

Regulatory

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IMPINGEMENT MONITORING PROGRAM

REPORT NO. 4 - JULY 1977

SALEM NUCLEAR GENERATING STATION
UNIT NO. 1

DOCKET NO. 50-272
OPERATING LICENSE NO. DPR-70

50-272
Bucket # 370138
Control # 772
Date 8-19-77 of Document:
REGULATORY DOCKET FILE

PUBLIC SERVICE ELECTRIC AND GAS COMPANY
NEWARK, NEW JERSEY
AUGUST 20, 1977

SUMMARY

This is the fourth monthly impingement monitoring program report required by the proposed changes to Section 3.1.2.2 of the Environmental Technical Specifications (ETS). The ETS are Appendix B of the Salem Nuclear Generating Station (SNGS) Operating License No. DPR-70. The tabular summaries attached include daily estimates of the number and weight of fish impinged on the Circulating Water System (CWS) traveling screens (Table 2) and the Service Water System (SWS) traveling screens (Table 3).

The monitoring program at both the CWS and SWS consists of three 24-hour sampling periods per week. The CWS screens were sampled four times per 24-hour period at approximately six-hour intervals. Samples were collected by diverting approximately three minutes of screen wash water to the counting pool located on the north end of the CWS intake structure. Survival rates are calculated for CWS samples only. Attached also (Table 1) is a summary of plant operating conditions during sample collection at CWS.

SWS screen samples consisted of either one 24-hour or two 12-hour samples per day. These samples consisted of all fish impinged and found in the trash baskets located on the intake structure proper. These data are also summarized and attached.

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TABLE 1. - START TIME AND DURATION OF IMPINGEMENT SAMPLES AT THE CIRCULATING WATER INTAKE, S.N.G.S UNIT 1
1 JULY THROUGH 1 AUG. 1977. NUMBER OF PUMPS AND SCREENS IN OPERATION, SCREEN OPERATING MODE
(I= INTERMITTENT, C= CONTINUOUS), WEIGHT (G/3 MIN SAMPLE) OF DETRITUS, AND WATER TEMPERATURE (C)
ARE INDICATED.

DATE	SAMPLE START TIME	DUR. (MIN)	PUMPS	SCREENS	OPERATING MODE	DETRITUS WEIGHT (G/3 MIN SAMPLE)	WATER TEMPERATURE (C)
77/07/04	1200	3	6	6	C	3,100	27.0
77/07/04	1800	3	6	6	C	12,000	27.0
77/07/05	0000	3	6	6	C	4,500	27.0
77/07/05	0600	3	6	6	C	61,000	26.0
77/07/06	1200	3	5	5	C	22,000	27.0
77/07/06	1800	3	6	6	C	27,000	27.0
77/07/07	0000	3	6	6	C	2,100	27.0
77/07/07	0600	3	6	6	C	41,000	27.0
77/07/07	1200	3	5	5	C	780	27.0
77/07/07	1800	3	5	5	C	2,000	27.0
77/07/08	0005	3	6	6	C	2,400	27.0
77/07/08	0600	3	6	6	C	700	27.0
77/07/11	1200	3	3	6	C	3,400	27.0
77/07/11	1805	3	2	5	C	710	27.0
77/07/12	0000	3	3	6	C	8,400	27.0
77/07/12	0600	3	3	6	C	1,500	26.0
77/07/13	1200	3	6	6	C	24,000	27.5
77/07/13	1800	3	5	5	C	5,600	28.0
77/07/14	0000	3	6	6	C	32,000	26.0
77/07/14	0600	3	6	6	C	1,800	26.0
77/07/14	1200	3	6	6	C	25,000	28.0
77/07/14	1807	3	6	6	C	3,800	28.0
77/07/15	0000	3	6	6	C	2,400	27.0
77/07/15	0600	3	6	6	C	3,700	26.0
77/07/18	1201	3	6	6	C	2,300	29.0
77/07/18	1800	3	5	5	C	22,000	29.0
77/07/19	0000	3	6	6	C	2,900	29.5
77/07/19	0600	3	6	6	C	62,000	28.5
77/07/20	1200	3	6	6	C	3,100	29.5
77/07/20	1810	3	5	5	C	7,900	30.0
77/07/21	0000	3	5	5	C	3,800	29.5
77/07/21	0600	3	6	6	C	1,700	29.5
77/07/21	1200	3	6	6	C	7,400	31.0
77/07/21	1820	3	6	6	C	34,000	31.0
77/07/22	0000	3	6	6	C	5,500	29.5
77/07/22	0600	3	6	6	C	28,500	29.5
77/07/25	1200	3	6	6	C	10,700	27.0
77/07/25	1800	3	6	6	C	330	27.0
77/07/26	0000	3	6	6	C	1,400	27.0
77/07/26	0600	3	6	6	C	1,100	25.5
77/07/27	1200	3	6	6	C	19,000	26.0
77/07/27	1800	3	6	6	C	3,700	26.0
77/07/28	0000	3	6	6	C	4,800	26.0
77/07/28	0600	3	6	5	C	2,100	26.0
77/07/28	1200	3	5	6	C	21,000	26.5
77/07/28	1800	3	5	6	C	2,100	27.0
77/07/29	0000	3	6	6	C	25,000	26.0
77/07/29	0600	3	6	6	C	3,000	25.5

IMPINGEMENT MONITORING
S.N.G.S.- UNIT 1
PSE&G NEWARK, NJ

Table 2. - Number collected, estimated number and weight per 24 hours, and minimum and maximum lengths and weights of fishes and blue crab impinged at the circulating water intake, S.N.G.S. Unit I, 1 July through 1 August 1977. % Survival: L = live, D = dead, D* = damaged; N = number of 3-minute samples; CF = catch frequency (number of samples in which the species appeared).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹	Standard Deviation	Mean ²	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
4-5 July	A. rostrata	4	1	0	100	0	1	120	240.0	6.26	12.53	52.2	52.2	173	173
	B. tyrannus	4	4	76	22	2	533	63,960	76,659.2	148.82	181.79	0.6	6.5	38	78
	A. mitchilli	4	4	36	60	4	359	43,080	54,648.9	118.80	145.53	1.1	7.3	53	88
	R. marginata	4	4	78	21	1	43	5,160	4,853.7	133.55	124.72	8.3	57.9	113	213
	M. martinica	4	2	33	67	0	3	360	459.6	1.61	2.06	3.5	5.5	73	83
	M. menidia	4	1	50	50	0	2	240	480.0	0.95	1.90	2.1	5.8	53	88
	P. saltatrix	4	3	59	37	4	27	3,240	5,234.3	15.43	22.17	2.7	15.0	63	113
	C. regalis	4	4	40	56	4	410	49,200	38,874.1	106.70	86.46	0.9	7.1	38	88
	L. xanthurus	4	4	71	27	3	463	21,756	18,775.9	275.17	306.39	1.3	27.8	38	118
	P. dentatus	4	3	50	25	25	4	480	391.1	20.80	31.89	7.9	141.1	93	248
	S. aquosus	4	4	68	24	8	34	4,080	4,266.3	10.45	10.56	1.1	7.5	38	83
	P. americanus	4	1	50	50	0	2	240	480.0	0.41	0.82	1.5	1.9	43	48
	T. maculatus	4	3	93	7	0	14	1,680	1,774.5	29.83	37.25	2.9	77.2	53	158
	C. sapidus	4	4	96	4	0	81	9,720	9,294.1	510.95	441.39	8.7	208.8	48	178
Total							1,976	203,316		1,379.73					

IMPINGEMENT MONITORING
S.N.G.S. - UNIT I
PSE&G NEWARK, N.J.

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹	Standard Deviation	Mean ²	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
6-7 July	A. rostrata	4	1	0	100	0	1	120	240.0	6.97	13.94	58.1	58.1	333	333
	B. tyrannus	4	4	51	36	13	158	18,960	18,571.7	98.66	96.02	0.4	79.4	28	178
	A. mitchilli	4	4	35	57	8	85	10,200	3,491.7	25.24	9.24	0.8	5.1	28	93
	O. tau	4	1	100	0	0	2	240	480.0	53.71	107.42	15.1	432.5	98	278
	R. marginata	4	4	72	17	11	18	2,160	2,128.7	56.67	71.28	7.1	48.9	113	218
	M. menidia	4	2	0	100	0	3	360	459.7	0.84	0.99	0.7	3.3	53	83
	S. fuscus	4	1	100	0	0	1	120	240.0	0.14	0.29	1.2	1.2	183	183
	M. americana	4	1	0	100	0	1	120	240.0	0.14	0.29	1.2	1.2	43	43
	P. saltatrix	4	4	47	24	29	17	2,040	1,321.8	15.71	13.31	2.2	16.0	68	123
	C. regalis	4	4	58	35	7	350	42,000	26,847.1	89.53	60.70	0.2	7.3	33	93
	L. xanthurus	4	4	64	29	7	174	20,880	11,825.9	119.44	52.34	0.4	26.2	38	123
	P. dentatus	4	1	0	100	0	2	240	480.0	30.67	61.34	12.6	243.0	118	288
	S. aquosus	4	2	60	40	0	5	600	908.6	1.93	2.59	1.5	4.8	53	73
	T. maculatus	4	3	91	0	9	11	1,320	1,485.9	18.04	32.70	1.9	95.9	48	168
	C. sapidus	4	4	88	12	0	65	7,800	7,409.0	506.63	455.15	6.5	216.6	48	168
Total							893	107,160		1,024.32					

IMPINGEMENT MONITORING
S.N.G.S. - UNIT I
PSE&G NEWARK, NJ

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹	Standard Deviation	Mean ²	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
7-8 July	B. tyrannus	4	4	74	20	6	144	17,280	19,926.3	38.27	42.70	0.9	6.5	43	78
	A. mitchilli	4	4	32	61	8	79	9,480	8,215.1	23.36	19.47	1.4	4.1	48	88
	U. regius	4	1	100	0	0	1	120	240.0	22.92	45.84	191.0	191.0	208	208
	R. marginata	4	3	64	18	18	11	1,320	1,485.9	28.32	38.63	4.4	46.8	98	198
	M. menidia	4	1	100	0	0	2	240	480.0	1.28	2.57	3.3	7.4	78	108
	S. fuscus	4	1	100	0	0	1	120	240.0	0.18	0.36	1.5	1.5	108	108
	P. saltatrix	4	3	75	25	0	8	960	876.4	7.68	4.98	3.7	10.3	68	98
	C. regalis	4	4	66	29	5	421	50,400	30,690.0	102.01	63.56	0.5	5.8	38	88
	L. xanthurus	4	4	74	17	9	200	24,000	22,041.7	159.92	124.00	0.2	19.3	43	113
	P. dentatus	4	1	100	0	0	1	120	240.0	1.04	2.09	8.7	8.7	103	103
	S. aquosus	4	4	88	6	6	16	1,920	1,413.1	5.52	5.06	1.5	4.6	53	78
	T. maculatus	4	3	100	0	0	7	840	604.0	6.04	6.15	2.2	23.0	53	103
	C. sapidus	4	3	88	12	0	17	2,040	2,230.0	84.74	109.44	8.5	152.1	38	138
Total							908	108,840		481.28					

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹	Standard Deviation	Mean ²	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
11-12 July	B. tyrannus	4	3	77	12	12	17	2,040	2,087.7	4.46	4.28	1.0	3.4	48	63
	A. mitchilli	4	4	79	14	7	14	1,680	999.2	4.33	2.79	2.1	3.5	63	73
	R. marginata	4	2	67	0	33	3	360	459.6	9.24	10.97	22.2	32.0	163	188
	P. saltatrix	4	1	0	100	0	1	120	240.0	0.29	0.58	2.4	2.4	63	63
	C. regalis	4	4	66	29	6	35	4,200	1,812.0	9.65	6.72	0.2	5.1	43	83
	L. xanthurus	4	4	71	19	10	42	5,040	3,382.8	30.54	19.80	1.4	19.4	48	108
	P. evolans	4	2	0	50	50	2	240	277.1	0.50	0.58	2.0	2.2	53	58
	S. aquosus	4	1	50	50	0	4	480	960.0	1.38	2.76	2.6	3.1	58	63
	T. maculatus	4	1	100	0	0	1	120	240.0	0.34	0.67	2.8	2.8	53	53
	C. sapidus	4	3	50	50	0	4	480	391.9	42.85	45.17	62.0	153.8	108	153
Total							123	14,760		103.58					

IMPINGEMENT MONITORING
S.N.G.S.- UNIT I
PSE&G NEWARK, NJ

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean Estimated		Mean Estimated		Weight (gm)		Length (mm)	
				L	D	C*		Number/ 24 hours	Standard Deviation	Wt/24 hrs (kg)	Standard Deviation	Min.	Max.	Min.	Max.
73-74 July	B. tyrannus	4	4	78	23	5	22	2,640	3,042.4	7.93	6.79	2.5	6.9	53	79
	A. nitchollii	4	3	25	50	15	20	2,400	3,061.0	6.65	8.50	2.3	4.9	53	78
	R. marginata	4	2	84	0	6	16	1,920	2,715.3	62.20	97.80	14.8	53.2	143	218
	M. menidia	4	1	100	0	0	1	120	240.0	180.00	360.00	1.5	1.5	43	43
	P. saltatrix	4	3	33	56	17	6	720	618.7	5.99	4.28	6.2	13.5	83	103
	C. regalis	4	4	59	37	6	245	29,400	37,475.0	70.92	98.31	1.1	2.1	33	93
	L. xanthurus	4	4	67	32	7	98	11,760	2,893.3	79.03	30.74	0.8	29.2	38	123
	S. aculeatus	4	3	75	17	8	12	1,440	1,959.6	5.16	6.71	2.1	6.2	48	78
	T. maculatus	4	1	100	0	0	2	240	480.0	9.20	18.41	33.5	40.2	123	133
C. sapidus	4	3	80	20	0	5	600	459.6	37.86	26.58	32.0	122.5	63	128	
Total							427	51,240		465.04					

IMPINGEMENT MONITORING
S.N.G.S. - UNIT I
PSE&G NEWARK, NJ

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹	Standard Deviation	Mean ²	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
14-15 July	A. rostrata	4	1	0	100	0	1	120	240.0	5.36	10.73	44.7	44.7	278	278
	B. tyrannus	4	4	13	86	1	77	3,600	2,614.4	29.53	27.29	1.2	62.1	48	153
	A. mitchilli	4	4	31	65	4	131	15,720	13,561.6	29.15	17.71	0.2	5.3	28	88
	R. marginata	4	3	83	17	0	6	720	831.4	15.31	18.55	8.6	40.0	113	203
	M. beryllina	4	1	0	100	0	4	480	960.0	0.30	0.60	0.7	1.7	33	48
	P. saltatrix	4	2	66	33	0	3	360	459.6	3.24	3.91	6.0	10.6	88	98
	C. regalis	4	4	58	38	4	626	75,120	33,973.9	177.12	80.39	0.5	12.0	38	98
	L. xanthurus	4	4	23	63	14	159	19,080	25,373.0	137.39	204.51	0.9	62.1	48	153
	S. aquosus	4	3	86	14	0	7	840	819.8	2.75	3.02	2.6	5.5	58	73
	T. maculatus	4	3	100	0	0	8	960	678.8	20.74	25.89	3.7	101.2	43	158
C. sapidus	4	4	94	6	0	16	1,920	1,299.8	166.70	155.63	32.3	200.6	78	163	
Total							1,038	118,920		587.59					

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹	Standard Deviation	Mean ²	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
20-21 July	B. tyrannus	4	4	78	18	4	49	5,880	8,572.0	25.72	26.73	1.9	67.2	43	168
	A. mitchilli	4	4	46	48	6	104	12,480	21,778.8	30.59	47.90	1.0	6.8	53	83
	R. marginata	4	3	60	20	20	10	1,200	1,270.0	21.56	17.23	5.0	46.2	108	218
	M. menidia	4	3	75	25	0	4	480	391.9	0.85	0.79	1.0	2.3	58	68
	P. saltatrix	4	2	100	0	0	2	240	277.1	5.70	8.89	8.5	39.0	93	148
	C. regalis	4	4	70	29	1	104	12,480	10,603.5	49.04	39.39	0.9	19.4	38	123
	L. xanthurus	4	4	47	49	3	89	10,680	5,506.1	71.94	24.08	1.0	38.5	43	138
	S. aquosus	4	1	100	0	0	1	120	480.0	0.58	1.15	4.8	4.8	68	68
	T. maculatus	4	3	100	0	0	19	2,280	2,753.9	35.42	48.62	3.0	62.1	53	153
C. sapidus	4	4	89	11	0	35	4,200	2,012.8	424.80	229.28	10.9	200.8	48	188	
Total						417	50,040		666.20						

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Year Estimated Number/ 24 hours	Standard Deviation	Year ² Estimated Wt/24 hrs (kg)	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	3*						Min.	Max.	Min.	Max.
18-19 July	A. rostrata	4	1	0	100	0	1	120	240.0	25.38	50.76	211.5	211.5	453	453
	B. tyrannus	4	4	54	46	0	50	5,400	7,420.7	16.97	23.55	1.6	5.3	53	73
	A. mitchelli	4	4	33	37	1	146	17,520	29,303.6	45.12	75.65	1.2	4.0	36	78
	B. marginata	4	2	30	0	1	9	1,080	1,652.0	18.61	33.24	7.0	35.3	103	183
	M. menidia	4	1	100	0	0	1	120	240.0	0.99	1.02	8.0	0.0	113	113
	P. saltatrix	4	1	33	67	0	3	360	720.0	5.02	16.06	11.2	12.7	103	113
	C. regalis	4	4	72	27	1	193	23,160	14,305.7	75.05	49.17	0.4	13.0	32	109
	L. xanthurus	4	4	47	42	5	168	22,160	24,028.8	114.12	132.65	1.1	30.0	43	109
	S. aequosus	4	1	100	0	0	1	120	240.0	0.60	1.20	5.0	5.0	73	73
	T. maculatus	4	2	75	0	25	4	420	678.6	654.41	1,294.01	8.5	45.4	73	132
	C. sapidus	4	4	25	75	0	33	3,960	4,227.9	383.17	399.55	24.0	240.0	68	173
Total:							609	72,480		1,339.42					

Table 8. - (continued).

Date	Species	N	OF	% Survival			Number Collected	Mean ^a Estimated Number/ 24 hours	Standard Deviation	Mean ^b Estimated Wt/24 hrs (kg)	Standard Deviation	Weight (gm)		Length (mm)	
				1	0	2*						Min.	Max.	Min.	Max.
21-22 July	A. rostrata	4	1	50	0	50	2	240	400.0	10.32	20.64	51.3	51.3	288	288
	B. tyrannus	4	4	57	29	14	14	1,680	1,250.0	5.59	5.21	1.8	6.0	59	83
	A. nictolus	4	4	57	42	1	93	11,750	12,044.7	29.15	30.73	0.6	4.0	28	83
	B. marginata	4	3	84	2	8	12	1,440	1,503.2	43.49	69.79	5.5	41.0	100	218
	M. mordax	4	1	100	0	0	1	120	240.0	0.49	0.96	4.0	4.0	93	93
	M. mordax	4	2	100	0	0	6	720	1,142.6	1.32	2.10	1.8	2.8	53	69
	P. salicatrix	4	1	100	0	0	2	240	480.0	4.82	9.65	8.7	31.5	103	138
	C. regalis	4	4	47	56	2	471	56,520	50,474.4	157.60	175.45	0.3	14.3	33	113
	L. xanthurus	4	4	57	44	5	145	17,520	12,726.9	121.30	63.90	1.5	22.2	48	128
	P. dentatus	4	1	100	0	0	1	120	240.0	1.99	3.94	16.4	16.4	132	133
	S. aquaticus	4	1	100	0	0	1	120	240.0	0.42	0.94	3.5	3.5	69	69
	T. maculatus	4	2	84	6	0	17	2,040	2,427.3	35.92	41.49	4.5	66.1	58	153
	C. sapidus	4	4	87	9	0	45	5,400	4,042.2	520.61	488.52	19.5	244.7	63	199
Total							816	97,920		933.00					

IMPINGEMENT MONITORING
S.N.G.S. - UNIT I
PSE&G NEWARK, NJ

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹	Standard Deviation	Mean ²	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
25-26 July	B. tyrannus	4	4	55	25	20	20	2,400	1,752.7	8.77	5.40	1.2	6.8	43	73
	A. mitchilli	4	3	67	33	0	6	720	831.4	1.94	1.83	2.1	4.3	58	73
	S. fuscus	4	1	100	0	0	1	120	480.0	0.11	0.22	0.9	0.9	138	138
	P. saltatrix	4	2	50	50	0	2	240	277.1	9.67	17.33	74.1	74.1	78	78
	C. regalis	4	4	78	19	3	36	4,320	3,110.8	17.29	11.14	1.0	15.4	48	118
	L. xanthurus	4	4	24	59	17	41	4,920	3,288.0	47.22	36.40	1.4	39.3	53	138
	T. maculatus	4	3	100	0	0	5	600	604.0	12.61	20.25	7.5	54.5	73	138
	C. sapidus	4	3	100	0	0	8	960	678.8	115.20	77.80	57.0	188.1	108	148
Total							119	14,280		212.74					

IMPINGEMENT MONITORING
S.N.G.S.- UNIT I
PSE&G NEWARK, NJ

Table 2. - (continued).

Date	Species	N	SE	Survival			Number Collected	Year1	Standard Deviation	Year2	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Estimated Number/ 24 hours		Estimated Wt/24 hrs (kg)		Min.	Max.	Min.	Max.
87-88	<i>P. tyrannus</i>	4	4	63	31	6	32	3,840	3,879.8	20.53	23.32	2.4	25.7	53	128
July	<i>A. nitchillii</i>	4	4	29	57	4	27	2,520	2,942.7	5.67	7.44	1.4	3.5	53	73
	<i>L. rubescens</i>	4	1	100	0	0	1	120	240.0	1.54	3.97	12.2	12.6	103	103
	<i>C. tau</i>	4	1	100	0	0	1	120	240.0	7.12	14.35	59.8	59.2	148	148
	<i>P. marginata</i>	4	2	50	13	30	8	960	1,103.5	34.40	39.73	22.7	71.1	53	223
	<i>M. martinica</i>	4	1	0	100	0	2	240	480.0	1.49	2.98	8.3	7.1	83	88
	<i>M. americana</i>	4	1	0	100	0	1	120	240.0	12.99	25.97	103.2	103.2	198	198
	<i>P. saltatrix</i>	1	1	100	0	0	2	240	480.0	3.69	7.97	13.9	19.3	103	118
	<i>S. vernalis</i>	4	1	100	0	0	1	120	240.0	0.97	1.94	8.1	3.1	73	73
	<i>C. regalis</i>	4	4	46	46	6	368	44,160	27,118.9	153.72	92.94	0.3	19.5	33	128
	<i>L. xanthurus</i>	4	4	47	47	6	57	6,840	5,085.5	40.44	23.73	2.9	19.0	49	108
	<i>P. dorsalis</i>	4	1	0	100	0	1	120	240.0	2.42	4.85	20.2	20.2	128	128
	<i>S. aculeatus</i>	4	2	50	50	0	2	240	277.1	0.65	0.75	2.4	3.0	53	53
	<i>T. maculatus</i>	4	2	100	0	0	7	840	1,378.7	17.10	32.00	4.0	57.0	53	149
	<i>C. capidus</i>	4	3	95	4	0	25	3,000	4,475.0	379.39	550.94	71.5	247.7	103	163
Total							529	63,480		693.46					

Table 2. - (continued).

Date	Species	N	CF	% Survival			Number Collected	Mean ¹ Estimated Number/ 24 hours	Standard Deviation	Mean ² Estimated Wt/24 hrs (kg)	Standard Deviation	Weight (gm)		Length (mm)	
				L	D	D*		Min.		Max.		Min.	Max.		
28-29 July	A. rostrata	4	1	0	100	0	1	120	240.0	60.20	120.41	501.7	501.7	573	573
	B. tyrannus	4	4	65	31	4	84	10,080	7,579.3	51.96	39.27	1.3	43.0	48	148
	A. mitchilli	4	4	41	55	4	22	2,640	1,208.0	8.57	4.73	2.2	6.1	48	78
	R. marginata	4	3	40	40	20	5	600	459.6	11.20	14.96	5.0	49.0	113	174
	M. menidia	4	2	100	0	0	2	240	277.1	0.90	1.10	2.8	4.7	63	68
	P. saltatrix	4	3	100	0	0	5	600	604.0	8.78	9.50	8.1	21.6	93	123
	S. vomer	4	1	100	0	0	2	240	480.0	3.43	6.86	10.2	18.4	68	73
	C. regalis	4	4	42	54	4	225	27,000	16,730.7	110.02	61.07	0.7	15.1	33	113
	L. xanthurus	4	4	38	50	12	122	14,640	6,702.8	137.26	47.92	2.8	38.6	48	128
	T. maculatus	4	3	100	0	0	12	1,440	1,239.4	40.52	41.62	7.1	80.2	68	153
C. sapidus	4	4	89	11	0	18	2,160	2,729.4	264.68	353.25	44.5	241.2	93	168	
Total							498	59,760		697.52					

¹ Mean estimated number per 24 hours for each species was calculated by multiplying the number of specimens in each 3-minute sample by 480 to obtain a 24-hour estimate. The estimated number for each sample was summed and divided by the number of samples to obtain the mean: $\frac{\sum (n/3\text{-min} \times 480)}{N}$

² Mean estimated weight per 24 hours was calculated by the same method as mean estimated number.

TABLE 3. - TOTAL NUMBER AND WEIGHT PER 24 HOURS AND MINIMUM AND MAXIMUM WEIGHTS AND LENGTHS OF FISHES AND BLUE CRAB SPECIES AT THE SERVICE WATER INTAKE, S.N.S.S. UNIT 1, 4 JULY THROUGH 20 JULY 1977.

07/04/77 0830 TO 07/05/77 0830						
	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
L. XANTHURUS	220	1590.00	.6	31.4	37.5	127.5
A. ROSTRATA	7	364.00	4.8	171.9	127.5	477.5
B. TYRANNUS	201	396.00	.6	6.7	42.5	82.5
R. MARGINATA	13	411.00	23.5	45.6	117.5	212.5
P. SALTATRIX	6	44.00	5.4	8.9	77.5	92.5
A. MITCHELLI	451	1891.00	1.1	6.3	47.5	92.5
C. REGALIS	343	1140.00	.1	6.0	32.5	82.5
S. AGUSCUS	30	90.00	.3	5.8	32.5	77.5
P. LENTATUS	2	32.00	1.1	5.9	87.5	112.5
C. SAPIDUS	8	175.00	1.1	5.9	37.5	112.5
TOTAL	1281	6137.80				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSE&G, NEWARK, N.J.

07/06/77 0830 TO 07/07/77 0830						
	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
R. MARGINATA	33	1029.40	7.1	48.7	117.5	217.5
C. REGALIS	777	2159.40	.6	5.3	42.5	87.5
L. XANTHURUS	250	1482.90	1.0	26.2	42.5	122.5
A. MITCHELLI	311	879.80	2.1	5.2	52.5	92.5
B. TYRANNUS	109	262.00	1.5	7.7	47.5	77.5
S. AGUSCUS	46	113.70	.6	7.1	37.5	82.5
P. SALTATRIX	4	25.10	3.8	12.5	77.5	102.5
P. LENTATUS	1	10.20	3.8	4.8	102.5	102.5
T. MACULATUS	12	99.80	3.8	48.7	47.5	177.5
A. ROSTRATA	3	48.90	1.6	31.8	167.5	292.5
M. AMERICANA	2	180.90	1.6	31.8	57.5	232.5
C. SAPIDUS	6	189.30	4.6	66.6	42.5	112.5
S. FUSCUS	1	.50	1.6	5.5	87.5	87.5
M. MENIDIA	1	4.90	1.6	5.5		
M. MARTINICA	1	5.70	15.4	48.7	87.5	87.5
TOTAL	1546	6492.50				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSE&G, NEWARK, N.J.

07/07/77 0830 TO 07/08/77 0830

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
L. XANTHURUS	288	1663.00	1.0	24.2	42.5	122.5
C. REGALIS	484	1621.40	.2	548.3	42.5	387.5
A. MITCHILLI	85	232.70	1.9	23.3	52.5	247.5
P. SALTATRIX	6	67.10	5.0	13.8	82.5	117.5
R. MARGINATA	22	614.10	5.1	48.2	107.5	247.5
B. TYRANNUS	82	308.10	.7	74.3	47.5	177.5
S. AQUOSUS	40	97.90	.1	4.4	32.5	72.5
U. REGIUS	2	103.70	31.7	72.0	157.5	157.5
P. AMERICANUS	1	.60	31.7	72.0	52.5	52.5
T. MACULATUS	1	4.60	31.7	72.0	62.5	62.5
I. NEBULOSUS	2	265.60	32.8	232.8	152.5	267.5
P. DENTATUS	2	652.80	321.0	331.8	327.5	332.5
C. SAPIDUS	6	248.20	.3	3.3	77.5	102.5
TOTAL	1021	5879.80				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSE&G, NEWARK, N.J.

07/11/77 0900 TO 07/12/77 0900

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
L. XANTHURUS	131	882.70	.8	38.4	42.5	137.5
B. TYRANNUS	20	238.10	.8	69.0	42.5	167.5
C. REGALIS	384	1083.30	.5	7.5	37.5	92.5
S. AQUOSUS	35	111.20	.4	5.8	37.5	82.5
R. MARGINATA	23	636.00	7.4	45.3	107.5	217.5
P. SALTATRIX	4	41.10	.9	5.8	72.5	87.5
A. MITCHILLI	72	212.80	1.5	4.6	52.5	87.5
U. REGIUS	2	82.80	.9	5.8	152.5	202.5
C. SAPIDUS	1	16.90	1.5	3.7	62.5	62.5
P. DENTATUS	1	214.30	.9	5.8		
A. ROSTRATA	1	36.20	.9	5.8	322.5	322.5
M. MENIDIA	1	6.70	.9	5.8	92.5	92.5
TOTAL	675	3562.10				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSE&G, NEWARK, N.J.

07/13/77 0830 TC 07/14/77 0830

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
L. XANTHURUS	1	323.90	.8	20.0	52.5	112.5
C. RESALIS	1	458.00	.3	7.0	42.5	107.5
P. TYRANNUS	2	52.40	1.0	4.1	47.5	72.5
A. MITCHELLI	2	56.40	1.6	4.1	62.5	77.5
P. SALTATRIX	2	8.60	2.8	5.8	72.5	87.5
S. FUSCUS	10	32.50	1.2	4.5	47.5	87.5
T. MACULATUS	1	8.40	1.7	3.2	77.5	77.5
M. AMERICANA	2	28.30	1.4	26.9	52.5	127.5
U. MARGINATA	10	253.20	1.4	45.0	137.5	207.5
M. MENIDIA	1	.40	1.4	26.9	52.5	52.5
C. SAPIUS	1	65.40	1.4	26.7	112.5	112.5
A. ROSTRATA	2	854.30	42.3	812.0	522.5	522.5
TOTAL	330	2242.00				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSEB, NEWARK, N.J.

07/14/77 0830 TC 07/15/77 0830

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
C. RESALIS	363	1606.20	1.4	11.5	42.5	107.5
L. XANTHURUS	144	750.70	1.3	31.5	42.5	132.5
A. MITCHELLI	45	107.40	1.0	4.2	57.5	87.5
R. MARGINATA	16	489.60	23.8	49.8	122.5	217.5
T. MACULATUS	3	11.20	3.0	30.6	57.5	72.5
P. TENIATUS	2	305.10	23.8	49.8	152.5	322.5
M. AMERICANA	2	259.40	85.5	173.9	182.5	212.5
P. TYRANNUS	27	275.70	1.7	68.8	52.5	172.5
S. FUSCUS	14	18.00	1.2	4.2	47.5	72.5
U. REGIUS	2	121.20	1.5	47.7	167.5	222.5
P. SALTATRIX	4	36.60	6.7	14.3	107.5	192.5
C. FUSCUS	1	.40	25.4	49.3	112.5	112.5
A. ROSTRATA	2	65.10	17.2	47.9	232.5	322.5
A. PSEUDOHARENGUS	1	20.00	17.2	47.9	172.5	172.5
TOTAL	626	4066.60				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSEB, NEWARK, N.J.

07/18/77 0900 TO 07/19/77 0900

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
R. MARGINATA	14	428.40	12.3	44.1	137.5	207.5
L. XANTHURUS	315	2113.40	.9	47.2	47.5	147.5
B. TYRANNUS	37	182.40	.4	59.5	37.5	167.5
C. REGALIS	355	961.20	.8	12.6	42.5	102.5
A. MITCHILLI	25	64.40	1.0	3.4	57.5	77.5
S. AQUOSUS	5	13.90	1.0	3.4	47.5	72.5
T. MACULATUS	8	86.00	1.0	55.2	52.5	137.5
P. AMERICANUS	1	.10	1.0	3.4	42.5	42.5
C. SAPIDUS	2	72.40	1.0	3.4	87.5	87.5
P. SALTATRIX	4	59.60	4.6	18.6	87.5	117.5
I. NEBULOSUS	1	24.20	1.0	3.0	137.5	137.5
P. DENTATUS	1	17.40	1.0	3.0	132.5	132.5
TOTAL	768	4023.40				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSE&G, NEWARK, N.J.

07/20/77 0830 TO 07/21/77 0830

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
A. ROSTRATA	1	903.00	1.0	3.0	737.5	737.5
T. MACULATUS	6	176.90	5.4	83.7	57.5	172.5
L. XANTHURUS	483	4050.00	.9	40.2	42.5	137.5
M. MENIDIA	1	.90	.9	40.2		
C. REGALIS	571	1694.80	.6	12.0	42.5	112.5
R. MARGINATA	20	631.00	12.5	49.6	152.5	192.5
S. FUSCUS	1	.10	12.5	43.4	122.5	122.5
B. TYRANNUS	16	76.20	.7	20.5	42.5	127.5
A. MITCHILLI	142	343.70	.7	4.0	37.5	82.5
P. SALTATRIX	8	119.10	3.1	32.3	92.5	147.5
S. AQUOSUS	2	2.90	3.1	98.5	57.5	62.5
P. DENTATUS	1	50.00	.7	4.0	172.5	172.5
C. SAPIDUS	2	143.90	45.4	98.5	132.5	132.5
TOTAL	1254	8192.50				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSE&G, NEWARK, N.J.

07/21/77 0830 TO 07/22/77 0830

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
L. XANTHURUS	568	4230.00	2.1	32.6	57.5	107.5
C. NEGALIS	202	225.80	.8	12.9	37.5	107.5
P. BOLIA RIX	7	27.20	.9	12.9	32.5	92.5
P. DENTATUS	2	37.90	.9	51.0	137.5	192.5
R. MACSTRATA	10	426.90	6.3	51.0	117.5	217.5
M. AMERICANA	2	198.70	6.3	51.0	177.5	192.5
A. MITCHELLI	43	115.40	1.5	5.1	52.5	92.5
S. TENDANKUS	11	77.00	2.2	38.4	47.5	137.5
C. CAPIDUS	7	150.00	6.3	51.0	72.5	92.5
C. AQUOSUS	3	5.50	2.0	39.1	57.5	67.5
T. MACULATUS	2	12.20	5.0	7.2	62.5	67.5
A. ROSTRATA	1	1.50	6.3	51.0	107.5	107.5
TOTAL	953	5878.10				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSEYG, NEWARK, N.J.

07/25/77 0830 TO 07/26/77 0830

	N	WT. (G)	WEIGHT (G)		LENGTH (MM)	
			MIN	MAX	MIN	MAX
A. ROSTRATA	1	75.80	2.9	3.9	347.5	347.5
L. XANTHURUS	239	1638.90	3.0	29.5	67.5	137.5
S. TENDANKUS	6	18.00	3.0	26.0	57.5	67.5
C. NEGALIS	1	70.60	3.0	26.0	182.5	192.5
R. MACSTRATA	2	69.00	24.8	43.2	177.5	177.5
A. MITCHELLI	5	11.20	3.1	4.9	57.5	77.5
C. NEGALIS	86	314.50	1.0	10.1	32.5	92.5
TOTAL	340	2197.00				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSEYG, NEWARK, N.J.

07/23/77 0030 07/23/77 0030

	N	WT. (G)	DEPTH (MM)	DEPTH (MM)
C. VENTRIS	243	2463.00	100	100
C. VENTRIS	41	1000.00	100	100
C. VENTRIS	60	31.00	100	100
C. VENTRIS	4	100.00	100	100
C. VENTRIS	3	200.00	100	100
C. VENTRIS	3	24.00	100	100
C. VENTRIS	173	600.00	100	100
C. VENTRIS	3	3.00	100	100
C. VENTRIS	3	210.00	100	100
C. VENTRIS	1	173.00	100	100
C. VENTRIS	1	1.00	100	100
C. VENTRIS	1	3.00	100	100
C. VENTRIS	1	30.00	100	100
C. VENTRIS	1	56.00	100	100
TOTAL	546	4230.00		

STATIONING MONITORING UNIT 1
SUNNYVALE, NEWARK, N.J.

07/23/77 0030 07/29/77 0030

	N	WT. (G)	DEPTH (MM)	DEPTH (MM)
C. VENTRIS	100	526.10	100	100
C. VENTRIS	170	1697.40	100	100
C. VENTRIS	3	60.00	100	100
C. VENTRIS	14	37.00	100	100
C. VENTRIS	4	10.00	100	100
C. VENTRIS	52	310.00	100	100
C. VENTRIS	3	72.00	100	100
C. VENTRIS	1	2.00	100	100
TOTAL	385	2732.00		

STATIONING MONITORING UNIT 1
SUNNYVALE, NEWARK, N.J.

07/23/77
0030

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