

**Florida Power & Light Company
Biological Plan of Study Implementation
for St. Lucie Plant EPU
Post-Upgrade Event 11 Data Report**

**Report to
Florida Power & Light Company**

January 2015

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



INTRODUCTION

During October 2014 and December 2014, Ecological Associates, Inc. (EAI) conducted the eleventh post-uprate field sampling event in accordance with the St. Lucie Plant EPU Biological Plan of Study. Sampling was conducted on five days between October 21, 2014 and October 30, 2014 and on December 16, 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 eleventh 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 8-25 ft, Transect B was located approximately 4,000 ft. from shore in water depths of 36-45 ft, and Transect C was located approximately 8,000 ft. from shore in water depths of 32-48 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 30 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 11 (October - November 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	10/28/2014	1-3' Swells	25.4-26.2°C	10-15 mph, SE	Clear
Trawls/ Ichthyoplankton	10/29/2014	1-2' Swells	25.8-26.6°C	5-10 mph, SE to SSE	Clear
Trawls/ Ichthyoplankton	10/30/2014	1' Swells	26.2°C	2-3 mph, SE	Clear
Gill Nets	10/21/2014	1-3' Swells	25.6-27.3°C	3-12 mph, E to NW	Overcast
Gill Nets	10/22/2014	1-2' Swells	23.0-28.3°C	3-7 mph, N to NW	Partly Cloudy
Beach Seines	12/16/2014	2-3' Swells	15.3-24.7°C	0-5 mph, W to WNW	Clear
Sea Turtle Transects	10/30/2014	1-2' Swells	23.1-25.4°C	3-5 mph, NE	Clear

Table 2. Water Quality Data, Post-Uprate Sampling Event 11 (October - November 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	26.3	34.8	8.1	6.4
		Mid-Depth	52.7	26.4	34.8	8.1	6.4
		Bottom	52.7	26.3	34.8	8.1	6.5
	Middle	Surface	52.7	26.3	34.8	8.1	6.4
		Mid-Depth	52.7	26.3	34.8	8.1	6.4
		Bottom	52.7	26.3	34.8	8.1	6.5
	South	Surface	52.8	26.2	34.9	8.0	6.8
		Mid-Depth	52.7	26.2	34.8	8.1	6.7
		Bottom	52.7	26.2	34.8	8.1	6.6
Trawl SL1 B	North	Surface	52.7	26.1	34.9	8.1	5.9
		Mid-Depth	52.7	26.1	34.9	8.1	5.8
		Bottom	52.7	25.8	34.8	8.1	5.6
	Middle	Surface	52.8	26.2	34.9	8.1	6.3
		Mid-Depth	52.7	26.2	34.9	8.1	6.0
		Bottom	52.7	25.8	34.8	8.1	5.6
	South	Surface	52.7	26.2	34.9	8.1	6.3
		Mid-Depth	52.7	26.2	34.8	8.1	6.3
		Bottom	52.8	25.8	34.8	8.1	6.0
Trawl SL1 C	North	Surface	52.8	26.3	34.9	8.1	6.1
		Mid-Depth	52.8	26.1	34.8	8.1	6.1
		Bottom	52.8	26.0	34.8	8.1	5.9
	Middle	Surface	52.8	26.3	34.9	8.1	5.9
		Mid-Depth	52.8	26.0	34.8	8.1	5.8
		Bottom	52.8	26.0	34.8	8.1	5.7
	South	Surface	52.8	26.2	34.8	8.1	5.8
		Mid-Depth	52.8	26.0	34.8	8.1	5.7
		Bottom	52.8	25.9	34.8	8.1	5.6
Trawl SL2 A	North	Surface	52.7	26.0	34.8	8.1	6.2
		Mid-Depth	52.7	26.0	34.8	8.1	6.2
		Bottom	52.7	26.0	34.8	8.1	6.2
	Middle	Surface	52.7	25.9	34.8	8.2	6.2
		Mid-Depth	52.7	25.9	34.8	8.2	6.2
		Bottom	52.7	25.9	34.8	8.2	6.2
	South	Surface	52.7	26.0	34.8	8.2	6.5
		Mid-Depth	52.7	26.0	34.8	8.1	6.5
		Bottom	52.7	25.7	34.8	8.2	6.5

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL2 B	North	Surface	52.8	27.3	34.9	8.0	6.7
		Mid-Depth	52.9	26.1	34.9	8.0	7.0
		Bottom	52.9	26.1	34.9	8.0	6.8
	Middle	Surface	52.8	27.1	34.9	8.1	6.9
		Mid-Depth	52.8	26.1	34.9	8.1	6.5
		Bottom	52.8	26.1	34.9	8.1	6.4
	South	Surface	52.8	26.9	34.9	8.1	6.6
		Mid-Depth	52.8	26.2	34.9	8.1	6.4
		Bottom	52.8	26.2	34.9	8.1	6.3
Trawl SL2 C	North	Surface	52.7	27.0	34.9	8.1	6.8
		Mid-Depth	52.8	26.5	34.9	8.1	6.3
		Bottom	52.8	26.1	34.9	8.1	6.1
	Middle	Surface	52.8	26.9	34.9	8.1	6.7
		Mid-Depth	52.8	26.9	34.9	8.1	6.4
		Bottom	52.8	26.2	34.9	8.1	6.3
	South	Surface	52.8	26.6	34.9	8.0	6.5
		Mid-Depth	52.8	26.6	34.9	8.1	6.5
		Bottom	52.8	26.1	34.9	8.1	6.2
Trawl SL3 A	North	Surface	52.4	26.5	34.6	8.1	6.1
		Mid-Depth	52.4	26.5	34.6	8.1	6.1
		Bottom	52.4	26.5	34.6	8.1	6.0
	Middle	Surface	52.4	26.4	34.5	8.1	6.6
		Mid-Depth	52.3	26.4	34.6	8.1	6.3
		Bottom	52.4	26.5	34.5	8.1	6.1
	South	Surface	52.3	26.3	34.5	8.0	6.2
		Mid-Depth	52.3	26.3	34.5	8.1	6.2
		Bottom	52.3	26.3	34.5	8.1	6.2
Trawl SL3 B	North	Surface	52.5	26.1	34.6	8.1	5.9
		Mid-Depth	52.5	26.1	34.6	8.1	5.7
		Bottom	52.8	26.1	34.8	8.1	5.7
	Middle	Surface	52.4	26.1	34.6	8.1	6.1
		Mid-Depth	52.5	26.1	34.6	8.1	6.0
		Bottom	52.7	26.1	34.8	8.1	5.7
	South	Surface	52.5	26.2	34.6	8.0	6.3
		Mid-Depth	52.4	26.2	34.6	8.1	6.1
		Bottom	52.7	26.0	34.8	8.1	5.7

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL3 C	North	Surface	52.6	26.2	34.6	8.1	6.0
		Mid-Depth	52.7	26.0	34.7	8.1	6.1
		Bottom	52.7	26.0	34.8	8.1	5.6
	Middle	Surface	52.6	26.3	34.7	8.1	6.3
		Mid-Depth	52.6	26.2	34.8	8.1	6.1
		Bottom	52.8	26.0	34.8	8.1	5.7
	South	Surface	52.5	26.2	34.7	8.0	6.3
		Mid-Depth	52.6	26.2	34.7	8.1	6.3
		Bottom	52.8	26.1	34.9	8.1	5.8
Gill Net SL1 A	East	Surface	53.1	26.9	35.1	8.1	5.3
		Mid-Depth	53.1	26.9	35.0	8.1	5.3
		Bottom	53.0	26.9	35.0	8.1	5.3
	Middle	Surface	53.0	26.9	35.0	8.1	5.3
		Mid-Depth	53.0	26.9	35.0	8.1	5.2
		Bottom	53.0	26.9	35.0	8.1	5.2
	West	Surface	53.0	26.8	35.0	8.1	5.2
		Mid-Depth	53.0	26.8	35.0	8.1	5.2
		Bottom	53.0	26.8	35.0	8.1	5.2
Gill Net SL1 B	East	Surface	53.1	27.2	35.1	8.1	5.6
		Mid-Depth	53.2	27.2	35.1	8.1	5.7
		Bottom	53.1	27.2	35.1	8.1	5.7
	Middle	Surface	53.2	27.2	35.1	8.1	5.9
		Mid-Depth	53.1	27.2	35.1	8.1	5.7
		Bottom	53.1	27.2	35.1	8.1	5.7
	West	Surface	53.1	27.2	35.1	8.1	5.7
		Mid-Depth	53.1	27.2	35.1	8.1	5.7
		Bottom	53.1	27.2	35.1	8.1	5.7
Gill Net SL1 C	East	Surface	53.2	27.2	35.2	8.0	5.7
		Mid-Depth	53.1	27.2	35.2	8.1	5.7
		Bottom	53.1	27.1	35.2	8.1	5.7
	Middle	Surface	53.2	27.2	35.2	8.1	5.8
		Mid-Depth	53.2	27.1	35.1	8.1	5.7
		Bottom	53.1	27.1	35.1	8.1	5.7
	West	Surface	53.1	27.1	35.2	8.1	5.9
		Mid-Depth	53.1	27.2	35.1	8.1	5.7
		Bottom	53.1	27.1	35.1	8.1	5.7

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Gill Net SL2 A	East	Surface	52.7	27.7	34.8	8.0	5.9
		Mid-Depth	52.6	27.1	34.8	8.0	5.9
		Bottom	52.6	27.1	34.8	8.1	5.9
	Middle	Surface	52.6	27.3	34.8	8.1	6.3
		Mid-Depth	52.6	27.1	34.8	8.1	6.2
		Bottom	52.6	27.0	34.8	8.1	6.1
	West	Surface	52.6	27.2	34.8	8.1	6.2
		Mid-Depth	52.6	27.1	34.8	8.1	6.2
		Bottom	52.6	27.0	34.8	8.1	6.1
Gill Net SL2 B	East	Surface	52.9	27.7	35.0	7.5	5.5
		Mid-Depth	52.9	27.2	35.0	7.9	5.6
		Bottom	53.1	27.0	35.1	8.0	5.5
	Middle	Surface	52.8	27.7	35.0	8.1	5.7
		Mid-Depth	52.8	27.2	34.9	8.1	5.7
		Bottom	53.1	27.1	35.1	8.1	5.6
	West	Surface	52.8	27.7	34.9	8.1	5.9
		Mid-Depth	52.9	27.1	35.0	8.1	5.8
		Bottom	53.1	27.1	35.1	8.1	5.7
Gill Net SL2 C	East	Surface	52.7	27.3	34.8	8.0	5.8
		Mid-Depth	53.1	27.1	35.1	8.1	5.9
		Bottom	53.2	27.1	35.2	8.1	5.8
	Middle	Surface	52.7	27.4	34.8	8.1	5.9
		Mid-Depth	53.1	27.1	35.1	8.1	5.9
		Bottom	53.1	27.1	35.1	8.1	5.8
	West	Surface	52.7	27.3	34.9	8.1	6.0
		Mid-Depth	53.1	27.2	35.1	8.1	5.9
		Bottom	53.1	27.1	35.1	8.1	5.9
Gill Net SL3 A	East	Surface	53.2	27.5	35.2	7.9	6.1
		Mid-Depth	53.2	27.5	35.2	8.0	6.0
		Bottom	53.2	27.5	35.2	8.1	6.0
	Middle	Surface	53.2	27.4	35.2	8.1	6.1
		Mid-Depth	53.2	27.5	35.2	8.1	6.1
		Bottom	53.2	27.5	35.2	8.1	6.1
	West	Surface	53.2	27.5	35.2	8.1	6.2
		Mid-Depth	53.2	27.5	35.2	8.1	6.1
		Bottom	53.2	27.5	35.2	8.1	6.1

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Gill Net SL3 B	East	Surface	53.2	27.3	35.2	8.0	6.0
		Mid-Depth	53.2	27.4	35.2	8.0	6.0
		Bottom	53.2	27.3	35.2	8.1	6.0
	Middle	Surface	53.2	27.3	35.2	8.1	6.1
		Mid-Depth	53.2	27.3	35.2	8.1	6.0
		Bottom	53.2	27.3	35.2	8.1	6.0
	West	Surface	53.2	27.3	35.2	8.1	6.1
		Mid-Depth	53.2	27.4	35.2	8.1	6.0
		Bottom	53.2	27.4	35.2	8.1	6.0
Gill Net SL3 C	East	Surface	53.1	27.5	35.1	8.1	5.7
		Mid-Depth	53.1	27.5	35.1	8.1	5.7
		Bottom	53.1	27.6	35.2	8.1	5.7
	Middle	Surface	53.1	27.5	35.2	8.1	5.8
		Mid-Depth	53.1	27.5	35.2	8.1	5.8
		Bottom	53.2	27.6	35.2	8.1	5.8
	West	Surface	53.1	27.5	35.2	8.1	5.9
		Mid-Depth	53.1	27.5	35.1	8.1	5.8
		Bottom	53.1	27.6	35.2	8.1	5.8

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 11 (October - November 2014), St. Lucie Plant EPU Biological Study.

Scientific Name	Common Name
Crustaceans	
<i>Albunea</i> sp.*	mole crabs
<i>Arenaeus cribrarius</i>	speckled swimming crab
<i>Callinectes</i> sp.*	swimming crabs
<i>Cuapetes americanus</i>	American grass shrimp
<i>Emerita talpoida</i> *	Atlantic sand crab
<i>Farfantepenaeus duorarum</i> *	pink shrimp
<i>Hepatus epheliticus</i>	calico box crab
<i>Latreutes fucorum</i>	slender sargassum shrimp
Majoidea	spider crabs
<i>Menippe mercenaria</i> *	Florida stone crab
Paguroidea	hermit crab
Penaeidae*	penaeid shrimp
Portunidae*	swimming crabs
<i>Portunus gibbesii</i>	iridescent swimming crab
<i>Portunus</i> sp.	portunid crab
<i>Portunus spinimanus</i>	blotched swimming crab
<i>Rimapenaeus constrictus</i> *	roughneck shrimp
<i>Rimapenaeus</i> sp.*	roughneck shrimp
Echinoderms	
Mellitidae	sand dollars
Ophiuroidea	brittle stars
Temnopleuroidea	sea urchins
Fish and Eggs	
<i>Albula vulpes</i>	bonefish
<i>Anisotremus surinamensis</i>	black margate
<i>Anisotremus virginicus</i>	porkfish
Apogonidae	cardinalfish
Atherinopsidae	New World silversides
<i>Bagre marinus</i>	gafftopsail catfish
<i>Brevoortia smithi</i> **	yellowfin menhaden

Scientific Name	Common Name
<i>Caranx crysos</i>	blue runner
<i>Caranx latus</i>	horse-eye jack
<i>Centropomus undecimalis</i>	common snook
<i>Chloroscombrus chrysurus</i>	Atlantic bumper
<i>Citharichthys arctifrons</i>	Gulf Stream flounder
<i>Citharichthys macrops</i>	spotted whiff
Clupeidae**	herrings and sardines
Congridae	conger eels
<i>Corvula sanctaeluciae</i>	striped croaker
<i>Ctenogobius boleosoma</i>	darter goby
<i>Cynoscion nebulosus</i>	spotted sea trout
<i>Dactylopterus volitans</i>	flying gurnard
<i>Diplectrum formosum</i>	sand perch
<i>Elops saurus</i>	ladyfish
Engraulidae**	anchovies
<i>Eucinostomus gula</i>	silver jenny
<i>Eucinostomus harengulus</i>	tidewater mojarra
<i>Eucinostomus</i> sp.	mojarra
Gerreidae	mojarra
Gobiidae	gobies
<i>Gobiosoma</i> sp.	goby
<i>Hippocampus erectus</i>	spotted seahorse
<i>Histrio histrio</i>	sargassumfish
<i>Lutjanus synagris</i>	lane snapper
<i>Menticirrhus americanus</i>	southern kingfish
<i>Menticirrhus littoralis</i> **	Gulf kingfish
Myctophidae	lanternfishes
Myliobatidae	eagle rays and manta rays
<i>Ophidion holbrookii</i>	bank cusk eel
<i>Opisthonema oglinum</i> **	Atlantic thread herring
<i>Orthopristis chrysoptera</i> **	pigfish
<i>Polydactylus virginicus</i>	barbu
<i>Prionotus scitulus</i> **	leopard searobin
<i>Prionotus</i> sp.**	North American searobins

Scientific Name	Common Name
<i>Rhizoprionodon terraenovae</i>	Atlantic sharpnose shark
Scaridae	parrotfishes
Sciaenidae	drums and croakers
<i>Sciaenops ocellatus</i>	red drum
<i>Scomberomorus maculatus</i> **	Atlantic spanish mackerel
<i>Scorpaena inermis</i>	mushroom scorpionfish
Sparidae	porgies
<i>Sphyrna tiburo</i>	bonnethead shark
<i>Stephanolepis hispidus</i>	planehead filefish
<i>Syngnathus louisianae</i>	chain pipefish
<i>Trachinocephalus myops</i>	bluntnose lizardfish
<i>Trachinotus carolinus</i> **	Florida pompano
<i>Trachinotus falcatus</i>	permit
<i>Trachinotus goodei</i>	palometa
<i>Trichiurus lepturus</i>	cutlassfish
<i>Umbrina coroides</i> **	sand drum
Unidentified fish	unidentified fish
Unidentified eggs	unidentified eggs
Molluscs	
Loliginidae	squid
Opisthobranchia	seahares
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 11 (October - November 2014), St. Lucie Plant EPU Biological Study.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
<i>Rimapenaeus constrictus</i> *	4		21	22			1			48
<i>Latreutes fucorum</i>				16						16
<i>Farfantepenaeus duorarum</i> *	1		13					1		15
<i>Cuapetes americanus</i>	1			5						6
Penaeidae*				4						4
<i>Portunus</i> sp.	1			2						3
<i>Hepatus epheliticus</i>		1	1							2
<i>Callinectes</i> sp.*				1						1
Majoidea				1						1
Paguroidea	1									1
<i>Portunus gibbesii</i>			1							1
<i>Portunus spinimanus</i>			1							1
Echinoderms										
Mellitidae	7		10				4			21
Temnopleuroida			5							5
Ophiuroidea	1									1
Fish										
<i>Scorpaena inermis</i>			19					1	1	21
<i>Lutjanus synagris</i>	6									6
<i>Diplectrum formosum</i>		1	4							5
<i>Prionotus scitulus</i> **		1	3	1						5

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
<i>Eucinostomus harengulus</i>				1				2		3
<i>Umbrina coroides**</i>	2									2
<i>Chloroscombrus chrysurus</i>							1			1
<i>Citharichthys macrops</i>			1							1
<i>Corvula sanctaeluciae</i>	1									1
<i>Hippocampus erectus</i>	1									1
<i>Histrio histrio</i>				1						1
<i>Ophidion holbrookii</i>								1		1
<i>Orthopristis chrysoptera**</i>		1								1
<i>Stephanolepis hispida</i>				1						1
<i>Trachinocephalus myops</i>			1							1
Molluscs										
Loliginidae	2		4	1		1	2	3		13
Opisthobranchia				1						1
Grand Total	28	4	84	57	0	1	8	8	1	191

*Commercially and Recreationally Important Crustaceans

**Representative Important Species (RIS)

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
<i>Prionotus scitulus</i> **		1.19	3.89	1.42						0.64
<i>Eucinostomus harengulus</i>				1.42				2.05		0.38
<i>Umbrina coroides</i> **	2.86									0.26
<i>Chloroscombrus chrysurus</i>							1.20			0.13
<i>Citharichthys macrops</i>			1.30							0.13
<i>Corvula sanctaeluciae</i>	1.43									0.13
<i>Hippocampus erectus</i>	1.43									0.13
<i>Histrion histrio</i>				1.42						0.13
<i>Ophidion holbrookii</i>								1.02		0.13
<i>Orthopristis chrysoptera</i> **		1.19								0.13
<i>Stephanolepis hispida</i>				1.42						0.13
<i>Trachinocephalus myops</i>			1.30							0.13
Molluscs										
Loliginidae	2.86		5.19	1.42		1.08	2.40	3.07		1.66
Opisthobranchia				1.42						0.13
Grand Total	40.00	4.78	109.01	80.79	0.00	1.08	9.59	8.19	0.95	24.36

*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 11 (October - November 2014), St. Lucie Plant EPU Biological Study.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Fish										
<i>Rhizoprionodon terraenovae</i>	5	9	5		25	9	5	8	19	85
<i>Chloroscombrus chrysurus</i>		1		42	19				4	66
<i>Caranx crysos</i>	6	2	1		5	39	5		6	64
<i>Scomberomorus maculatus</i> *	4			42						46
<i>Sphyrna tiburo</i>	36	1		1			1			39
<i>Bagre marinus</i>	1			3	2					6
<i>Trichiurus lepturus</i>				1	3					4
<i>Brevoortia smithi</i> *				3						3
<i>Elops saurus</i>	3									3
<i>Albula vulpes</i>								1		1
<i>Anisotremus surinamensis</i>	1									1
<i>Anisotremus virginicus</i>							1			1
<i>Caranx latus</i>				1						1
<i>Dactylopterus volitans</i>	1									1
<i>Hippocampus erectus</i>		1								1
<i>Opisthonema oglinum</i> *				1						1
Grand Total	57	14	6	94	54	48	12	9	29	323

*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 11 (October - November 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										
<i>Rhizoprionodon terraenovae</i>	5.45	10.38	7.32		26.32	12.86	7.89	12.31	25.91	12.29
<i>Chloroscombrus chrysurus</i>		1.15		53.62	20.00				5.45	9.54
<i>Caranx crysos</i>	6.55	2.31	1.46		5.26	55.71	7.89		8.18	9.25
<i>Scomberomorus maculatus</i> *	4.36			53.62						6.65
<i>Sphyrna tiburo</i>	39.27	1.15		1.28			1.58			5.64
<i>Bagre marinus</i>	1.09			3.83	2.11					0.87
<i>Trichiurus lepturus</i>				1.28	3.16					0.58
<i>Brevoortia smithi</i> *				3.83						0.43
<i>Elops saurus</i>	3.27									0.43
<i>Albula vulpes</i>								1.54		0.14
<i>Anisotremus surinamensis</i>	1.09									0.14
<i>Anisotremus virginicus</i>							1.58			0.14
<i>Caranx latus</i>				1.28						0.14
<i>Dactylopterus volitans</i>	1.09									0.14
<i>Hippocampus erectus</i>		1.15								0.14
<i>Opisthonema oglinum</i> *				1.28						0.14
Grand Total	62.18	16.15	8.78	120.00	56.84	68.57	18.95	13.85	39.55	46.70

*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 11 (October - November 2014), St. Lucie Plant EPU Biological Study.

Taxa	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
<i>Arenaeus cribrarius</i> *							1			1
Fish										
<i>Umbrina coroides</i> **	16	2	5	1			30		24	78
<i>Menticirrhus littoralis</i> **	3		1	3	5		7		18	37
<i>Trachinotus carolinus</i> **	1	1			1		15			18
<i>Trachinotus falcatus</i>	4						7	1	1	13
<i>Polydactylus virginicus</i>	3		3				2		1	9
<i>Eucinostomus gula</i>	3									3
<i>Opisthonema oglinum</i> **							1		2	3
<i>Trachinotus goodei</i>	1			2						3
<i>Centropomus undecimalis</i>		1								1
<i>Myliobatidae</i>									1	1
Grand Total	31	4	9	6	6	0	63	1	47	167

*Commercially and Recreationally Important Crustaceans

**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 11 (October - November 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>Umbrina coroides</i>	85.9	7.1	78	78					181.5	22.8	2	2
<i>Menticirrhus littoralis</i>	70.7	5.4	37	37								
<i>Trachinotus carolinus</i>	66.3	6.7	18	18								
<i>Opisthonema oglinum</i>	60.2	2.0	3	3	238.0	115.0	1	1				
<i>Scomberomorus maculatus</i>					457.1	558.1	34	46				
<i>Brevoortia smithi</i>					344.0	502.3	3	3				
<i>Prionotus scitulus</i>									123.9	25.8	5	5
<i>Orthopristis chrysoptera</i>									236.0	172.1	1	1

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 11 (October - November 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								
<i>Callinectes</i> sp.*	Megalops	0.84	0.27	1.88	0.51	0.35		0.570
<i>Menippe mercenaria</i> *	Megalops	0.63	0.82	0.94	0.68			0.426
<i>Menippe mercenaria</i> *	Zoea	0.42	0.55	0.94	0.17			0.273
Penaeidae*	Post Larvae					1.04		0.193
Penaeidae*	Mysis			0.94				0.129
<i>Albunea</i> sp.*	Zoea			0.47				0.064
<i>Callinectes</i> sp.*	Zoea		0.09		0.17			0.040
<i>Rimapenaeus</i> sp.*	Post Larvae	0.21	0.09					0.040
<i>Emerita talpoida</i> *	Zoea						0.13	0.032
Portunidae*	Megalops		0.09					0.008
Fish Eggs								
Unidentified eggs	Egg	0.71		1.53	0.06	1.26	0.16	0.602
Fish								
<i>Sciaenops ocellatus</i>	Post Yolk-Sac Larvae	0.18		0.03	0.02	0.22	0.13	0.108
Engraulidae**	Post Yolk-Sac Larvae	0.08		0.12	0.13	0.20		0.088
Sparidae	Post Yolk-Sac Larvae	0.18		0.15	0.04			0.056
Sciaenidae	Post Yolk-Sac Larvae				0.09		0.13	0.048
Atherinopsidae	Post Yolk-Sac Larvae					0.15		0.028
<i>Prionotus</i> sp.**	Post Yolk-Sac Larvae	0.05			0.02	0.02	0.05	0.028

Taxa	LifeStage	SL1		SL2		SL3		Total
		A	C	A	C	A	C	
Gobiidae	Post Yolk-Sac Larvae	0.05			0.02	0.02	0.03	0.024
Clupeidae**	Post Yolk-Sac Larvae	0.11		0.03				0.020
<i>Ctenogobius boleosoma</i>	Post Yolk-Sac Larvae		0.05	0.09				0.016
<i>Menticirrhus americanus**</i>	Post Yolk-Sac Larvae			0.03		0.04		0.012
Apogonidae	Post Yolk-Sac Larvae						0.02	0.004
<i>Citharichthys arctifrons</i>	Post Yolk-Sac Larvae			0.03				0.004
Congridae	Juvenile	0.03						0.004
<i>Cynoscion nebulosus</i>	Post Yolk-Sac Larvae	0.03						0.004
<i>Dactylopterus volitans</i>	Juvenile				0.02			0.004
<i>Eucinostomus</i> sp.	Post Yolk-Sac Larvae				0.02			0.004
Gerreidae	Post Yolk-Sac Larvae	0.03						0.004
<i>Gobiosoma</i> sp.	Post Yolk-Sac Larvae			0.03				0.004
Myctophidae	Post Yolk-Sac Larvae			0.03				0.004
Scaridae	Post Yolk-Sac Larvae				0.02			0.004
<i>Stephanolepis hispida</i>	Post Yolk-Sac Larvae		0.05					0.004
<i>Syngnathus louisianae</i>	Juvenile	0.03						0.004
Unidentified fish - damaged	Post Yolk-Sac Larvae						0.02	0.004
Grand Total		3.58	2.00	7.24	1.98	3.30	0.66	2.859

*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 11 (October - November 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	0	1	6	0	0