.3	6.9
		Mid-Depth	53.3	19.2	34.8	8.3	6.9
		Bottom	53.5	18.9	34.8	8.3	6.9

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Gill Net SL3 B	East	Surface	53.2	21.7	34.9	8.5	6.6
		Mid-Depth	53.4	19.5	34.9	8.5	6.9
		Bottom	53.4	19.2	34.9	8.4	6.9
	Middle	Surface	53.1	21.7	34.8	8.3	6.6
		Mid-Depth	53.3	19.5	34.8	8.3	6.8
		Bottom	53.4	19.1	34.9	8.3	6.8
	West	Surface	53.2	21.7	34.9	8.3	6.7
		Mid-Depth	53.3	19.4	34.8	8.3	6.8
		Bottom	53.4	19.0	34.8	8.3	6.8
Gill Net SL3 C	East	Surface	53.3	22.0	35.0	8.3	6.6
		Mid-Depth	53.5	22.0	35.1	8.3	6.5
		Bottom	53.4	20.8	35.1	8.3	6.7
	Middle	Surface	53.2	22.1	34.9	8.3	6.6
		Mid-Depth	53.3	22.0	35.0	8.3	6.5
		Bottom	53.4	21.5	35.0	8.3	6.6
	West	Surface	53.2	22.1	34.9	8.3	6.5
		Mid-Depth	53.3	21.9	35.0	8.3	6.5
		Bottom	53.4	21.0	34.9	8.3	6.6

Table 3. Scientific and Common Names of Taxa Captured by Trawl, Plankton Netting, Gill Netting, and Beach Seining or Observed in Sea Turtle Surveys, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study.

Scientific Name	Common Name
Cephalopoda	
Loliginidae	squid
Crustaceans	
<i>Acetes americanus</i>	aviu shrimp
<i>Arenaeus cribrarius</i>	speckled swimming crab
<i>Callinectes sapidus</i> *	blue crab
<i>Callinectes</i> sp.*	swimming crabs
Caridea	caridean shrimp
<i>Emerita talpoida</i> *	Atlantic sand crab
<i>Farfantepenaeus duorarum</i> *	pink shrimp
<i>Farfantepenaeus</i> sp.*	penaeid shrimp
<i>Menippe mercenaria</i> *	Florida stone crab
<i>Ogyrides hayi</i>	sand longeye shrimp
Paguroidea	hermit crab
Palaemonidae	palaemonid shrimp
Penaeidae*	penaeid shrimp
<i>Persephona mediterranea</i>	mottled purse crab
<i>Phycomenes siankaanensis</i>	iridescent shrimp
Portunidae*	swimming crabs
<i>Portunus gibbesii</i>	iridescent swimming crab
<i>Portunus</i> sp.	portunid crab
<i>Processa</i> sp.	night shrimp
<i>Rimapenaeus / Xiphopenaeus</i> complex*	<i>Rimapenaeus / Xiphopenaeus</i> complex
<i>Rimapenaeus constrictus</i> *	roughneck shrimp
<i>Sicyonia</i> sp.*	rock shrimp
Echinoderms	
Arbaciidae	sea urchins
Clypeasteroidea	sand dollars

Scientific Name	Common Name
Fish and Eggs	
<i>Albula sp.</i>	bonefishes
<i>Anchoa sp.**</i>	common anchovy
<i>Archosargus probatocephalus</i>	sheepshead
Atherinopsidae	New World silversides
<i>Bairdiella chrysoura</i>	silver perch
Blenniidae	combtooth blennies
<i>Brevoortia sp.**</i>	menhadens
<i>Calamus penna</i>	sheep head
Carangidae	jacks
<i>Caranx crysos</i>	blue runner
<i>Caranx hippos</i>	crevalle jack
<i>Caranx latus</i>	horse-eye jack
<i>Carcharhinus brevipinna</i>	spinner shark
<i>Carcharhinus limbatus</i>	blacktip shark
<i>Chloroscombrus chrysurus</i>	Atlantic bumper
<i>Citharichthys macrops</i>	spotted whiff
<i>Citharichthys sp.</i>	whiff
<i>Citharichthys spilopterus</i>	bay whiff
Clupeidae**	herrings and sardines
Clupeiformes**	herring-like fishes
<i>Cynoscion nebulosus</i>	spotted sea trout
<i>Cynoscion nothus**</i>	silver seatrout
<i>Cynoscion sp.</i>	seatrouts
<i>Echeneis naucrates</i>	sharksucker
Engraulidae**	anchovies
Ephippidae	spadefishes
<i>Etrumeus teres**</i>	round herring
<i>Eucinostomus gula</i>	silver jenny
<i>Eucinostomus sp.</i>	mojarra
<i>Gobiesox strumosus</i>	skilletfish
Gobiidae	gobies
Gonostomatidae	lightfishes
Haemulidae	grunts

Scientific Name	Common Name
<i>Harengula jaguana</i> **	scaled sardine
Labridae	wrasses
Labrisomidae	labrisomid blennies
<i>Lagodon rhomboides</i>	pinfish
<i>Larimus fasciatus</i>	banded drum
<i>Leiostomus xanthurus</i> **	spot
Lutjanidae	snappers
<i>Menticirrhus americanus</i> **	southern kingfish
<i>Menticirrhus littoralis</i> **	Gulf kingfish
<i>Menticirrhus saxatilis</i> **	northern kingfish
<i>Menticirrhus sp.</i> **	kingfishes/ Weakfishes
<i>Microgobius gulosus</i>	clown goby
<i>Microgobius thalassinus</i>	green goby
<i>Micropogonias undulatus</i> **	Atlantic croaker
<i>Mugil curema</i>	silver mullet
Mugilidae	mulletts
Muraenidae	moray eels
<i>Mustelus canis</i>	smooth dogfish
Myctophidae	lanternfishes
<i>Orthopristis chrysoptera</i> **	pigfish
<i>Paralichthys albigutta</i>	Gulf flounder
<i>Pareques sp.</i>	drum
<i>Peprilus triacanthus</i>	butterfish
Phosichthyidae	lightfishes
Pleuronectiformes	flounders
<i>Polydactylus virginicus</i>	barbu
Pomacanthidae	angelfishes
Pomacentridae	damsel-fishes
<i>Pomatomus saltatrix</i> **	bluefish
<i>Prionotus scitulus</i> **	leopard searobin
<i>Rachycentron canadum</i>	cobia
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark
Sciaenidae	drums and croakers

Scientific Name	Common Name
<i>Scomberomorus maculatus</i> **	Atlantic spanish mackerel
Scombridae	mackerels
Serranidae	sea basses and groupers
Sparidae	porgies
<i>Sphyrna tiburo</i>	bonnethead shark
<i>Syngnathus sp.</i>	pipefishes
<i>Synodus foetens</i>	inshore lizardfish
Tetragonuridae	squartails
Tetraodontidae	puffers
<i>Trachinotus falcatus</i>	permit
Triglidae	searobins
<i>Umbrina coroides</i> **	sand drum
Unidentified eggs	unidentified eggs
Sea Turtles	
<i>Chelonia mydas</i> **	green sea turtle

*Commercially and recreationally important (CRI) decapod crustaceans

**Representative Important Species (RIS)

Table 4. Number of Individuals of Each Fish and Invertebrate Taxon Captured by Trawl during One 15-minute Tow at Each Station, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
<i>Portunus gibbesii</i>	4	2		7		1	12	3	2	31
Paguroidea				20						20
<i>Acetes americanus</i>	9									9
<i>Rimapenaeus constrictus</i> *				4			2			6
Palaemonidae	3									3
<i>Portunus</i> sp.				2					1	3
<i>Arenaeus cribrarius</i> *	1									1
Caridea	1									1
<i>Farfantepenaeus duorarum</i> *	1									1
<i>Ogyrides hayi</i>				1						1
Penaeidae*				1						1
<i>Persephona mediterranea</i>				1						1
<i>Phycomenes siankaanensis</i>				1						1
<i>Processa</i> sp.				1						1

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Echinoderms										
Clypeasteroida			1				1			2
Arbaciidae		1								1
Fish										
<i>Anchoa</i> sp.**	41									41
<i>Albula</i> sp.	5									5
<i>Umbrina coroides</i> **	4			1						5
<i>Citharichthys macrops</i>				1			1			2
<i>Eucinostomus gula</i>							1			1
<i>Larimus fasciatus</i>	1									1
<i>Synodus foetens</i>				1						1
Total	70	3	1	41	0	1	17	3	3	139

*Commercially and Recreationally Important Crustaceans

**Representative Important Species (RIS)

Table 5. Number of Individuals of Each Fish and Invertebrate Taxon Captured per Kilometer by Trawl at Each Station, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study. (Note: Totals in the right column represent the number of individuals captured per kilometer for all nine transects.)

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
<i>Portunus gibbesii</i>	6.36	2.25		11.46		1.60	15.49	3.69	3.34	4.93
Paguroidea				32.74						3.18
<i>Acetes americanus</i>	14.30									1.43
<i>Rimapenaeus constrictus</i> *				6.55			2.58			0.95
Palaemonidae	4.77									0.48
<i>Portunus</i> sp.				3.27					1.67	0.48
<i>Arenaeus cribrarius</i> *	1.59									0.16
Caridea	1.59									0.16
<i>Farfantepenaeus duorarum</i> *	1.59									0.16
<i>Ogyrides hayi</i>				1.64						0.16
Penaeidae*				1.64						0.16
<i>Persephona mediterranea</i>				1.64						0.16
<i>Phycomenes siankaanensis</i>				1.64						0.16
<i>Processa</i> sp.				1.64						0.16

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Echinoderms										
<i>Clypeasteroida</i>			2.02				1.29			0.32
<i>Arbaciidae</i>		1.12								0.16
Fish										
<i>Anchoa</i> sp.**	65.16									65.16
<i>Albula</i> sp.	7.95									0.80
<i>Umbrina coroides</i> **	6.36			1.64						0.80
<i>Citharichthys macrops</i>				1.64			1.29			0.32
<i>Eucinostomus gula</i>							1.29			0.16
<i>Larimus fasciatus</i>	1.59									0.16
<i>Synodus foetens</i>				1.64						0.16
Total	111.25	3.37	2.02	67.13	0.00	1.60	21.94	3.69	5.02	22.10

*Commercially and Recreationally Important Crustaceans

**Representative Important Species (RIS)

Table 6. Number of Individuals of Each Fish and Invertebrate Taxon Captured by Gill Net at Each Station, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
Portunidae*			8	7	1	6				22
Fish										
<i>Leiostomus xanthurus</i> **					297					297
<i>Micropogonias undulatus</i> **		2			169					171
<i>Scomberomorus maculatus</i> **				65						65
<i>Caranx hippos</i>	1				27		3			31
<i>Chloroscombrus chrysurus</i>			1	12	1				17	31
<i>Caranx crysos</i>			1				4		15	20
<i>Mustelus canis</i>			5			10			1	16
<i>Sphyrna tiburo</i>	1	3	1		4		3			12
<i>Umbrina coroides</i> **					9					9
<i>Caranx latus</i>					7					7
<i>Larimus fasciatus</i>					7					7
<i>Pomatomus saltatrix</i> **					7					7
<i>Rhizoprionodon terraenovae</i>						4			2	6
<i>Prionotus scitulus</i> **			1		1	3				5
<i>Carcharhinus brevipinna</i>				2	1					3
<i>Carcharhinus limbatus</i>				3						3
<i>Cynoscion nothus</i> **					3					3
<i>Menticirrhus americanus</i> **		1						1		2
<i>Menticirrhus saxatilis</i> **					2					2

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
<i>Calamus penna</i>	1									1
<i>Cynoscion nebulosus</i>					1					1
<i>Echeneis naucrates</i>						1				1
<i>Orthopristis chrysoptera**</i>	1									1
<i>Peprilus triacanthus</i>					1					1
<i>Rachycentron canadum</i>	1									1
Grand Total	5	6	17	89	538	24	10	1	35	725

*Commercially and Recreationally Important Crustaceans

**Representative Important Species (RIS)

Table 7. Catch Per Unit Effort (Number of Individuals Per Hour of Soak Time) for Each Fish and Invertebrate Taxon Captured by Gill Net at Each Station, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study. (Note: Totals in the right column represent the number of individuals captured per hour for all nine transects.)

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
<i>Portunidae</i> *			11.71	7.00	0.38	6.92				2.45
Fish										
<i>Leiostomus xanthurus</i> **					113.50					33.06
<i>Micropogonias undulatus</i> **		2.73			64.59					19.04
<i>Scomberomorus maculatus</i> **				65.00						7.24
<i>Caranx hippos</i>	1.62				10.32		3.83			3.45
<i>Chloroscombrus chrysurus</i>			1.46	12.00	0.38				18.89	3.45
<i>Caranx crysos</i>			1.46				5.11		16.67	2.23
<i>Mustelus canis</i>			7.32			11.54			1.11	1.78
<i>Sphyrna tiburo</i>	1.62	4.09	1.46		1.53		3.83			1.34
<i>Umbrina coroides</i> **					3.44					1.00
<i>Caranx latus</i>					2.68					0.78
<i>Larimus fasciatus</i>					2.68					0.78
<i>Pomatomus saltatrix</i> **					2.68					0.78
<i>Rhizoprionodon terraenovae</i>						4.62			2.22	0.67
<i>Prionotus scitulus</i> **			1.46		0.38	3.46				0.56
<i>Carcharhinus brevipinna</i>				2.00	0.38					0.33
<i>Carcharhinus limbatus</i>				3.00						0.33
<i>Cynoscion nothus</i> **					1.15					0.33
<i>Menticirrhus americanus</i> **		1.36						1.28		0.22

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
<i>Menticirrhus saxatilis</i> **					0.76					0.22
<i>Calamus penna</i>	1.62									0.11
<i>Cynoscion nebulosus</i>					0.38					0.11
<i>Echeneis naucrates</i>						1.15				0.11
<i>Orthopristis chrysoptera</i> **	1.62									0.11
<i>Peprilus triacanthus</i>					0.38					0.11
<i>Rachycentron canadum</i>	1.62									0.11
Grand Total	8.11	8.18	24.88	89.00	205.61	27.69	12.77	1.28	38.89	80.71

*Commercially and Recreationally Important Crustaceans

**Representative Important Species (RIS)

Table 8. Number of Individuals of Each Fish and Invertebrate Taxon Captured by Beach Seine at Each Station, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study.

Taxa	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Fish										
<i>Umbrina coroides</i> *	18	1		21	5	40		6		91
<i>Menticirrhus littoralis</i> *					5	3				8
<i>Polydactylus virginicus</i>					1	3			1	5
<i>Trachinotus falcatus</i>					2	3				5
<i>Menticirrhus americanus</i> *						3	1			4
<i>Caranx hippos</i>			1							1
<i>Eucinostomus gula</i>						1				1
<i>Harengula jaguana</i> *	1									1
<i>Leiostomus xanthurus</i> *						1				1
<i>Mugil curema</i>		1								1
Total	19	2	1	21	13	54	1	6	1	118

*Representative Important Species (RIS)

Table 9. Average total length (TL) and average weight (Wt) of each Representative Important Species Captured by Gill Net, Trawl, and Beach Seine, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study. For each species the number weighed/measured (n) and the total number collected (N) are given.

Taxa	Beach Seine				Gill Net				Trawl			
	TL (mm)	Wt (g)	n	N	TL (mm)	Wt (g)	n	N	TL (mm)	Wt (g)	n	N
<i>Leiostomus xanthurus</i>	236.0	139.6	1	1	232.1	149.4	30	297				
<i>Micropogonias undulatus</i>					248.5	173.5	32	171				
<i>Scomberomorus maculatus</i>					408.7	341.0	30	65				
<i>Umbrina coroides</i>	92.1	27.4	76	91	272.2	262.8	9	9	57.7	3.2	5	5
<i>Pomatomus saltatrix</i>					354.9	490.7	7	7				
<i>Prionotus scitulus</i>					186.0	51.4	5	5				
<i>Cynoscion nothus</i>					310.3	292.0	3	3				
<i>Menticirrhus americanus</i>	62.0	2.2	4	4	326.5	342.0	2	2				
<i>Menticirrhus saxatilis</i>					328.5	350.5	2	2				
<i>Orthopristis chrysoptera</i>					225.0	163.0	1	1				
<i>Menticirrhus littoralis</i>	126.2	30.1	8	8								
<i>Harengula jaguana</i>	67.8	2.9	1	1								
<i>Anchoa</i> sp.									31.7	0.2	30	41

Table 10. Number of Individuals of Each Taxon of Fish Eggs and Larvae and Commercially or Recreationally Important Decapod Crustacean Larvae Captured Per Cubic Meter of Water Filtered During One 15-minute Bongo-Net Tow at Each Transect, Post Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study. (Note: Totals in the right column represent numbers captured per cubic meter of water filtered at all six transects.)

Taxa	LifeStage	SL1		SL2		SL3		Total
		A	C	A	C	A	C	
Cephalopods								
Loliginidae	Juvenile		0.03					0.006
Crustaceans								
<i>Emerita talpoida</i>	Zoea	0.27	0.72	0.18	1.88	1.63	0.48	0.962
<i>Sicyonia</i> sp.	Mysis	0.02	0.65		1.09	0.25	0.02	0.413
Penaeidae	Mysis				1.35			0.303
<i>Rimapenaeus/Xiphopenaeus complex</i>	Mysis					0.86		0.139
<i>Callinectes</i> sp.	Zoea		0.03		0.01	0.09	0.29	0.069
<i>Callinectes</i> sp.	Megalops	0.06		0.23	0.01	0.18		0.066
Portunidae	Zoea				0.22			0.049
<i>Arenaeus cribrarius</i>	Megalops		0.03					0.006
<i>Menippe mercenaria</i>	Zoea	0.04						0.006
Penaeidae	Post Larvae			0.03	0.01			0.006
Portunidae	Megalops					0.04		0.006
<i>Callinectes sapidus</i>	Megalops			0.03				0.003
<i>Farfantepenaeus</i> sp.	Post Larvae				0.01			0.003
Loliginidae	Other	0.02						0.003
Penaeidae	Protozoa				0.01			0.003

Taxa	LifeStage	SL1		SL2		SL3		Total
		A	C	A	C	A	C	
Fish Eggs								
Unidentified eggs	Egg	12.79	3.98	5.82	1.21	15.66	0.18	6.162
Clupeiformes	Egg			11.41		2.66		1.717
Fish								
<i>Cynoscion</i> sp.	Post Yolk-Sac Larvae	0.04	0.25					0.052
<i>Microgobius gulosus</i>	Post Yolk-Sac Larvae		0.18		0.03	0.04		0.046
Sciaenidae	Post Yolk-Sac Larvae	0.08	0.11		0.01	0.05		0.043
<i>Menticirrhus</i> sp.	Post Yolk-Sac Larvae	0.27						0.040
Clupeidae	Post Yolk-Sac Larvae	0.02			0.03	0.16		0.035
Unidentified fish - damaged	Post Yolk-Sac Larvae	0.04	0.06	0.03	0.03	0.04		0.032
Carangidae	Post Yolk-Sac Larvae		0.02	0.15	0.03		0.02	0.029
Triglidae	Post Yolk-Sac Larvae				0.13			0.029
<i>Etrumeus teres</i>	Post Yolk-Sac Larvae	0.15						0.023
Gobiidae	Post Yolk-Sac Larvae		0.06	0.03	0.03	0.02		0.023
<i>Paralichthys albigutta</i>	Post Yolk-Sac Larvae		0.12					0.023
Pomacentridae	Post Yolk-Sac Larvae		0.03	0.03	0.01		0.05	0.020
Sparidae	Post Yolk-Sac Larvae	0.02	0.03	0.03		0.04		0.017
Blenniidae	Post Yolk-Sac Larvae		0.05		0.03			0.014
Lutjanidae	Post Yolk-Sac Larvae	0.06	0.02		0.01			0.014
Serranidae	Post Yolk-Sac Larvae			0.10	0.01			0.014
Haemulidae	Post Yolk-Sac Larvae	0.04			0.03			0.012
<i>Microgobius thalassinus</i>	Post Yolk-Sac Larvae				0.05			0.012
Phosichthyidae	Post Yolk-Sac Larvae		0.06					0.012
Pleuronectiformes	Post Yolk-Sac Larvae			0.08		0.02		0.012
<i>Brevoortia</i> sp.	Post Yolk-Sac Larvae	0.06						0.009
Labridae	Post Yolk-Sac Larvae					0.05		0.009

Taxa	LifeStage	SL1		SL2		SL3		Total
		A	C	A	C	A	C	
<i>Anchoa</i> sp.	Post Yolk-Sac Larvae	0.04						0.006
<i>Citharichthys spilopterus</i>	Post Yolk-Sac Larvae			0.05				0.006
Ephippidae	Post Yolk-Sac Larvae		0.03					0.006
Gonostomatidae	Post Yolk-Sac Larvae	0.02				0.02		0.006
<i>Pareques</i> sp.	Post Yolk-Sac Larvae		0.03					0.006
Pomacanthidae	Post Yolk-Sac Larvae		0.03					0.006
Tetragonuridae	Post Yolk-Sac Larvae	0.04						0.006
<i>Archosargus probatocephalus</i>	Post Yolk-Sac Larvae		0.02					0.003
Atherinopsidae	Post Yolk-Sac Larvae	0.02						0.003
<i>Bairdiella chrysoura</i>	Post Yolk-Sac Larvae		0.02					0.003
<i>Citharichthys</i> sp.	Post Yolk-Sac Larvae					0.02		0.003
<i>Cynoscion nebulosus</i>	Post Yolk-Sac Larvae					0.02		0.003
Engraulidae	Post Yolk-Sac Larvae			0.03				0.003
<i>Eucinostomus</i> sp.	Post Yolk-Sac Larvae			0.03				0.003
<i>Gobiesox strumosus</i>	Post Yolk-Sac Larvae					0.02		0.003
Labrisomidae	Post Yolk-Sac Larvae			0.03				0.003
<i>Lagodon rhomboides</i>	Post Yolk-Sac Larvae		0.02					0.003
Mugilidae	Post Yolk-Sac Larvae		0.02					0.003
Muraenidae	Post Yolk-Sac Larvae					0.02		0.003
Myctophidae	Post Yolk-Sac Larvae						0.02	0.003
Scombridae	Post Yolk-Sac Larvae					0.02		0.003
<i>Syngnathus</i> sp.	Post Yolk-Sac Larvae				0.01			0.003
Tetraodontidae	Post Yolk-Sac Larvae		0.02					0.003
Total		14.08	6.60	18.26	6.23	21.88	1.05	10.529

Table 11. Number of Individuals of Each Species of Sea Turtle Sighted During Each of Two Passes Along Three One-Kilometer-Long Transects, Post-Uprate Sampling Event 7 (January 2014 - February 2014), St. Lucie Plant EPU Biological Study.

SPECIES	SL 1		SL 2		SL 3	
	Pass 1	Pass 2	Pass 1	Pass 2	Pass 1	Pass 2
<i>Chelonia mydas</i>	0	1	1	0	0	0