SOUTH TEXAS PROJECT
ELECTRIC GENERATING
STATION

REPORT #3

COLORADO RIVER ENTRAINMENT AND IMPINGEMENT MONITORING PROGRAM

PHASE TWO STUDIES
JULY - SEPTEMBER, 1985

DECEMBER, 1985

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JULY-SEPTEMBER, 1985

PREPARED FOR

SOUTH TEXAS PROJECT

SUBMITTED BY

ECOLOGY DIVISION, ENVIRONMENTAL PROTECTION DEPARTMENT

HOUSTON LIGHTING & POWER COMPANY

DECEMBER 1985

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INTRODUCTION

Section 6.1.3.2. and Appendix E of the Final Environmental Statement (USNRC 1975) require Phase Two of the aquatic ecology studies to begin within one week of the start of reservoir fill pumping. Report #1 (McAden et al. 1984) covered the period July 1983 - June 1984, Report #2 (McAden et al. 1985) covered the period July - December 1984. No sustained reservoir filling occurred from January to August 1985. Sustained reservoir filling resumed in September 1985. This report presents data for the sampling period July - September 1985, during which time three entrainment samples and two impingement samples were collected.

METHODS

Methods employed in impingement sampling of the RMPF screens and entrainment sampling in the Colorado River are described in Report #1 (McAden et al. 1984).

However, modifications of entrainment sampling procedures were necessary to overcome physical problems associated with sampling in the siltation basin and to improve the reliability of the samples collected (Wisenburg 1985). To accomplish this, a 4-in tap-line was installed on each of the two 108-in reservoir-fill pipelines, and a two-cubic-meter capacity metal tank was located adjacent to these outlets. Prior to each sample collection, the flow rate through the chosen 4-in sample hose was determined by measuring the time required to fill the tank. To collect samples, a 0.5-mm mesh plankton net was

suspended inside the tank with the cod end extending to the bottom of the tank and the net mouth held several inches above the water's surface. Water from one of the two 4-in tap lines was directed into the plankton net for 5 minutes. The net was then removed from the tank and rinsed from the outside to concentrate all of the sample in the cod end jar. Samples were then poured into a labelled plastic jar, preserved in 10% buffered formalin and stained with rose bengal. Samples were collected from only one pipeline during each collection. Samples were collected from the pipeline with the greatest flow; or, if the flow was equal, selection was random.

RESULTS AND DISCUSSION

HYDROLOGY AND WATER QUALITY

Water temperature, pH, turbidity and dissolved oxygen data from the Colorado River station are shown in Table 1. Conductivity values are given in Table 2, and salinity values are given in Table 3. Water temperature, salinity, dissolved oxygen and pH from the Reservoir Makeup Pumping Facility (RMPF) pipeline are given in Table 4. Water temperature, conductivity, salinity, dissolved oxygen and pH data from the RMPF revolving screens are given in Table 5.

On both 4-5 and 17-18 September 1985 a wedge of salt water was present in the Colorado River at the RMPF, and extended within 5 to 10 ft of the surface. The salt water wedge was low in dissolved oxygen on both trips (maximum of 0.9 ppm).

Water quality in the RMPF pipeline and at the revolving screens was similar to surface conditions in the Colorado River on both dates. This indicates that water being drawn in by the RMPF pumps is from near-surface waters of the Colorado River.

MACROZOOPLANKTON AND FISH

During September 1985, 22 taxa of invertebrates and 7 taxa of vertebrates were collected in the Colorado River, while 8 invertebrate and 4 vertebrate taxa were collected from the RMPF pipeline (Table 8).

Tables 9 and 10, which show the spatial and temporal variations in density of both invertebrates and fish in the Colorado River, reveal that mid-depth and oblique tows yielded the largest number of taxa and the highest densities of plankton. The low densities of plankton in the bottom samples can be attributed to low dissolved oxygen levels on the bottom on both dates (Table 1).

Rhithropanopeus harrisii zoeae was both the most commonly collected and the most abundant invertebrate taxon, with the fish louse, Argulus spp., being present in small numbers in most samples. Penaeid shrimp, Penaeus aztecus and P. setiferus, and the blue crab, Callinectes sapidus, occurred in small numbers in samples from the river.

Fish were not a major component of the plankton during this sampling period. The bay anchovy, Anchoa mitchilli, was found in 3 of the 32 plankton

samples collected. Two samples each contained a single larval pipefish, Syngnathus spp.

Tables 11 and 12 show the numbers of macrozooplankton and fish which were taken in samples from the RMPF pipelines on 4-5 and 17-18 September 1985. The dominant species in these samples were juvenile stages of the river shrimps, Macrobrachium acanthurus and M. ohione, and the glaucathoe stage of hermit crabs (Paguridea). Species of commercial importance, P. aztecus and C. sapidus, were taken only sporadically and in low densities. The mud crab, R. harrisii, which was dominant in river samples, was of secondary importance in entrainment samples. Likewise, Argulus spp. were rarely taken in entrainment samples although they were common in river samples.

Fish were rarely taken in samples from the RMPF pipelines. In the 8 samples collected, only 2 species of fish and one unidentified fish larva were collected. On 5 September, one Gobiosoma bosci and one unidentified fish larva were collected. On 18 September, one Gambusia affinis was collected. On both occasions, the fish were collected in the early morning samples (0450 and 0115 CST).

Data collected on these two sampling trips, though limited, indicate that those taxa which dominate samples from the river are of relatively minor importance in samples from the RMPF pipelines. For example, zoeae of the estuarine mud crab, R. harrisii, are the dominant organism in the river samples, but only secondary in importance in the RMPF pipeline samples. However, the river shrimps, Macrobrachium spp., and hermit crabs, Paguridea,

which are generally absent in river samples, occur in large numbers in samples from the RMPF pipelines.

NEKTON

Twenty-six species of macroinvertebrates and fish were caught in the seine and impingement samples (Table 13). No organisms were caught in the trawl samples because of the anaerobic conditions on the bottom (Table 1).

Four species of macroinvertebrates, 3 species of shrimp and 1 crab, were caught in the seine samples (Tables 14 and 15). The river shrimp, M. acanthurus, was the only fresh water representative, while the most abundant invertebrate was the white shrimp, P. setiferus.

Seventeen species of fish were caught in the seine samples (Tables 14 and 15). The four nighttime samples were similar to each other in number of species and number of individuals. The four daytime samples were similar to each other, but fewer species and individuals were present in the daytime samples.

Seven species of macroinvertebrates were collected in the impingement samples, three of which were not caught elsewhere (Table 13). The most common invertebrate impinged was the blue crab, C. sapidus, with the white shrimp, P. setiferus, second in abundance (Tables 16-18).

Five species of fish, represented by 10 individuals, were caught in the impingement samples (Tables 16-18). There were 3 mosquito fish, G. affinis, 3 lined sole, Achirus lineatus, and 4 individuals of 3 different species of gobies. All fish were small, 30 mm standard length or less.

REFERENCES CITED

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McAden, D.C., G.N. Greene and W.B. Baker, Jr. 1985. Report #2. Colorado River Entrainment and Impingement Monitoring Program, Phase Two Studies - July - December 1984. Ecology Division, Environmental Protection Department, Houston Lighting & Power Company.

USNRC. 1975. Final Environmental Statement. South Texas Project Units 1 and 2. Houston Lighting & Power Company, City Public Service Board of San Antonio, Central Power and Light Company, City of Austin. Docket Nos. 50-498 and 50-499. Prepared by Office of Nuclear Reactor Regulation, United States Nuclear Regulatory Commission.

Wisenburg, M.R. 1985. Letter from Houston Lighting & Power Company Nuclear Licensing Department, to the Nuclear Regulatory Commission describing change in procedures for conducting entrainment monitoring in the siltation basin at the STP Reservoir Makeup Pumping Facility. File No. ST-HL-AE-1294. 2 pp., w/attachment.

Table 1

TEMPORAL VARIATIONS IN TEMPERATURE, TURBIDITY AND DISSOLVED OXYGEN AT MID-CHANNEL OF THE COLORADO RIVER, SEPTEMBER 1985

Sampling Dates	Time (CST)	Temperature (°C) Surface	Temperature (°C) Bottom	pH Surface	Turbidity (inches)	Dissolved O_2 (ppm) Surface	Dissolved O_2 (ppm) Bottom	Depth (ft)
4 September	1400	32.5	30.2	7.8	18.5	8.9	0.6	18.0
4 September	2000	31.5	30.1	8.5	12.0	9.9	0.1	17.0
5 September	0220	31.3	30.0	8.2	17.5	10.2	0.4	18.5
5 September	0805	30.6	30.0	8.3	22.0	8.4	0.1	20.0
17 September	1220	29.4	29.4	8.0	17.0	7.0	0.2	18.0
17 September	1820	29.7	29.3	8.0	18.0	8.8	0.2	17.5
18 September	0020	28.7	29.3	8.0	21.0	8.9	0.9	20.0
18 September	0700	27.9	29.3	7.8	21.5	6.9	0.5	17.0

Table 2

TEMPORAL AND SPATIAL VARIATIONS IN CONDUCTIVITY (MILLIMHOS/CM)

AT MID-CHANNEL OF THE COLORADO RIVER, SEPTEMBER 1985

Sampling Dates	Time (CST)	DEPTH (Ft.) S	5	10	15	20	B	(Depth)
4 September	1400	3.5	4.8	29.8	45.5	—	46.7	(18.0)
4 September	2000	4.1	4.7	21.0	46.3	—	46.8	(17.0)
5 September	0220	3.9	4.0	28.0	45.5	—	47.0	(18.5)
5 September	0805	4.1	5.7	31.7	44.3	46.4	46.4	(20.0)
17 September	1220	2.5	12.0	43.8	45.5	—	46.2	(18.0)
17 September	1820	3.2	3.8	42.2	46.4	—	46.6	(17.5)
18 September	0020	2.6	6.6	40.6	46.4	46.7	46.7	(20.0)
18 September	0700	2.8	4.1	43.6	50.2	—	50.3	(17.0)

TABLE 3

TEMPORAL AND SPATIAL VARIATIONS IN SALINITY (PPT)
AT MID-CHANNEL OF THE COLORADO RIVER, SEPTEMBER 1985

Sampling Dates	Time (CST)	DEPTH (Ft.) S	5	10	15	20	B	(Depth)
4 September	1400	2.0	2.7	18.6	29.7	—	30.6	(18.0)
4 September	2000	2.3	2.6	12.8	30.3	—	30.7	(17.0)
5 September	0220	2.2	2.2	17.4	29.7	—	30.8	(18.5)
5 September	0805	2.3	3.2	19.9	28.9	30.4	30.4	(20.0)
17 September	1220	1.4	7.0	28.5	29.7	—	30.2	(18.0)
17 September	1820	1.8	2.2	27.4	30.4	—	30.6	(17.5)
18 September	0020	1.4	3.8	26.2	30.4	30.6	30.6	(20.0)
18 September	0700	1.6	2.3	28.4	33.2	—	33.3	(17.0)

TABLE 4

TEMPORAL VARIATIONS IN WATER QUALITY PARAMETERS IN THE RMPF PIPELINE, SEPTEMBER 1985

Sampling Dates	Time (CST)	Temperature (°C)	Salinity (PPT)	Dissolved Oxygen (PPM)	pH
4 September	1600	30.0	2.2	8.8	8.5
4 September	2205	31.1	2.4	8.1	8.4
5 September	0220	29.4	2.2	7.8	8.4
5 September	0945	30.4	2.4	7.8	8.5
17 September	1345	29.8	2.1	7.7	8.0
17 September	1920	26.7	0.8	7.6	8.0
18 September	0115	28.5	2.0	7.5	7.9
18 September	0810	28.2	1.7	7.2	7.9

TABLE 5

TEMPORAL AND SPATIAL VARIATIONS IN TEMPERATURE, CONDUCTIVITY, SALINITY AND DISSOLVED OXYGEN AT THE STP REVOLVING SCREENS, SEPTEMBER 1985

Sampling Dates	Time(CST)	Temperature (°C)		Conductivity (millimhos/cm)		Salinity (ppt)		Dissolved O_2 (ppm)		pH
		Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface
4 September	1654	32.2	31.8	3.8	4.2	2.2	2.4	11.4	7.2	8.5
5 September	0107	30.9	31.1	3.8	4.1	2.2	2.3	8.7	7.5	8.5
5 September	0907	30.0	30.1	3.9	4.4	2.2	2.5	8.7	6.2	8.4
11 September	1236	29.2	29.2	3.3	5.3	1.8	3.0	7.6	7.2	7.3
11 September	2033	29.0	29.1	3.3	3.8	1.8	2.2	7.7	7.7	7.8
12 September	0427	28.5	28.8	3.1	4.3	1.7	2.4	7.3	6.9	8.0
17 September	1418	30.0	29.5	3.1	5.8	1.7	3.3	6.4	6.7	8.0
17 September	2200	29.0	29.1	3.3	6.7	1.8	3.8	7.7	6.9	8.0
18 September	0600	27.9	28.1	3.2	3.2	1.8	1.8	8.2	8.3	8.0

TABLE 6

AVERAGE COLORADO RIVER FLOW (CFS) ON DATES OF SAMPLE COLLECTION, SEPTEMBER 1985

DATE	RIVER FLOW*
4 September	490
5 September	462
11 September	637
12 September	610
17 September	917
18 September	837

*The arithmetic mean of daily flow values recorded at the beginning of each shift.

TABLE 7

RESERVOIR MAKEUP PUMPING FACILITY (RMPF) DAILY PUMPAGE (M^3), JULY - SEPTEMBER 1985

DATE	JULY	AUGUST	SEPTEMBER
1			293,579
2			250,776
3	49,353		244,608
4	385,871		147,900
5	2,732,173		101,519
6			40,213
7	674,837		82,029
8			146,790
9	1,441,054		66,980
10			110,524
11			293,579
12			293,579
13			304,928
14			683,373
15			733,948
16			732,961
17			733,948
18			660,553
19			742,706
20		74,061	579,140
21		66,968	220,678
22			8,511
23			
24			
25			
26			
27			
28			
29		64,217	
30		277,050	
31		304,890	
TOTALS	5,283,288	787,186	7,472,822

TABLE 8

MACROZOOPLANKTON AND FISH TAXA COLLECTED FROM THE COLORADO RIVER AND THE RMPF PIPELINE BY 0.5-MM MESH PLANKTON NET, 4-5 AND 17-18 SEPTEMBER 1985

TAXA	COLORADO RIVER				RMPF PIPELINE
	Surface	Mid-depth	Bottom	Oblique	
ANNELIDA					
Unidentified Polychaeta		X	X	X	
Polychaeta (Nereidae)		X		X	X
CHAETOGNATHA					
Sagitta spp.			X		
COPEPODA					
Acartia tonsa			X		
Halicyclops spp.		X			
Harpactacoid copepodida	X		X		
Caligus spp.		X			
BRANCHIURA					
Argulus spp.	X	X		X	X
CIRRIPEDIA					
Barnacle cypris				X	
MALACOSTRACA					
Corophium louisianum		X		X	
Aegathoa spp.	X	X		X	
Penaeus aztecus postlarvae	X				X
P. setiferus juv.		X			
Macrobrachium spp. zoeae	X		X	X	
M. acanthurus juv.					X
M. ohione juv.	X				X
Palaemonetes spp. zoeae		X			
Callianassa spp. zoeae		X	X	X	
Paguridea zoeae		X			
Paguridea glaucathoe					X
Callinectes spp. megalopa	X			X	
C. sapidus juv.	X			X	X
Rhithropanopeus harrisii zoeae	X	X	X	X	X
R. harrisii megalopa		X			

Table 8 (Cont'd)

TAXA	COLORADO RIVER				RMPF PIPELINE
	Surface	Mid-depth	Bottom	Oblique	
PISCES					
Unidentified fish eggs					X
Unidentified fish larvae	X			X	X
Anchoa mitchilli	X	X			
Gambusia affinis			X		X
Syngnathus spp. larvae	X	X			
Cynoscion arenarius		X			
Gobionellus spp. larvae		X			
G. boleosoma				X	
Gobiosoma bosci					X

TABLE 9

NUMBER (PER 100 M^3) OF MACROZOOPLANKTON AND FISH COLLECTED IN THE COLORADO RIVER BY 0.5-M PLANKTON NET ON 4-5 SEPTEMBER 1985

TAXA	SURFACE				MID-DEPTH				BOTTOM				OBLIQUE			
TIME (CST):	1400	2000	0220	0805	1400	2000	0220	0805	1400	2000	0220	0805	1400*	2000	0220	0805
Unidentified Polychaeta					8.4	11.7	34.4					13.0				48.7
Polychaeta (Nereidae)						8.8										
Acartia tonsa												2.6				
Halicyclops spp.							2.9									
Harpactacoid copepodida	3.4											2.6				
Caligus spp.							2.9									
Argulus spp.	6.8		10.0	3.8	12.6	11.7	8.6	6.0						16.0		
Barnacle cypris														16.0		
Corophium louisianum															22.9	
Aegathoa spp.		18.6	3.4	3.8	4.2		5.7									
Penaeus aztecus postlarvae			3.4													
P. setiferus juv.							2.9									
Macrobrachium ohione juv.		3.1	3.4													
Palaemonetes spp. zoeae								3.0								
Callianassa spp. zoeae							2.9	6.0								
Paguridea zoeae						2.9										

Table 9 (Cont'd)

TAXA	SURFACE				MID-DEPTH				BOTTOM				OBLIQUE			
TIME (CST):	1400	2000	0220	0805	1400	2000	0220	0805	1400	2000	0220	0805	1400*	2000	0220	0805
Callinectes spp. megalopa			13.4												22.9	
C. sapidus juv.		9.3												80.0		
Rhithropanopeus harrisii zoeae	6.8	68.2	140.8	26.9	105.0	861.9	100.4	465.7	5.4	13.7	6.1	10.4		928.0	892.4	85.3
Anchoa mitchilli			13.4		5.9		22.9									
Gambusia affinis										2.7						
Syngnathus spp. larvae				3.8			2.9									
Cynoscion arenarius							2.9									
Gobionellus spp. larvae							2.9									
G. boleosoma															22.9	

*No organisms in sample

TABLE 10

NUMBER (PER 100 M^3) OF MACROZOOPLANKTON AND FISH COLLECTED IN THE COLORADO RIVER BY 0.5-M PLANKTON NET ON 17-18 SEPTEMBER 1985

	SURFACE				MID-DEPTH				BOTTOM				OBLIQUE			
TAXA TIME (CST):	1220	1820	0020	0700	1220	1820	0020	0700	1220	1820	0020	0700	1220	1820	0020	0700
Unidentified Polychaeta					34.5	14.6	53.4	6.3	11.3		2.7		29.7		36.3	9.2
Polychaeta (Nereidae)														8.7		
Sagitta spp.									2.8							
Halicyclops spp.						2.9										
Caligus spp.						2.9	13.4									
Argulus spp.		16.5	22.9	32.1		5.9		65.8					37.2	43.6	9.1	114.7
Corophium louisianum								3.1								
Aegathoa spp.		3.3												8.7		4.6
Macrobrachium spp. zoeae	9.2			4.0							2.7		7.4	8.7		
Callianassa spp. zoeae								18.8			2.7					9.2
Callinectes spp. megalopa		3.3														
Rhithropanopeus harrisii zoeae	9.2	6.6	19.1	84.3		8.8	20.0	648.5	36.6	11.7	13.3		171.0		109.0	220.2
R. harrisii megalopa						5.9	3.3									
Unidentified fish larvae				4.0												22.9

TABLE 11

NUMBER (PER 100 M^3) OF MACROZOOPLANKTON AND FISH COLLECTED FROM THE RMPF PIPELINE BY 0.5-MM MESH PLANKTON NET ON 4-5 SEPTEMBER 1985

TAXA	TIME (CST)			
	1600	2205	0450	1045
Argulus spp.				10.8
Penaeus aztecus postlarvae		21.8	21.8	
Macrobrachium acantharus juv.		65.5	65.5	
M. ohione juv.	32.8	425.8	742.4	53.8
Paguridea glaucathoe		43.7	76.4	10.8
Callinectes sapidus juv.			10.9	
Rhithropanopeus harrisii zoeae	32.8	43.7		10.8
Unidentified fish eggs				10.8
Unidentified fish larvae			10.9	
Gobiosoma bosci			10.9	

TABLE 12

NUMBER (PER 100 M^3) OF MACROZOOPLANKTON AND FISH COLLECTED FROM THE RMPF PIPELINE BY 0.5-MM MESH PLANKTON NET ON 17-18 SEPTEMBER 1985

TAXA	TIME (CST)			
	1346	1920	0115	0710*
Polychaeta (Nereidae)		46.6		
Argulus spp.	9.5	9.3		
Rhithropanopeus harrisii zoeae		18.6		
Gambusia affinis			9.3	

*No organisms caught

TABLE 13

NEKTON COLLECTED IN THE COLORADO RIVER BY TRAWL,
SEINE AND REVOLVING SCREENS, 4-5 AND 17-18 SEPTEMBER 1985

TAXA	TRAWL*	SEINE	REVOLVING SCREENS
Penaeus aztecus		X	X
P. setiferus		X	X
Macrobrachium acanthurus		X	X
M. ohione			X
Callinectes sapidus		X	X
Rhithropanopeus harrisii			X
Micropanope sculptipes			X
Brevoortia patronus		X	
Anchoa mitchilli		X	
Gambusia affinis		X	X
Membras martinica		X	
Menidia beryllina		X	
Caranx hippos		X	
Eucinostomus melanopterus		X	
Lagodon rhomboides		X	
Cynoscion arenarius		X	
C. nebulosus		X	
Leiostomus xanthurus		X	
Sciaenops ocellatus		X	
Mugil cephalus		X	
M. curema		X	
Gobiosoma bosci			X
Gobionellus boleosoma		X	X
G. shufeldti			X
Citharichthys spilopterus		X	
Achirus lineatus		X	X

*TRAWLS COMPLETED, NO ORGANISMS CAUGHT

TABLE 14

TOTAL NUMBER, TOTAL WEIGHT (g) AND MEAN LENGTH (mm) OF NEKTON COLLECTED IN THE COLORADO RIVER BY SEINE ON 4-5 SEPTEMBER 1985

TIME (CST):	1400			2000			0220			0805		
TAXA	No.	Wt.	L.	No.	Wt.	L.	No.	Wt.	L.	No.	Wt	L.
Penaeus setiferus	243	157.6	44.6	123	56.9	38.7	92	51.3	42.6	85	73.1	49.7
Macrobrachium acanthurus				1	0.2	23.0						
Callinectes sapidus				1	0.1	12.0	1	0.6	20.0			
Brevoortia patronus				2	3.3	41.0	1	12.1	81.0			
Anchoa mitchilli				1	1.3	45.0	2	1.4	38.5			
Gambusia affinis				1	0.1	17.0						
Membras martinica							1	0.7	38.0			
Menidia beryllina							1	0.4	34.0	5	3.9	40.6
Eucinostomus melanopterus	1	0.3	24.0	2	1.1	28.0	1	0.6	30.0			
Lagodon rhomboides				2	36.0	82.5						
Cynoscion arenarius	3	7.2	48.7	2	12.2	67.5						
C. nebulosus				1	25.6	115.0						
Leiostomus xanthurus				14	157.0	74.8	11	155.3	82.2			
Mugil cephalus							4	33.9	70.0			
Gobionellus boleosoma	7	2.6	27.4	1	0.4	30.0	1	0.4	28.0			
Citharichthys spilopterus				4	13.8	57.2						
Achirus lineatus							2	0.3	16.5			

TABLE 15

TOTAL NUMBER, TOTAL WEIGHT (g) AND MEAN LENGTH (mm) OF NEKTON COLLECTED IN THE COLORADO RIVER BY SEINE ON 17-18 SEPTEMBER 1985

TIME (CST):	1220			1820			0220			0700		
TAXA	No.	Wt.	L.	No.	Wt.	L.	No.	Wt.	L.	No.	Wt.	L.
Penaeus aztecus							3	0.2	18.3			
P. setiferus	430	593.8	60.5	88	99.0	56.7	272	215.5	45.4	159	210.1	56.5
Macrobrachium acanthurus							1	0.2	26.0			
Callinectes sapidus	2	83.2	67.5	1	0.2	15.0				1	0.1	9.0
Brevoortia patronus				2	2.5	41.0	8	18.5	47.6			
Anchoa mitchilli							14	7.0	32.8			
Menidia beryllina							3	1.7	35.3			
Caranx hippos	1	0.7	30.0	1	0.8	29.0	1	1.3	34.0			
Eucinostomus melanopterus				2	0.5	23.0	7	1.5	20.1			
Lagodon rhomboides	1	32.4	103.0	2	33.2	78.5						
Cynoscion arenarius	1	4.1	62.0				1	6.1	72.0			
Leiostomus xanthurus				11	93.8	68.9	4	40.1	76.0			
Sciaenops ocellatus										1	312.6	255.0
Mugil cephalus							9	125.1	82.1			
M. curema	1	9.8	78.0							2	22.4	79.0
Gobionellus boleosoma	1	0.4	27.0	1	0.4	30.0	2	0.4	24.5			
Citharichthys spilopterus				1	3.8	65.0	1	7.6	79.0			
Achirus lineatus							1	0.1	16.0			

TABLE 16

TOTAL NUMBER, TOTAL WEIGHT (g) AND MEAN LENGTH (mm) OF NEKTON IMPINGED ON 2 INTAKE SCREENS IN 30 MINUTES ON 4-5 SEPTEMBER 1985

TIME (CST):	1654			0107			0907		
TAXA	No.	Wt.	L.	No.	Wt.	L.	No.	Wt.	L.
Penaeus aztecus							2	1.8	46.0
P. setiferus	1	0.3	31.0				2	2.5	50.5
Macrobrachium ohione	1	1.0	43.0	2	0.4	26.0			
Callinectes sapidus				1	0.8	21.0	1	2.7	35.0
Gambusia affinis				1	0.1	20.0			
Gobionellus shufeldti				1	0.1	21.0			

TABLE 17

TOTAL NUMBER, TOTAL WEIGHT (g) AND MEAN LENGTH (mm) OF NEKTON IMPINGED ON 2 INTAKE SCREENS IN 30 MINUTES ON 11-12 SEPTEMBER 1985

TIME (CST):	1236			2033			0427		
TAXA	No.	Wt.	L.	No.	Wt.	L.	No.	Wt.	L.
Penaeus aztecus				2	0.3	28.5			
P. setiferus	1	1.3	57.0						
Macrobrachium acanthurus							1	01.	25.0
M. ohione				7	1.4	26.3			
Callinectes sapidus	3	0.4	11.7	11	3.5	14.8	3	0.4	10.7
Rhithropanopeus harrisii							1	0.1	5.0
Gobiosoma bosci				2	0.4	19.5			
Achirus lineatus	1	0.5	26.0						

TABLE 18

TOTAL NUMBER, TOTAL WEIGHT (g) AND MEAN LENGTH (mm) OF NEKTON IMPINGED ON 2 INTAKE SCREENS IN 30 MINUTES ON 17-18 SEPTEMBER 1985

TIME (CST):	1418			2200			0600		
TAXA	No.	Wt.	L.	No.	Wt.	L.	No.	Wt.	L.
Penaeus aztecus	2	0.4	26.5	1	0.2	26.0	2	0.4	29.0
P. setiferus	7	4.2	39.4	2	3.0	58.0	9	9.7	51.1
Macrobrachium ohione	1	0.1	21.0				2	2.3	45.0
Callinectes sapidus	6	1.6	12.8	2	0.2	10.5	5	1.5	13.6
Micropanope sculptipes	1	0.1	5.0						
Gambusia affinis	1	0.2	24.0				1	0.6	30.0
Gobionellus boleosoma	1	0.8	39.0						
Achirus lineatus							2	1.2	26.0