Florida Power & Light Company
Biological Plan of Study Implementation for St. Lucie Plant EPU
Post-Uprate Event 9 Data Report

Report to
Florida Power & Light Company

October 2014

Submitted by
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INTRODUCTION

During June 2014, Ecological Associates, Inc. (EAI) conducted the ninth post-uprate field sampling event in accordance with the St. Lucie Plant EPU Biological Plan of Study. Sampling was conducted on four days between June 12, 2014 and June 26, 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 ninth 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 9 (June 2014), St. Lucie 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	6/24/2014	1-2' Swells	29.4-30.5°C	5-10 mph, SSE	Partly Cloudy
Trawls/ Ichthyoplankton	6/25/2014	1-2' Swells	27.0-30.7°C	1-10 mph, S to SSE	Clear to Partly Cloudy
Trawls/ Ichthyoplankton	6/26/2014	Calm	28.4°C	3-5 mph, SSE	Partly Cloudy
Gill Nets	6/23/2014	Calm to 1' Swells	28.8-31.1°C	0-5 mph, SE to W	Clear
Gill Nets	6/24/2014	1' Swells	29.0-31.1°C	0-7 mph, W to N	Clear
Beach Seines	6/12/2014	1-2' Swells	27.0-33.8°C	0-10 mph, SSE to NNW	Clear to Overcast
Beach Seines	6/13/2014	1' Swells	27.2°C	2-4 mph, SW	Clear
Sea Turtle Transects	6/24/2014	Calm	26.0-29.9°C	2-5 mph, NW	Partly Cloudy

Table 2. Water Quality Data, Post-Uprate Sampling Event 9 (June 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	52.7	29.1	34.9	8.1	6.3
		Mid-Depth	52.7	29.1	34.9	8.1	6.4
		Bottom	52.7	29.1	34.9	8.1	6.4
	Middle	Surface	52.3	28.5	34.6	8.2	6.4
		Mid-Depth	52.4	28.5	34.7	8.2	6.4
		Bottom	52.4	28.6	34.8	8.2	6.4
	South	Surface	52.6	28.9	34.8	8.2	6.5
		Mid-Depth	52.6	28.8	34.8	8.2	6.5
		Bottom	52.5	28.6	34.8	8.2	6.4
Trawl SL1 B	North	Surface	52.3	28.2	34.5	8.1	6.3
		Mid-Depth	52.4	28.0	34.6	8.2	6.3
		Bottom	52.7	27.6	34.9	8.2	6.3
	Middle	Surface	52.2	28.2	34.5	8.2	6.3
		Mid-Depth	52.3	28.0	34.6	8.2	6.3
		Bottom	52.7	27.5	34.9	8.2	6.3
	South	Surface	52.3	28.2	34.6	8.1	6.2
		Mid-Depth	52.4	28.0	34.6	8.2	6.3
		Bottom	52.7	27.5	34.9	8.2	6.2
Trawl SL1 C	North	Surface	52.2	27.9	34.5	8.2	6.3
		Mid-Depth	52.7	27.5	34.9	8.2	6.3
		Bottom	52.8	27.4	34.9	8.2	6.3
	Middle	Surface	52.3	27.9	34.6	8.2	6.3
		Mid-Depth	52.7	27.5	34.9	8.2	6.4
		Bottom	52.8	27.4	34.9	8.2	6.3
	South	Surface	52.4	27.8	34.6	8.2	6.2
		Mid-Depth	52.7	27.6	34.9	8.2	6.2
		Bottom	52.8	27.4	34.9	8.2	6.2
Trawl SL2 A	North	Surface	52.7	28.0	35.0	8.1	5.9
		Mid-Depth	52.8	28.0	34.9	8.2	5.9
		Bottom	52.7	28.0	34.9	8.2	6.0
	Middle	Surface	52.7	28.2	34.9	8.2	6.0
		Mid-Depth	52.7	28.2	34.8	8.2	6.0
		Bottom	52.7	28.1	34.9	8.2	6.0
	South	Surface	52.7	28.1	34.8	8.2	6.0
		Mid-Depth	52.7	27.9	34.9	8.2	6.0
		Bottom	52.7	27.9	34.9	8.2	6.0

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL2 B	North	Surface	52.7	29.3	34.9	8.1	6.1
		Mid-Depth	52.7	28.3	34.9	8.2	6.2
		Bottom	52.7	27.5	34.9	8.2	6.3
	Middle	Surface	52.8	28.8	34.9	8.2	6.2
		Mid-Depth	52.7	28.3	34.9	8.2	6.2
		Bottom	52.7	27.6	34.9	8.2	6.3
	South	Surface	52.7	28.7	34.9	8.2	6.2
		Mid-Depth	52.7	28.3	34.9	8.2	6.2
		Bottom	52.8	27.7	34.9	8.2	6.2
Trawl SL2 C	North	Surface	52.7	27.8	34.9	8.2	6.1
		Mid-Depth	52.7	27.8	34.9	8.2	6.1
		Bottom	52.8	27.3	34.9	8.2	6.1
	Middle	Surface	52.7	27.7	34.9	8.2	6.0
		Mid-Depth	52.8	27.3	34.9	8.2	6.1
		Bottom	52.8	27.3	34.9	8.2	6.1
	South	Surface	52.8	27.6	34.9	8.2	6.0
		Mid-Depth	52.8	27.3	34.9	8.2	6.0
		Bottom	52.8	27.3	34.9	8.2	6.0
Trawl SL3 A	North	Surface	52.7	28.6	34.9	8.1	5.8
		Mid-Depth	52.7	28.4	35.0	8.2	5.9
		Bottom	52.7	28.4	34.9	8.2	6.0
	Middle	Surface	52.7	28.5	34.9	8.2	6.0
		Mid-Depth	52.7	28.3	34.9	8.2	6.0
		Bottom	52.7	28.4	34.9	8.2	6.0
	South	Surface	52.7	28.5	34.9	8.2	6.0
		Mid-Depth	52.7	28.5	34.9	8.2	6.0
		Bottom	52.7	28.4	34.9	8.2	6.0
Trawl SL3 B	North	Surface	52.7	28.2	34.9	8.2	6.1
		Mid-Depth	52.7	28.1	34.9	8.2	6.1
		Bottom	52.7	27.5	34.9	8.2	6.1
	Middle	Surface	52.7	28.2	34.9	8.2	6.1
		Mid-Depth	52.7	28.1	34.9	8.2	6.1
		Bottom	52.7	27.5	34.9	8.2	6.1
	South	Surface	52.7	28.2	34.9	8.2	6.0
		Mid-Depth	52.7	28.1	34.9	8.2	6.1
		Bottom	52.7	27.4	34.8	8.2	6.0

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL3 C	North	Surface	52.7	27.8	34.9	8.2	6.2
		Mid-Depth	52.7	27.8	34.9	8.2	6.2
		Bottom	52.7	27.3	34.8	8.2	6.2
	Middle	Surface	52.7	27.9	34.9	8.2	6.2
		Mid-Depth	52.7	27.9	34.9	8.2	6.2
		Bottom	52.7	27.2	34.8	8.2	6.2
	South	Surface	52.7	27.9	34.9	8.2	6.0
		Mid-Depth	52.7	27.9	34.9	8.2	6.0
		Bottom	52.7	27.3	34.8	8.2	6.1
Gill Net SL1 A	East	Surface	52.8	27.5	34.9	8.1	6.0
		Mid-Depth	52.8	27.4	34.9	8.1	6.0
		Bottom	52.8	27.3	34.9	8.2	6.0
	Middle	Surface	52.6	27.7	34.8	8.2	6.2
		Mid-Depth	52.7	27.4	34.8	8.2	6.1
		Bottom	52.7	27.4	34.8	8.2	6.0
	West	Surface	52.7	27.6	34.9	8.2	6.2
		Mid-Depth	52.8	27.4	34.9	8.2	6.0
		Bottom	52.8	27.4	34.9	8.2	6.0
Gill Net SL1 B	East	Surface	52.8	27.4	34.9	8.1	5.9
		Mid-Depth	52.8	27.3	34.9	8.2	6.0
		Bottom	52.8	27.2	34.9	8.2	6.0
	Middle	Surface	52.7	27.4	34.8	8.2	6.2
		Mid-Depth	52.8	27.3	34.9	8.2	6.1
		Bottom	52.8	27.2	34.9	8.2	6.0
	West	Surface	52.7	27.5	34.8	8.2	6.2
		Mid-Depth	52.8	27.3	34.9	8.2	6.2
		Bottom	52.8	27.3	35.0	8.2	6.1
Gill Net SL1 C	East	Surface	52.6	27.2	34.8	8.0	5.9
		Mid-Depth	52.9	27.0	35.0	8.1	6.0
		Bottom	53.0	27.0	35.0	8.1	6.0
	Middle	Surface	52.5	27.2	34.7	8.2	6.1
		Mid-Depth	52.8	27.0	34.9	8.2	6.1
		Bottom	52.9	27.0	34.9	8.2	6.1
	West	Surface	52.5	27.3	34.7	8.2	6.1
		Mid-Depth	52.8	27.0	34.9	8.2	6.2
		Bottom	52.9	27.0	34.9	8.2	6.2

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Gill Net SL2 A	East	Surface	53.9	27.5	35.7	8.2	6.2
		Mid-Depth	54.1	26.7	35.9	8.1	6.6
		Bottom	54.0	26.2	35.8	8.2	6.3
	Middle	Surface	54.1	27.5	35.9	8.2	6.2
		Mid-Depth	54.1	26.6	35.8	8.2	6.2
		Bottom	54.1	26.4	35.8	8.2	6.2
	West	Surface	54.3	27.4	36.0	8.2	5.9
		Mid-Depth	54.3	27.1	36.0	8.2	6.0
		Bottom	54.3	26.4	36.0	8.2	6.2
Gill Net SL2 B	East	Surface	54.0	27.7	35.8	8.2	6.0
		Mid-Depth	53.9	26.9	35.7	8.2	6.2
		Bottom	54.1	25.2	35.8	8.2	6.1
	Middle	Surface	54.7	27.9	36.2	8.2	6.1
		Mid-Depth	54.3	27.0	36.0	8.2	6.1
		Bottom	54.4	25.3	36.0	8.2	6.0
	West	Surface	54.2	27.9	36.0	8.2	6.1
		Mid-Depth	54.0	27.0	35.9	8.2	6.1
		Bottom	54.3	25.4	35.9	8.2	6.0
Gill Net SL2 C	East	Surface	53.9	27.2	35.7	8.1	6.1
		Mid-Depth	53.8	26.9	35.6	8.2	6.2
		Bottom	54.0	24.9	35.8	8.2	6.1
	Middle	Surface	53.9	27.2	35.7	8.2	6.2
		Mid-Depth	53.8	26.9	35.6	8.2	6.2
		Bottom	54.1	25.0	35.8	8.2	6.2
	West	Surface	53.9	27.2	35.6	8.2	6.1
		Mid-Depth	53.8	26.8	35.6	8.2	6.1
		Bottom	54.1	24.9	35.8	8.2	6.2
Gill Net SL3 A	East	Surface	53.9	26.3	35.7	8.1	6.0
		Mid-Depth	54.0	25.4	35.6	8.2	6.3
		Bottom	53.9	25.3	35.6	8.2	6.3
	Middle	Surface	54.0	26.3	35.7	8.2	6.1
		Mid-Depth	53.9	25.5	35.7	8.2	6.2
		Bottom	53.9	25.3	35.6	8.2	6.3
	West	Surface	53.8	26.5	35.6	8.2	6.0
		Mid-Depth	53.9	25.8	35.6	8.2	6.1
		Bottom	53.8	25.7	35.5	8.2	6.3

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Gill Net SL3 B	East	Surface	53.6	27.4	35.6	8.2	5.9
		Mid-Depth	53.7	26.4	35.5	8.2	6.1
		Bottom	53.6	25.4	35.4	8.2	6.3
	Middle	Surface	53.6	27.4	35.5	8.2	6.2
		Mid-Depth	53.6	26.4	35.4	8.2	6.3
		Bottom	53.5	25.1	35.4	8.2	6.5
	West	Surface	53.4	27.4	35.4	8.2	6.2
		Mid-Depth	53.4	26.4	35.3	8.2	6.2
		Bottom	53.4	25.3	35.3	8.2	6.4
Gill Net SL3 C	East	Surface	53.5	27.5	35.4	8.1	6.2
		Mid-Depth	53.4	26.2	35.3	8.2	6.2
		Bottom	53.5	25.6	35.4	8.2	6.4
	Middle	Surface	53.5	27.5	35.4	8.2	6.3
		Mid-Depth	53.3	26.3	35.2	8.2	6.4
		Bottom	53.4	25.6	35.2	8.2	6.6
	West	Surface	53.2	27.4	35.1	8.2	6.4
		Mid-Depth	53.2	26.3	35.2	8.2	6.4
		Bottom	53.3	25.5	35.2	8.2	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 9 (June 2014), St. Lucie Plant EPU Biological Study.

Scientific Name	Common Name
Crustaceans	
Albunea sp.*	mole crabs
Alpheus sp.	snapping shrimp
Arenaeus cribrarius	speckled swimming crab
Callinectes ornatus	shellig
Callinectes similis	lesser blue crab
Callinectes sp.*	swimming crabs
*Emerita talpoida**	Atlantic sand crab
*Farfantepenaeus duorarum**	pink shrimp
Farfantepenaeus sp.*	penaeid shrimp
Hepatus epheliticus	calico box crab
Lepidopa sp.*	mole crab
Majoidea	spider crabs
*Menippe mercenaria**	Florida stone crab
Paguroidea	hermit crab
Penaeidae*	penaeid shrimp
Pilumnus sp.	hairy crab
Portunidae*	swimming crabs
Portunus anceps	delicate swimming crab
Portunus gibbesii	iridescent swimming crab
Portunus sp.	portunid crab
Portunus spinimanus	blotched swimming crab
Processa hemphilli	night shrimp
*Rimapenaeus constrictus**	roughneck shrimp
*Sicyonia parri**	rock shrimp
Sicyonia sp.*	rock shrimp
*Sicyonia typica**	kinglet rock shrimp
Squilla sp.	mantis shrimp
Xanthidae	mud crabs

Scientific Name	Common Name
Echinoderms	
Clypeasteroida	sand dollars
Temnopleuroida	sea urchins
Fish and Eggs	
Acanthurus chirurgus	doctorfish
Achirus lineatus	lined sole
Albulidae	bonefishes
Aluterus schoepfii	orange filefish
Anchoa sp.**	anchovy
Anisotremus virginicus	porkfish
Archosargus probatocephalus	sheepshead
Blenniidae	combtooth blennies
Blennioidei	blennies
Calamus penna	sheepshead porgy
Carangidae	jacks
Caranx crysos	blue runner
Caranx hippos	crevalle jack
Caranx sp.	jack
Carcharhinus acronotus	blacknose shark
Centropomus undecimalis	common snook
Centropristis striata	black sea bass
Chloroscombrus chrysurus	Atlantic bumper
Citharichthys macrops	spotted whiff
Clupeidae**	herrings and sardines
Diodon holocanthus	balloonfish
Diplogrammus pauciradiatus	spotted dragonet
Engraulidae**	anchovies
Eucinostomus argenteus	spotfin mojarra
Eucinostomus gula	silver jenny
Eucinostomus harengulus	tidewater mojarra
Eucinostomus sp.	mojarra
Gerreidae	mojarra
Gerres cinereus	yellowfin mojarra
Gobiidae	gobies

Scientific Name	Common Name
Gobiosoma robustum	code goby
Haemulon sciurus	bluestriped grunt
Halichoeres bivittatus	slippery dick
*Harengula jaguana***	scaled sardine
Labridae	wrasses
Lutjanidae	snappers
*Menticirrhus littoralis***	Gulf kingfish
Microdesmidae	wormfishes
Monacanthidae	filefishes
Mugil curema	white mullet
Muraenidae	moray eels
*Opisthonema oglinum***	Atlantic thread herring
Phaeoptyx conklini	freckled cardinalfish
Pomacentridae	damselfishes
*Prionotus scitulus***	leopard searobin
Rhizoprionodon terraenovae	Atlantic sharpnose shark
Scaridae	parrotfishes
Sciaenidae	drums and croakers
Selene vomer	lookdown
Sphoeroides sp.	puffer
Stephanolepis hispida	planehead filefish
Symphurus diomedeanus	spottedfin tonguefish
Syngnathus sp.	pipefishes
*Trachinotus carolinus***	Florida pompano
*Umbrina coroides***	sand drum
Unidentified eggs	unidentified eggs
Molluscs	
Opisthobranchia	seahares

*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 9 (June 2014), St. Lucie Plant EPU Biological Study.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
Portunus sp.	5			6			51			**62**
Paguroidea	1			17			32			**50**
*Rimapenaeus constrictus**	4		3	12			26			**45**
Majoidea	1						4		1	**6**
Portunus gibbesii		1	4					1		**6**
Portunus anceps						5				**5**
Processa hemphilli							5			**5**
Hepatus epheliticus			2					2		**4**
Arenaeus cribrarius							3			**3**
Callinectes ornatus							3			**3**
Callinectes similis	2			1						**3**
*Farfantepenaeus duorarum**	1						2			**3**
Alpheus sp.				2						**2**
Portunus spinimanus				1				1		**2**
Callinectes sp.*							1			**1**
Penaeidae*								1		**1**
Pilumnus sp.								1		**1**
*Sicyonia parri**				1						**1**
Sicyonia sp.*				1						**1**
*Sicyonia typica**			1							**1**
Squilla sp.			1							**1**

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Xanthidae				1						**1**
Echinoderms										
Clypeasteroida	147	2	405	7	3		2			**566**
Temnopleuroida			1					4		**5**
Fish										
Anchoa sp.**								36		**36**
*Umbrina coroides***	3						14	12		**29**
Citharichthys macrops				1			11			**12**
*Prionotus scitulus***	3		3			2				**8**
*Menticirrhus littoralis***								6		**6**
Centropristis striata	1			2						**3**
Eucinostomus harengulus	3									**3**
Albulidae								1		**1**
Gobiosoma robustum	1									**1**
Haemulon sciurus				1						**1**
Halichoeres bivittatus			1							**1**
Phaeoptyx conklini		1								**1**
Symphurus diomedeanus								1		**1**
*Trachinotus carolinus***								1		**1**
Molluscs										
Opisthobranchia				1				1		**2**
Grand Total	**172**	**4**	**421**	**54**	**3**	**7**	**154**	**68**	**1**	**884**

*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 9 (June 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										
Portunus sp.	7.71			9.95			74.35			**9.24**
Paguroidea	1.54			28.20			46.65			**7.45**
*Rimapenaeus constrictus**	6.16		4.36	19.90			37.91			**6.71**
Majoidea	1.54						5.83		1.14	**0.89**
Portunus gibbesii		1.38	5.82					1.14		**0.89**
Portunus anceps						7.79				**0.75**
Processa hemphilli							7.29			**0.75**
Hepatus epheliticus			2.91					2.29		**0.60**
Arenaeus cribrarius							4.37			**0.45**
Callinectes ornatus							4.37			**0.45**
Callinectes similis	3.08			1.66						**0.45**
*Farfantepenaeus duorarum**	1.54						2.92			**0.45**
Alpheus sp.				3.32						**0.30**
Portunus spinimanus				1.66				1.14		**0.30**
Callinectes sp.*							1.46			**0.15**
Penaeidae*								1.14		**0.15**
Pilumnus sp.								1.14		**0.15**
*Sicyonia parri**				1.66						**0.15**
Sicyonia sp.*				1.66						**0.15**
*Sicyonia typica**			1.45							**0.15**

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Squilla sp.			1.45							**0.15**
Xanthidae				1.66						**0.15**
Echinoderms										
Clypeasteroida	226.54	2.75	589.18	11.61	3.10		2.92			**84.35**
Temnopleuroida			1.45					4.58		**0.75**
Fish										
Anchoa sp.**								41.18		**5.36**
*Umbrina coroides***	4.62						20.41	13.73		**4.32**
Citharichthys macrops				1.66			16.04			**1.79**
*Prionotus scitulus***	4.62		4.36			3.12				**1.19**
*Menticirrhus littoralis***								6.86		**0.89**
Centropristis striata	1.54			3.32						**0.45**
Eucinostomus harengulus	4.62									**0.45**
Albulidae								1.14		**0.15**
Gobiosoma robustum	1.54									**0.15**
Haemulon sciurus				1.66						**0.15**
Halichoeres bivittatus			1.45							**0.15**
Phaeoptyx conklini		1.38								**0.15**
Symphurus diomedeanus								1.14		**0.15**
*Trachinotus carolinus***								1.14		**0.15**
Molluscs										
Opisthobranchia				1.66				1.14		**0.30**
Grand Total	**265.06**	**5.51**	**612.45**	**89.57**	**3.10**	**10.91**	**224.52**	**77.79**	**1.14**	**131.74**

*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 9 (June 2014), St. Lucie Plant EPU Biological Study.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Fish										
Rhizoprionodon terraenovae	1	11	7			3			3	**25**
Calamus penna	1							2		**3**
Chloroscombrus chrysurus	10							1		**11**
Anisotremus virginicus	4									**4**
Caranx crysos					1	1				**2**
Acanthurus chirurgus	1									**1**
Archosargus probatocephalus	1									**1**
Carcharhinus acronotus								1		**1**
Centropristis striata	1									**1**
*Opisthonema oglinum***								1		**1**
Grand Total	**19**	**11**	**7**	**0**	**1**	**4**	**0**	**5**	**3**	**50**

**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 9 (June 2014), St. Lucie Plant EPU Biological Study. (Note: Totals in the right column represent the numbers of individuals captured per hour for all nine transects).

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Fish										
Rhizoprionodon terraenovae	1.22	16.50	9.77			4.39			4.19	**3.96**
Calamus penna	1.22							2.79		**1.48**
Chloroscombrus chrysurus	12.24							1.40		**1.74**
Anisotremus virginicus	4.90									**0.63**
Caranx crysos					1.28	1.46				**0.32**
Acanthurus chirurgus	1.22									**0.16**
Archosargus probatocephalus	1.22									**0.16**
Carcharhinus acronotus								1.40		**0.16**
Centropristis striata	1.22									**0.16**
Opisthonema oglinum								1.40		**0.16**
Grand Total	**23.27**	**16.50**	**9.77**	**0.00**	**1.28**	**5.85**	**0.00**	**6.98**	**4.19**	**7.92**

**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 9 (June 2014), St. Lucie Plant EPU Biological Study.

Taxa	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
*Emerita talpoida***				4	1					**5**
Majoidea					2					**2**
Callinectes sp.**				1						**1**
*Farfantepenaeus duorarum***				1						**1**
Portunidae**				1						**1**
Fish										
*Umbrina coroides**	15	17		14	6	6	30	143	33	**264**
Anchoa sp.*		126		55						**181**
*Menticirrhus littoralis**	2	3		10	16	6	11	3	5	**56**
Eucinostomus harengulus					1			6	28	**35**
*Harengula jaguana**		2	21					7		**30**
Eucinostomus argenteus							19			**19**
*Trachinotus carolinus**	4				5	1	6	1		**17**
Chloroscombrus chrysurus		2						9		**11**
Mugil curema		2						3	2	**7**
Centropomus undecimalis		1					1	1		**3**
Caranx hippos								1		**1**
Citharichthys macrops					1					**1**
Eucinostomus gula									1	**1**
Gerres cinereus					1					**1**
Selene vomer	1									**1**
Grand Total	**22**	**153**	**21**	**86**	**33**	**13**	**67**	**174**	**69**	**638**

*Representative Important Species (RIS)

**Commercially and Recreationally Important Crustaceans

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 9 (June 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
Umbrina coroides	83.5	28.2	148	264					54.9	2.8	29	29
Anchoa sp.*	NA	NA	NA	181					0.0	0.0	0	36
Menticirrhus littoralis	110.6	49.1	56	56					65.7	4.3	6	6
Harengula jaguana	161.9	46.5	30	30								
Trachinotus carolinus	67.1	6.4	17	17					59.3	3.2	1	1
Prionotus scitulus									93.0	13.5	8	8
Opisthonema oglinum					237.0	15.0	1	1				

*damaged larval specimens that could not be accurately measured or weighed

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 9 (June 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	
Crustaceans								
Albunea sp.*	Zoea	0.94	0.40	0.92	2.38	0.11	0.21	**0.868**
Callinectes sp.*	Megalops	0.12						**0.018**
Callinectes sp.*	Zoea		0.13		0.10		0.05	**0.046**
*Emerita talpoida**	Zoea				0.57	0.05	0.05	**0.128**
Farfantepenaeus sp.*	Post Larvae	0.59						**0.091**
Lepidopa sp.*	Zoea					0.05		**0.009**
*Menippe mercenaria**	Megalops		0.13	0.05				**0.027**
*Menippe mercenaria**	Zoea			0.16			0.05	**0.037**
Menippe sp.*	Megalops				0.38			**0.073**
Penaeidae*	Mysis		0.03		0.24			**0.050**
Penaeidae*	Post Larvae			1.89			0.03	**0.324**
Sicyonia sp.*	Post Larvae		0.10	0.70	0.29		0.23	**0.228**
Fish Eggs								
Unidentified eggs	Egg	5.06	50.17	5.35	2.93	22.00	7.77	**14.224**
Clupeidae**	Egg					0.24		**0.041**
Fish								
Abudefduf saxatilis	Juvenile						0.26	**0.046**
Achirus lineatus	Post Yolk-Sac Larvae	0.03						**0.005**
Aluterus schoepfii	Juvenile	0.03						**0.005**

Taxa	LifeStage	SL1		SL2		SL3		Total
		A	C	A	C	A	C	
Atherinopsidae	Post Yolk-Sac Larvae				0.05		0.03	**0.014**
Blenniidae	Post Yolk-Sac Larvae		0.13		0.07		0.08	**0.046**
Blennioidei	Post Yolk-Sac Larvae		0.10					**0.014**
Carangidae	Post Yolk-Sac Larvae		0.10					**0.014**
Caranx sp.	Post Yolk-Sac Larvae	0.03						**0.005**
Chloroscombrus chrysurus	Juvenile						0.08	**0.014**
Chloroscombrus chrysurus	Post Yolk-Sac Larvae						0.08	**0.014**
Clupeidae**	Post Yolk-Sac Larvae	0.23	0.07	0.08	0.02		0.05	**0.073**
Diodon holocanthus	Post Yolk-Sac Larvae			0.03				**0.005**
Diodontidae	Post Yolk-Sac Larvae						0.03	**0.005**
Diplogrammus pauciradiatus	Post Yolk-Sac Larvae	0.03				0.03		**0.009**
*Engraulidae***	Post Yolk-Sac Larvae	0.15			0.02			**0.027**
Eucinostomus sp.	Post Yolk-Sac Larvae	0.50						**0.073**
Gerreidae	Post Yolk-Sac Larvae			0.03				**0.005**
Gobiidae	Post Yolk-Sac Larvae	0.03	0.07	0.03	0.07		0.03	**0.037**
Labridae	Post Yolk-Sac Larvae	0.12			0.02			**0.023**
Labrisomidae	Post Yolk-Sac Larvae				0.10		0.05	**0.027**
Lutjanidae	Post Yolk-Sac Larvae		0.20	0.08	0.05			**0.050**
Microdesmidae	Post Yolk-Sac Larvae		0.53					**0.073**
Microdesmus sp.	Post Yolk-Sac Larvae				0.17		0.21	**0.068**
Monacanthidae	Post Yolk-Sac Larvae		0.07					**0.009**
Muraenidae	Post Yolk-Sac Larvae		0.03					**0.005**
Pomacentridae	Post Yolk-Sac Larvae		0.03	0.03	0.02			**0.014**
Scaridae	Post Yolk-Sac Larvae	0.06						**0.009**

Taxa	LifeStage	SL1		SL2		SL3		Total
		A	C	A	C	A	C	
Sciaenidae	Post Yolk-Sac Larvae	0.03						**0.005**
Serranidae	Post Yolk-Sac Larvae				0.02			**0.005**
Sparidae	Post Yolk-Sac Larvae				0.05		0.15	**0.037**
Sphoeroides sp.	Post Yolk-Sac Larvae	0.09						**0.014**
Stegastes sp.	Post Yolk-Sac Larvae				0.43			**0.082**
Stephanolepis hispida	Juvenile	0.18					0.05	**0.037**
Stephanolepis hispida	Post Yolk-Sac Larvae		0.03		0.02			**0.009**
Syngnathus sp.	Juvenile	0.03						**0.005**
Tetraodontidae	Post Yolk-Sac Larvae				0.02			**0.005**
Unidentified fish - damaged	Post Yolk-Sac Larvae	0.21	0.03		0.10		0.10	**0.073**
Grand Total		**8.41**	**52.37**	**9.35**	**8.12**	**22.49**	**9.56**	**17.119**

*Commercially and recreationally important (CRI) decapod crustaceans

**Representative Important Species (RIS)

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 9 (June 2014), St. Lucie Plant EPU Biological Study. **Note:** No sea turtles sighted along any transects.

SPECIES	SL 1		SL 2		SL 3	
	Pass 1	Pass 2	Pass 1	Pass 2	Pass 1	Pass 2
Chelonia mydas	0	0	0	0	0	0