Florida Power & Light Company
Biological Plan of Study Implementation for St. Lucie Plant EPU
Post-Uprate Event 10 Data Report

Report to
Florida Power & Light Company

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Submitted by
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INTRODUCTION

During August 2014, Ecological Associates, Inc. (EAI) conducted the tenth post-uprate field sampling event in accordance with the St. Lucie Plant EPU Biological Plan of Study. Sampling was conducted on six days between August 7, 2014 and August 14, 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 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 10 (August 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	8/11/2014	1-3' Swells	29.3-29.4°C	5-10 mph, SE to NW	Partly to Mostly Cloudy
Trawls/ Ichthyoplankton	8/12/2014	Calm to 3' Swells	28.2-31.3°C	0-10 mph, SE	Partly to Mostly Cloudy
Trawls/ Ichthyoplankton	8/13/2014	1-2' Swells	28.1-28.8°C	5-10 mph, SE	Partly Cloudy
Gill Nets	8/13/2014	1-2' Swells	32.1-34.2°C	3-7 mph, S to SE	Clear to Partly Cloudy
Gill Nets	8/14/2014	1-2' Swells	27.9-33.4°C	1-5 mph, SW	Partly Cloudy
Beach Seines	8/7/2014	1-2' Swells	26.6-35.4°C	0-18 mph, SE to SSW	Clear to Overcast
Beach Seines	8/8/2014	1-2' Swells	30.7-31.6°C	2-5 mph, E to NNE	Partly Cloudy
Sea Turtle Transects	8/11/2014	Calm	28.0-28.2°C	0-5 mph, W	Clear

Table 2. Water Quality Data, Post-Uprate Sampling Event 10 (August 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	53.3	28.3	35.3	8.2	6.1
		Mid-Depth	53.3	28.3	35.3	8.2	6.1
		Bottom	53.3	28.0	35.3	8.2	5.9
	Middle	Surface	53.3	28.1	35.3	8.2	6.0
		Mid-Depth	53.3	28.1	35.3	8.2	6.0
		Bottom	53.3	28.1	35.3	8.2	6.1
	South	Surface	53.3	28.0	35.3	8.2	6.1
		Mid-Depth	53.3	28.0	35.3	8.2	6.2
		Bottom	53.3	28.0	35.3	8.2	6.2
Trawl SL1 B	North	Surface	53.6	28.5	35.5	8.2	6.7
		Mid-Depth	53.5	28.5	35.5	8.2	6.7
		Bottom	53.4	28.5	35.4	8.2	6.7
	Middle	Surface	53.6	28.7	35.6	8.2	6.6
		Mid-Depth	53.6	28.6	35.6	8.2	6.6
		Bottom	53.6	28.5	35.6	8.2	6.7
	South	Surface	53.8	28.8	35.7	8.1	6.4
		Mid-Depth	53.7	28.7	35.7	8.2	6.5
		Bottom	53.7	28.7	35.7	8.2	6.6
Trawl SL1 C	North	Surface	53.3	28.7	35.4	8.1	6.4
		Mid-Depth	53.2	28.6	35.3	8.2	6.4
		Bottom	53.2	28.3	35.3	8.2	6.4
	Middle	Surface	53.2	28.5	35.3	8.2	6.5
		Mid-Depth	53.2	28.5	35.3	8.2	6.5
		Bottom	53.2	28.3	35.3	8.2	6.5
	South	Surface	53.2	28.5	35.3	8.2	6.4
		Mid-Depth	53.2	28.3	35.3	8.2	6.5
		Bottom	53.2	28.1	35.3	8.2	6.5
Trawl SL2 A	North	Surface	54.3	28.0	36.1	8.2	6.2
		Mid-Depth	54.2	28.0	35.9	8.2	6.2
		Bottom	54.1	27.9	35.9	8.2	6.2
	Middle	Surface	54.1	28.1	35.9	8.2	6.3
		Mid-Depth	54.0	28.1	35.9	8.2	6.3
		Bottom	54.0	28.0	35.9	8.2	6.3
	South	Surface	53.9	28.1	35.8	8.2	6.4
		Mid-Depth	53.9	28.1	35.8	8.2	6.4
		Bottom	53.9	28.1	35.8	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	53.9	28.4	35.7	8.2	6.5
		Mid-Depth	53.8	27.5	35.7	8.2	6.6
		Bottom	53.8	27.5	35.6	8.2	6.5
	Middle	Surface	53.8	28.3	35.7	8.2	6.4
		Mid-Depth	53.8	27.5	35.7	8.2	6.5
		Bottom	53.8	27.4	35.7	8.2	6.4
	South	Surface	53.9	28.4	35.8	8.1	6.3
		Mid-Depth	53.9	27.5	35.7	8.2	6.2
		Bottom	53.9	27.3	35.7	8.2	6.2
Trawl SL2 C	North	Surface	53.3	27.5	35.3	8.2	6.6
		Mid-Depth	53.3	27.1	35.4	8.2	6.6
		Bottom	53.4	26.5	35.3	8.2	6.7
	Middle	Surface	53.3	27.4	35.3	8.2	6.5
		Mid-Depth	53.4	26.5	35.3	8.2	6.7
		Bottom	53.4	26.4	35.3	8.2	6.7
	South	Surface	53.3	27.3	35.3	8.2	6.6
		Mid-Depth	53.4	26.4	35.3	8.2	6.7
		Bottom	53.4	26.4	35.3	8.2	6.8
Trawl SL3 A	North	Surface	54.4	27.7	36.1	8.2	6.5
		Mid-Depth	54.5	27.2	36.2	8.2	6.6
		Bottom	54.5	26.9	36.2	8.2	6.7
	Middle	Surface	54.5	27.6	36.2	8.2	6.3
		Mid-Depth	54.5	27.2	36.2	8.2	6.4
		Bottom	54.5	27.0	36.1	8.2	6.5
	South	Surface	54.5	27.9	36.2	8.2	6.1
		Mid-Depth	54.6	27.2	36.3	8.2	6.1
		Bottom	54.6	27.1	36.2	8.2	6.2
Trawl SL3 B	North	Surface	54.5	28.4	36.2	8.2	6.4
		Mid-Depth	54.8	26.5	36.3	8.2	6.4
		Bottom	54.7	26.3	36.3	8.2	6.5
	Middle	Surface	54.4	28.4	36.2	8.2	6.3
		Mid-Depth	54.7	26.4	36.4	8.2	6.5
		Bottom	54.7	26.3	36.3	8.2	6.5
	South	Surface	54.4	28.4	36.2	8.2	6.3
		Mid-Depth	54.7	26.4	36.3	8.2	6.6
		Bottom	54.6	26.3	36.3	8.2	6.6

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Trawl SL3 C	North	Surface	54.1	28.4	36.0	8.2	6.3
		Mid-Depth	54.4	27.9	36.1	8.2	6.4
		Bottom	54.6	26.1	36.2	8.2	6.6
	Middle	Surface	54.1	28.4	35.9	8.2	6.1
		Mid-Depth	54.3	27.7	36.1	8.2	6.3
		Bottom	54.6	26.1	36.2	8.2	6.5
	South	Surface	54.2	28.5	36.0	8.2	6.1
		Mid-Depth	54.5	28.0	36.1	8.2	6.1
		Bottom	54.7	26.0	36.3	8.2	6.3
Gill Net SL1 A	East	Surface	53.4	27.9	35.4	8.2	6.3
		Mid-Depth	53.5	27.2	35.4	8.2	6.7
		Bottom	53.5	26.9	35.4	8.2	6.7
	Middle	Surface	53.5	27.8	35.4	8.2	6.5
		Mid-Depth	53.5	27.3	35.4	8.3	6.7
		Bottom	53.5	27.0	35.4	8.3	6.7
	West	Surface	53.4	27.9	35.4	8.2	6.3
		Mid-Depth	53.5	27.5	35.4	8.3	6.5
		Bottom	53.5	27.2	35.4	8.3	6.6
Gill Net SL1 B	East	Surface	53.3	27.9	35.4	8.3	6.5
		Mid-Depth	53.5	26.7	35.4	8.3	6.7
		Bottom	53.5	26.7	35.4	8.3	6.8
	Middle	Surface	53.3	27.9	35.3	8.3	6.6
		Mid-Depth	53.5	26.7	35.4	8.3	6.7
		Bottom	53.5	26.7	35.4	8.3	6.7
	West	Surface	53.4	28.1	35.3	8.3	6.6
		Mid-Depth	53.5	26.7	35.4	8.3	6.7
		Bottom	53.5	26.7	35.4	8.3	6.7
Gill Net SL1 C	East	Surface	53.5	27.7	35.4	8.1	6.4
		Mid-Depth	53.5	26.9	35.4	8.2	6.6
		Bottom	53.5	26.2	35.4	8.2	6.7
	Middle	Surface	53.4	27.8	35.4	8.2	6.3
		Mid-Depth	53.5	26.8	34.4	8.2	6.9
		Bottom	53.5	26.2	35.4	8.2	6.7
	West	Surface	53.4	27.8	35.4	8.2	6.4
		Mid-Depth	53.5	26.7	35.4	8.3	6.8
		Bottom	53.5	26.2	35.4	8.2	6.7

Transect	Station	Depth	Specific Conductivity (mS/cm)	Water Temp (°C)	Salinity (PSU)	pH	DO (mg/l)
Gill Net SL2 A	East	Surface	53.5	27.7	35.4	8.1	6.4
		Mid-Depth	53.5	26.9	35.4	8.1	6.6
		Bottom	53.5	26.6	35.4	8.2	6.7
	Middle	Surface	53.4	27.6	35.4	8.2	6.6
		Mid-Depth	53.4	26.9	35.4	8.2	6.7
		Bottom	53.5	26.6	35.4	8.2	6.8
	West	Surface	53.4	27.5	35.4	8.2	6.6
		Mid-Depth	53.5	26.9	35.4	8.2	6.7
		Bottom	53.5	26.6	35.4	8.2	6.7
Gill Net SL2 B	East	Surface	53.5	27.8	35.5	8.0	6.4
		Mid-Depth	53.5	26.6	35.5	8.1	6.6
		Bottom	53.5	26.5	35.9	8.1	6.7
	Middle	Surface	53.4	27.8	35.5	8.2	6.5
		Mid-Depth	53.5	26.6	35.4	8.2	6.7
		Bottom	53.5	26.5	35.4	8.2	6.8
	West	Surface	53.4	28.0	35.4	8.2	6.6
		Mid-Depth	53.5	26.8	35.3	8.2	6.7
		Bottom	53.4	26.5	35.4	8.2	6.8
Gill Net SL2 C	East	Surface	53.6	27.0	35.5	8.0	6.5
		Mid-Depth	53.5	26.6	35.4	8.1	6.6
		Bottom	53.5	26.6	35.4	8.2	6.7
	Middle	Surface	53.4	28.0	35.4	8.2	6.6
		Mid-Depth	53.5	26.6	35.3	8.2	6.7
		Bottom	53.5	26.6	35.3	8.2	6.8
	West	Surface	53.4	28.0	35.4	8.2	6.6
		Mid-Depth	53.5	26.7	35.3	8.3	6.7
		Bottom	53.5	26.6	35.3	8.3	6.8
Gill Net SL3 A	East	Surface	53.6	26.9	35.4	8.2	6.6
		Mid-Depth	53.5	25.9	35.4	8.2	6.7
		Bottom	53.5	25.5	35.3	8.2	6.9
	Middle	Surface	53.5	26.5	35.3	8.2	6.7
		Mid-Depth	53.5	26.1	35.4	8.3	6.8
		Bottom	53.5	26.0	35.4	8.3	7.0
	West	Surface	53.4	26.9	35.4	8.3	6.8
		Mid-Depth	53.5	26.3	35.4	8.3	6.8
		Bottom	53.5	26.3	35.4	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	53.5	27.0	35.4	8.1	6.4
		Mid-Depth	53.6	25.8	35.4	8.2	6.6
		Bottom	53.6	25.3	35.3	8.2	6.7
	Middle	Surface	53.5	26.9	35.4	8.2	6.6
		Mid-Depth	53.5	25.8	35.4	8.2	6.7
		Bottom	53.5	25.1	35.3	8.3	6.8
	West	Surface	53.5	26.8	35.4	8.3	6.6
		Mid-Depth	53.5	25.8	35.4	8.3	6.7
		Bottom	53.5	25.1	35.3	8.3	6.8
Gill Net SL3 C	East	Surface	53.5	26.2	35.4	8.1	6.5
		Mid-Depth	53.6	24.7	35.4	8.1	6.4
		Bottom	53.6	24.6	35.4	8.1	6.3
	Middle	Surface	53.4	26.2	35.3	8.2	6.7
		Mid-Depth	53.5	24.9	35.4	8.2	6.5
		Bottom	53.6	24.6	35.4	8.2	6.4
	West	Surface	53.4	26.2	35.4	8.2	6.6
		Mid-Depth	53.5	25.0	35.3	8.2	6.5
		Bottom	53.6	24.6	35.4	8.2	6.4

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 10 (August 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
Calappa flammea	flame box crab
Callinectes sp.*	swimming crabs
*Farfantepenaeus duorarum**	pink shrimp
Hepatus epheliticus	calico box crab
Hippolytidae	brokenback shrimp
Latreutes fucorum	slender sargassum shrimp
Majoidea	spider crabs
*Menippe mercenaria**	Florida stone crab
Paguroidea	hermit crab
Palaemonidae	grass shrimps
*Panulirus argus**	Caribbean spiny lobster
Penaeidae*	penaeid shrimp
Persephona mediterranea	mottled purse crab
Portunus anceps	delicate swimming crab
Portunus depressifrons	flatfaced swimming crab
Portunus gibbesii	iridescent swimming crab
Portunus sp.	portunid crab
Processa sp.	night shrimps
Processidae	night shrimps
*Rimapenaeus constrictus**	roughneck shrimp
*Sicyonia laevigata**	coral shrimp
*Sicyonia parri**	rock shrimp
Sicyonia sp.*	rock shrimp
*Sicyonia typica**	kinglet rock shrimp
Xanthoidea	xanthid crabs

Scientific Name	Common Name
Echinoderms	
Clypeasteroida	sand dollars
Temnopleuroida	sea urchins
Fish and Eggs	
Albula vulpes	bonefish
Aluterus schoepfii	orange filefish
*Anchoa hepsetus***	striped anchovy
Ancylopsetta ommata	oscellated flounder
Archosargus probatocephalus	sheepshead
Bagre marinus	gafftopsail catfish
Bathygobius soporator	frillfin goby
Blenniidae	combtooth blennies
Bothus robinsi	twospot flounder
Bothus sp.	Lefteye flounder
Bregmacerotidae	codlets
Carangidae	jacks
Carangoides bartholomaei	yellow jack
Caranx crysos	blue runner
Caranx latus	horse-eye jack
Carcharhinus brevipinna	spinner shark
Centropomus sp.	snook
Centropomus undecimalis	common snook
Centropristis striata	black sea bass
Chaetodipterus faber	Atlantic spadefish
Chloroscombrus chrysurus	Atlantic bumper
Citharichthys macrops	spotted whiff
Clupeidae**	herrings and sardines
Clupeiformes**	herring-like fishes
Corvula sanctaeluciae	striped croaker
Diodon holocanthus	balloonfish
Elops saurus	ladyfish
Engraulidae**	anchovies
*Etrumeus teres***	round herring
Eucinostomus gula	silver jenny

Scientific Name	Common Name
Eucinostomus harengulus	tidewater mojarra
Gobiidae	gobies
Haemulidae	grunts
Haemulon carbonarium	Caesar grunt
Haemulon sp.	grunt
*Harengula jaguana***	scaled sardine
Hyporhamphus meeki	false silverstripe halfbeak
Labrisomus nuchipinnis	hairy blenny
Lagodon rhomboides	pinfish
Lutjanidae	snappers
Lutjanus synagris	lane snapper
*Menticirrhus littoralis***	Gulf kingfish
*Menticirrhus saxatilis***	northern kingfish
Menticirrhus sp.**	kingfishes/ Weakfishes
Microdesmidae	wormfishes
Mugil curema	white mullet
Oligoplites saurus	leatherjacket
*Opisthonema oglinum***	Atlantic thread herring
Paralichthyidae	sand flounders
Polydactylus virginicus	barbu
Pomacanthidae	angelfishes
*Prionotus scitulus***	leopard searobin
Rhizoprionodon terraenovae	Atlantic sharpnose shark
*Sardinella aurita***	Spanish sardine
Sciaenidae	drums and croakers
Scombridae**	mackerels
Selar crumenophthalmus	bigeyed scads
Selene vomer	lookdown
Serranidae	sea basses and groupers
Sphoeroides sp.	puffer
Sphyraena guachancho	guaguanche
Stephanolepis hispida	planehead filefish
Trachinocephalus myops	bluntnose lizardfish
*Trachinotus carolinus***	Florida pompano

Scientific Name	Common Name
Trachinotus falcatus	permit
Tripterygiidae	triplefins
*Umbrina coroides***	sand drum
Unidentified fish	unidentified fish
Unidentified eggs	unidentified eggs
Molluscs	
Loliginidae	squid
Opisthobranchia	seahares
Sea Turtles	
Chelonia mydas	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 10 (August 2014), St. Lucie Plant EPU Biological Study.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
Paguroidea	418			16						**434**
Palaemonidae	99									**99**
Portunus sp.	20					22				**42**
Alpheus sp.	6		23							**29**
Portunus anceps						22				**22**
Hippolytidae	19									**19**
*Sicyonia typica**			7			11				**18**
Majoidea	8		2	2		1				**13**
*Panulirus argus**	11									**11**
*Rimapenaeus constrictus**			5			6				**11**
Latreutes fucorum	6									**6**
*Sicyonia parri**	5									**5**
*Farfantepenaeus duorarum**	4									**4**
Portunus gibbesii	1					3				**4**
Sicyonia sp.*	4									**4**
Processa sp.	3									**3**
Callinectes sp.*	2									**2**
Hepatus epheliticus			1						1	**2**
Penaeidae*	2									**2**
Processidae	2									**2**
*Sicyonia laevigata**	2									**2**

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Xanthoidea			2							**2**
*Arenaeus cribrarius**	1									**1**
Calappa flammea					1					**1**
Persephona mediterranea	1									**1**
Portunus depressifrons						1				**1**
Echinoderms										
Clypeasteroida			138	8		1	28			**175**
Temnopleuroida	4	4	5					2		**15**
Fish										
Corvula sanctaeluciae	37									**37**
Labrisomus nuchipinnis	23									**23**
Haemulon carbonarium	4			14			2			**20**
Lutjanus synagris	5			7						**12**
Eucinostomus harengulus	6			1						**7**
Bothus robinsi						4				**4**
*Prionotus scitulus***			2			1				**3**
Ancylopsetta ommata	1									**1**
Centropristis striata				1						**1**
Citharichthys macrops						1				**1**
Trachinocephalus myops						1				**1**
Molluscs										
Opisthobranchia	44									**44**
Loliginidae				7		2	2			**11**

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Grand Total	**738**	**4**	**185**	**56**	**1**	**76**	**32**	**2**	**1**	**1,095**

*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 10 (August 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										
Paguroidea	605.18			19.12						**63.85**
Palaemonidae	143.33									**14.57**
Portunus sp.	28.96					36.13				**6.18**
Alpheus sp.	8.69		38.04							**4.27**
Portunus anceps						36.13				**3.24**
Hippolytidae	27.51									**2.80**
*Sicyonia typica**			11.58			18.07				**2.65**
Majoidea	11.58		3.31	2.39		1.64				**1.91**
*Panulirus argus**	15.93									**1.62**
*Rimapenaeus constrictus**			8.27			9.85				**1.62**
Latreutes fucorum	8.69									**0.88**
*Sicyonia parri**	7.24									**0.74**
*Farfantepenaeus duorarum**	5.79									**0.59**
Portunus gibbesii	1.45					4.93				**0.59**
Sicyonia sp.*	5.79									**0.59**
Processa sp.	4.34									**0.44**
Callinectes sp.*	2.90									**0.29**
Hepatus epheliticus			1.65						1.58	**0.29**
Penaeidae*	2.90									**0.29**
Processidae	2.90									**0.29**

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
*Sicyonia laevigata**	2.90									**0.29**
Xanthoidea			3.31							**0.29**
*Arenaeus cribrarius**	1.45									**0.15**
Calappa flammea					1.12					**0.15**
Persephona mediterranea	1.45									**0.15**
Portunus depressifrons						1.64				**0.15**
Echinoderms										
Clypeasteroida			228.21	9.56		1.64	32.96			**25.75**
Temnopleuroida	5.79	4.51	8.27					2.53		**2.21**
Fish										
Corvula sanctaeluciae	53.57									**5.44**
Labrisomus nuchipinnis	33.30									**3.38**
Haemulon carbonarium	5.79			16.73			2.35			**2.94**
Lutjanus synagris	7.24			8.37						**1.77**
Eucinostomus harengulus	8.69			1.20						**1.03**
Bothus robinsi						6.57				**0.59**
*Prionotus scitulus***			3.31			1.64				**0.44**
Ancylopsetta ommata	1.45									**0.15**
Centropristis striata				1.20						**0.15**
Citharichthys macrops						1.64				**0.15**
Trachinocephalus myops						1.64				**0.15**
Molluscs										
Opisthobranchia	63.70									**6.47**
Loliginidae				8.37		3.28	2.35			**1.62**

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Grand Total	**1068.48**	**4.51**	**305.94**	**66.92**	**1.12**	**124.82**	**37.67**	**2.53**	**1.58**	**161.11**

*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 10 (August 2014), St. Lucie Plant EPU Biological Study. Note: There were no Representative Important Species (RIS) caught during this event.

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Echinoderms										
Temnopleuroida		1			11	3				15
Fish										
Caranx crysos		6	1							7
Rhizoprionodon terraenovae									3	3
Aluterus schoepfii							1			1
Ancylopsetta ommata				1						1
Archosargus probatocephalus	1									1
Bagre marinus	1									1
Carcharhinus brevipinna					1					1
Chloroscombrus chrysurus	1									1
Grand Total	**3**	**7**	**1**	**1**	**12**	**3**	**1**	**0**	**3**	**31**

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 10 (August 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. There were no Representative Important Species (RIS) caught during this event.)

Taxon	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Echinoderms										
Temnopleuroida		2.61			10.48	4.62				**2.37**
Fish										
Caranx crysos		15.65	1.71							**1.11**
Rhizoprionodon terraenovae									4.86	**0.47**
Aluterus schoepfii							1.30			**0.16**
Ancylopsetta ommata				1.43						**0.16**
Archosargus probatocephalus	1.58									**0.16**
Bagre marinus	1.58									**0.16**
Carcharhinus brevipinna					0.95					**0.16**
Chloroscombrus chrysurus	1.58									**0.16**
Grand Total	**4.74**	**18.26**	**1.71**	**1.43**	**11.43**	**4.62**	**1.30**	**0.00**	**4.86**	**4.89**

Table 8. Number of Individuals of Each Fish and Invertebrate Taxon Captured by Beach Seine at Each Station, Post-Uprate Sampling Event 10 (August 2014), St. Lucie Plant EPU Biological Study.

Taxa	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Crustaceans										
*Arenaeus cribrarius**				16		24	28	40	13	**121**
Paguroidea							1			**1**
Fish										
*Harengula jaguana***	2,367				1	78	1,268	3,484	4,471	**11,669**
Eucinostomus harengulus					4	6	910	86	93	**1,099**
*Opisthonema oglinum***	1					8	1	362	31	**403**
*Umbrina coroides***		2		24	31	27	165	75	59	**383**
Selar crumenophthalmus	5						30	149	45	**229**
*Trachinotus carolinus***	1		5	5	18	17	30	18	4	**98**
Chloroscombrus chrysurus	1	27	16		47		3	2		**96**
*Menticirrhus littoralis***		1	5	16	14	4	8	16	10	**74**
*Sardinella aurita***						3	1	34	33	**71**
Eucinostomus gula							1	5	5	**11**
Caranx latus							4	2	4	**10**
Selene vomer			6					2		**8**
Carangoides bartholomaei					5		2			**7**
Oligoplites saurus	4						1			**5**
Albula vulpes					1	3				**4**
Trachinotus falcatus					1		2		1	**4**
Sphyraena guachancho	1		2							**3**

Taxa	SL1			SL2			SL3			Total
	A	B	C	A	B	C	A	B	C	
Caranx crysos								2		**2**
Elops saurus			1					1		**2**
*Etrumeus teres***								2		**2**
Polydactylus virginicus						1		1		**2**
*Anchoa hepsetus***	1									**1**
Centropomus sp.					1					**1**
Centropomus undecimalis							1			**1**
Chaetodipterus faber								1		**1**
Hyporhamphus meeki									1	**1**
Lagodon rhomboides							1			**1**
*Menticirrhus saxatilis***								1		**1**
Mugil curema					1					**1**
Trachinocephalus myops				1						**1**
Grand Total	**2,381**	**30**	**35**	**62**	**124**	**171**	**2,457**	**4,283**	**4,770**	**14,313**

*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 10 (August 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
Harengula jaguana	85.8	7.3	151	11,669								
Opisthonema oglinum	90.6	6.7	70	403								
Umbrina coroides	108.7	25.7	173	383								
Trachinotus carolinus	75.9	9.9	98	98								
Menticirrhus littoralis	116.7	32.1	74	74								
Sardinella aurita	85.5	5.1	71	71								
Etrumeus teres	94.65	7.15	2	2								
Anchoa hepsetus	57.6	1.4	1	1								
Menticirrhus saxatilis	87.5	5.6	1	1								
Prionotus scitulus									100.6	11.5	3	3

* No RIS species captured during gill net sampling

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 10 (August 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	0.57	1.00	3.48	12.24	0.08	0.03	**3.104**
Callinectes sp.*	Zoea			2.78	0.16	1.71		**0.791**
Penaeidae*	Protozoea			1.39	0.16			**0.259**
*Menippe mercenaria**	Zoea	0.38			0.78	0.08		**0.216**
Callinectes sp.*	Megalops		0.18					**0.032**
Sicyonia sp.*	Mysis					0.08		**0.014**
Fish Eggs								
Unidentified eggs	Egg	1.83	10.00	37.37	48.31	7.51	22.43	**21.673**
Clupeiformes**	Egg				11.92			**2.187**
Clupeidae**	Egg		0.18					**0.032**
Fish								
Engraulidae**	Post Yolk-Sac Larvae	3.26		0.54				**0.583**
Clupeidae**	Post Yolk-Sac Larvae	0.14	0.26	0.20	0.10	0.06	0.13	**0.147**
Bregmacerotidae	Post Yolk-Sac Larvae	0.07		0.65				**0.119**
Carangidae	Post Yolk-Sac Larvae	0.07	0.02	0.13	0.12	0.02		**0.061**
Unidentified fish	Post Yolk-Sac Larvae			0.28	0.02			**0.050**
Blenniidae	Post Yolk-Sac Larvae			0.02	0.08	0.08		**0.032**
Lutjanidae	Post Yolk-Sac Larvae	0.05		0.07	0.02	0.06		**0.032**
Sciaenidae	Post Yolk-Sac Larvae			0.20				**0.032**

Taxa	LifeStage	SL1		SL2		SL3		Total
		A	C	A	C	A	C	
Gobiidae	Post Yolk-Sac Larvae	0.05		0.02	0.06			**0.022**
Pomacanthidae	Post Yolk-Sac Larvae			0.11				**0.018**
Chloroscombrus chrysurus	Post Yolk-Sac Larvae	0.10						**0.014**
Serranidae	Post Yolk-Sac Larvae			0.07	0.02			**0.014**
Sphoeroides sp.	Post Yolk-Sac Larvae			0.09				**0.014**
Diodon holocanthus	Post Yolk-Sac Larvae	0.05	0.02					**0.011**
Bathygobius soporator	Post Yolk-Sac Larvae			0.04				**0.007**
Haemulon sp.	Post Yolk-Sac Larvae				0.04			**0.007**
Menticirrhus sp.**	Post Yolk-Sac Larvae	0.02		0.02				**0.007**
Microdesmidae	Post Yolk-Sac Larvae	0.05						**0.007**
Selar crumenophthalmus	Post Yolk-Sac Larvae				0.04			**0.007**
Aluterus schoepfii	Post Yolk-Sac Larvae	0.02						**0.004**
Bothus sp.	Post Yolk-Sac Larvae				0.02			**0.004**
Clupeidae**	Yolk-Sac Larvae		0.02					**0.004**
Haemulidae	Post Yolk-Sac Larvae	0.02						**0.004**
Paralichthyidae	Post Yolk-Sac Larvae			0.02				**0.004**
Scombridae**	Post Yolk-Sac Larvae				0.02			**0.004**
Stephanolepis hispida	Post Yolk-Sac Larvae	0.02						**0.004**
Tripterygiidae	Post Yolk-Sac Larvae			0.02				**0.004**
Unidentified fish - damaged	Post Yolk-Sac Larvae					0.02		**0.004**
Grand Total		**6.71**	**11.68**	**47.50**	**74.10**	**9.71**	**22.58**	**29.529**

*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 10 (August 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
Chelonia mydas	1	0	1	1	0	0