

IMPINGEMENT MONITORING PROGRAM

REPORT NO. 6 - SEPTEMBER 1977

SALEM NUCLEAR GENERATING STATION
UNIT NO. 1

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

Docket # 50-272
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PUBLIC SERVICE ELECTRIC AND GAS COMPANY
NEWARK, NEW JERSEY
OCTOBER 20, 1977

SUMMARY

This is the sixth monthly impingement monitoring program report required by 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). CWS operation is also summarized (Table 1).

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. 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.

SNGS initiated a planned eight week outage on September 17, 1977. Samples were typically collected during the outage if the CWS was in service during regularly scheduled sampling periods.

MDL:aec

TABLE 1. - START TIME AND DURATION OF IMPINGEMENT SAMPLES AT THE CIRCULATING WATER INTAKE, S.N.O.B UNIT 1
1 SEPTEMBER THROUGH 1 OCTOBER 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)
77/09/01	1200	3	5	5	C	4,300	27.5
77/09/01	1800	3	5	5	C	16,000	27.5
77/09/02	0000	3	5	5	C	1,000	27.0
77/09/02	0600	3	5	5	C	1,500	27.0
77/09/05	1200	3	6	6	C	1,400	27.5
77/09/05	1802	3	6	6	C	860	27.0
77/09/06	0006	3	6	6	C	2,500	26.0
77/09/06	0600	3	6	6	C	190	26.5
77/09/07	1200	3	6	6	C	9,800	27.0
77/09/07	1800	3	6	6	C	820	27.0
77/09/08	0000	3	6	6	C	6,000	26.0
77/09/08	0600	3	6	6	C	1,200	26.0
77/09/08	1200	3	5	5	C	3,200	27.0
77/09/08	1800	3	5	5	C	600	27.0
77/09/09	0000	3	5	5	C	5,500	26.0
77/09/09	0600	3	5	5	C	700	26.0
77/09/12	1200	3	6	6	C	10,400	23.0
77/09/12	1810	3	6	6	C	1,400	23.5
77/09/13	0000	3	6	6	C	4,200	23.5
77/09/13	0600	3	6	6	C	16,000	23.0
77/09/14	1200	3	6	6	C	3,000	23.5
77/09/14	1806	3	6	6	C	7,000	23.0
77/09/15	0000	3	5	5	C	4,800	23.0
77/09/15	0600	3	5	5	C	2,400	22.5
77/09/15	1200	3	5	5	C	4,300	22.5
77/09/15	1806	3	5	4	C	10,000	23.0
77/09/16	0000	3	5	5	C	10,000	22.5
77/09/16	0600	3	5	5	C	44,000	22.0
77/09/19	1200	3	1	1	C	1,800	23.0
77/09/19	1800	3	1	1	C	3,000	23.0
77/09/20	0000	3	1	1	C	2,000	23.5
77/09/20	0600	3	1	1	C	520	23.5
77/09/21	0855	3	1	1	C	500	22.0
77/09/21	1910	3	1	1	C	900	22.0
77/09/22	0000	3	1	1	C	640	22.5
77/09/22	0600	3	1	1	C	1,200	22.0
77/09/22	1200	3	1	1	C	900	21.8
77/09/22	1800	3	1	1	C	300	21.2
77/09/23	0000	3	1	1	C	2,000	21.0
77/09/23	0600	3	1	1	C	340	21.5
77/09/24	1200	3	1	1	C	520	21.0
77/09/27	0000	3	1	1	C	800	22.0
77/09/27	0600	3	1	1	C	47	22.0
77/09/28	1200	3	2	2	C	1,700	21.0
77/09/28	1800	3	1	1	C	280	21.0
77/09/29	0000	3	1	1	C	200	21.0
77/09/29	0600	3	1	1	C	109	19.0
77/09/29	1200	3	1	1	C	220	20.0
77/09/29	1800	3	1	1	C	60	20.5
77/09/30	0000	3	1	1	C	475	21.0
77/09/30	0600	3	1	1	C	50	21.0

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

TABLE 2. - IMPINGEMENT - B.N.G.B, CIRCULATING WATER SYSTEM INTAKE, 1 SEPTEMBER TO 1 OCTOBER 1977,

SAMPLING PERIOD - 09/01/77 1200 THROUGH 09/02/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
R. MARGINATA	4	4	73	6	20	15	1,800	1200.0	18.94	13.9	6.0	19.3	112.5	157.5
A. MITCHILLI	4	4	57	42	0	7	840	459.5	1.54	.8	.2	3.3	32.5	72.5
C. REGALIS	4	3	55	44	0	9	1,080	989.5	2.64	3.5	.7	6.0	47.5	87.5
B. TYRANNUS	4	4	100	0	0	6	720	277.1	2.57	1.1	3.1	4.2	62.5	67.5
T. MACULATUS	4	4	100	0	0	16	1,920	1662.7	5.41	8.6	.2	33.4	22.5	122.5
C. SAPIDUS	4	4	90	9	0	42	5,040	5057.1	39.59	41.7	.4	140.8	17.5	142.5
L. XANTHURUS	4	3	58	25	16	12	1,440	1036.9	20.12	14.9	5.5	30.2	82.5	127.5
D. CEPEDIANUM	4	1	100	0	0	1	120	240.0	.57	1.1	4.8	4.8	72.5	72.5
P. AMERICANUS	4	2	50	50	0	2	240	277.1	.23	.2	.7	1.3	47.5	52.5
P. SALTATRIX	4	1	100	0	0	1	120	240.0	1.38	2.7	11.5	11.5	112.5	112.5
M. MENIDIA	4	1	100	0	0	1	120	240.0	.30	.6	2.5	2.5	72.5	72.5
O. TAU	4	1	100	0	0	2	240	480.0	.80	1.6	2.9	3.8	62.5	62.5
TOTAL						114	13,680		94.09					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED),

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/05/77 1200 THROUGH 09/06/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
C. REGALIS	4	3	83	13	2	80	9,600	14059.9	37.17	54.7	1.5	14.5	47.5	127.5
B. TYRANNUS	4	4	78	21	0	41	4,920	4994.0	19.07	17.1	2.2	9.8	52.5	82.5
A. MITCHILLI	4	4	45	54	0	24	2,880	3570.5	8.42	10.6	.4	5.3	37.5	82.5
T. MACULATUS	4	2	100	0	0	2	240	277.1	.27	.3	1.1	1.2	27.5	37.5
L. XANTHURUS	4	4	50	28	21	14	1,680	1492.3	24.94	18.0	3.1	38.4	67.5	167.5
R. MARGINATA	4	2	88	5	5	18	2,160	4006.3	31.57	55.5	9.5	24.7	122.5	172.5
C. RAPIDUS	4	3	100	0	0	5	600	603.9	1.85	2.4	1.7	4.7	27.5	42.5
B. FUSCUS	4	1	100	0	0	1	120	240.0	.09	.1	.8	.8	107.5	107.5
M. MENIDIA	4	1	100	0	0	2	240	480.0	.54	1.0	1.9	2.4	52.5	67.5
TOTAL						187	22,440		123.94					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PBE10, NEWARK, N.J.

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/07/77 1200 THROUGH 09/08/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
C. REGALIS	4	3	75	18	6	234	28,080	40444.5	125.35	174.9	1.2	16.3	42.5	122.5
L. XANTHURUS	4	3	35	21	42	14	1,680	1142.6	32.51	23.6	8.6	42.4	87.5	137.5
B. TYRANNUS	4	4	75	17	7	68	8,160	9961.2	35.75	43.0	2.0	18.7	52.5	97.5
A. MITCHILLI	4	3	58	35	5	51	6,120	6527.2	11.28	13.4	.2	4.8	32.5	77.5
M. AMERICANA	4	1	0	0	100	1	120	240.0	22.50	45.0	187.5	187.5	222.5	222.5
C. SAPIDUS	4	3	84	15	0	13	1,560	1064.3	30.16	47.1	2.6	180.5	27.5	182.5
A. ROSTRATA	4	2	0	50	50	2	240	277.1	13.60	21.7	18.4	95.0	142.5	352.5
M. MENIDIA	4	1	50	50	0	2	240	480.0	.85	1.7	3.1	4.0	67.5	72.5
T. MACULATUS	4	2	100	0	0	6	720	831.3	13.73	19.9	1.0	46.2	37.5	127.5
R. MARGINATA	4	2	93	0	6	46	5,520	10722.3	94.51	181.3	8.3	36.4	112.5	192.5
TOTAL						437	52,440		380.24					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2. - (CONTINUED),

SAMPLING PERIOD - 09/08/77 1200 THROUGH 09/09/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
B. TYRANNUS	4	4	69	19	11	26	3,120	2128.6	14.51	9.6	3.4	11.6	47.5	87.5
C. REGALIS	4	3	80	20	0	15	1,800	1585.9	14.33	10.1	1.5	22.1	37.5	127.5
L. XANTHURUS	4	2	50	0	50	4	480	554.2	11.91	13.8	18.7	28.8	107.5	127.5
R. MARGINATA	4	3	88	0	11	18	2,160	3686.9	37.76	59.6	6.4	28.2	107.5	182.5
A. MITCHILLI	4	3	33	61	5	18	2,160	2234.2	2.54	2.8	.2	5.0	27.5	77.5
C. BAPIDUS	4	4	100	0	0	24	2,880	2447.5	11.33	10.2	1.0	10.3	22.5	47.5
T. MACULATUS	4	2	100	0	0	9	1,080	1378.6	3.29	4.3	.3	17.9	37.5	92.5
A. ROSTRATA	4	1	100	0	0	1	120	240.0	2.19	4.3	18.3	18.3	217.5	217.5
A. HEPSEIUS	4	1	100	0	0	1	120	240.0	.57	1.1	4.8	4.8	82.5	82.5
D. TAU	4	1	100	0	0	1	120	240.0	.37	.7	3.1	3.1	52.5	52.5
TOTAL						117	14,040		98.80					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2 (CONTINUED).

SAMPLING PERIOD - 09/12/77 1200 THROUGH 09/13/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
B. TYRANNUS	4	4	76	7	15	13	1,560	1262.3	9.88	5.7	3.7	17.2	62.5	97.5
R. MARGINATA	4	4	100	0	0	5	600	240.0	7.61	6.7	10.7	19.7	132.5	162.5
C. REGALIS	4	4	81	18	0	11	1,320	1378.4	3.56	4.1	1.3	5.3	42.5	82.5
L. XANTHURUS	4	3	100	0	0	5	600	603.9	8.39	11.0	8.0	24.7	82.5	112.5
A. MITCHILLI	4	4	72	27	0	11	1,320	603.9	1.27	1.4	.2	3.1	32.5	67.5
T. MACULATUS	4	4	100	0	0	42	5,040	2971.8	4.71	3.0	.5	2.4	27.5	47.5
C. SAPIDUS	4	4	86	14	0	50	6,000	3928.9	26.32	14.9	.4	24.4	17.5	77.5
M. MARTINICA	4	1	0	100	0	1	120	240.0	.18	.3	1.5	1.5	57.5	57.5
A. ROSTRATA	4	1	100	0	0	1	120	240.0	3.36	6.7	28.0	28.0	242.5	242.5
TOTAL						139	16,680		65.28					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2 (CONTINUED).

SAMPLING PERIOD - 09/14/77 1200 THROUGH 09/15/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	4	4	80	0	20	5	600	240.0	9.03	5.0	8.2	24.1	12.5	112.5
A. MITCHILLI	4	4	62	37	0	8	960	678.8	1.83	.5	.2	5.1	37.5	77.5
B. TYRANNUS	4	4	66	22	11	9	1,080	908.6	4.55	3.2	3.3	5.6	62.5	72.5
T. MACULATUS	4	4	100	0	0	47	5,640	6311.8	7.52	10.1	.2	6.0	27.5	77.5
C. SAPIDUS	4	4	93	6	0	45	5,400	4209.7	41.58	54.1	.1	120.0	12.5	122.5
C. REBALIS	4	1	100	0	0	2	240	480.0	3.60	7.2	9.8	20.2	107.5	122.5
R. MARGINATA	4	2	84	0	15	19	2,280	3168.8	44.22	64.2	10.7	31.0	122.5	182.5
H. AMERICANA	4	1	100	0	0	1	120	240.0	3.79	7.5	31.6	31.6	137.5	137.5
O. TAU	4	1	100	0	0	1	120	240.0	.54	1.0	4.5	4.5	62.5	62.5
TOTAL						137	16,440		116.66					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

 IMPINGEMENT MONITORING PROGRAM
 SALEM NUCLEAR GENERATING STATION UNIT 1
 PSEB0, NEWARK, N.J.

TABLE - (CONTINUED).

SAMPLING PERIOD - 09/15/77 1200 THROUGH 09/16/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	4	4	71	14	14	7	840	459.5	11.08	8.2	3.6	23.6	72.5	117.5
T. MACULATUS	4	4	95	2	2	44	5,280	4239.2	2.46	1.8	.3	33.0	27.5	117.5
B. TYRANNUS	4	3	75	25	0	4	480	391.9	4.38	6.0	3.2	3.2	57.5	112.5
C. SAPIDUS	4	4	84	15	0	57	6,840	6012.7	25.36	21.4	.1	13.9	17.5	62.5
C. REGALIS	4	2	75	12	12	8	960	1175.7	4.65	5.9	2.0	8.2	57.5	102.5
M. AMERICANA	4	1	100	0	0	1	120	240.0	5.46	10.9	45.5	45.5	127.5	127.5
R. MARGINATA	4	3	74	5	20	35	4,200	5616.5	60.40	77.0	7.7	23.8	122.5	167.5
B. FUSCUS	4	1	100	0	0	1	120	240.0	.14	.2	1.2	1.2	142.5	142.5
A. MITCHILLI	4	3	62	37	0	16	1,920	2906.5	2.31	2.3	.3	3.2	37.5	72.5
C. OCEANICUS	4	1	100	0	0	1	120	240.0						
A. ROSTRATA	4	2	100	0	0	2	240	277.1	5.59	6.5	20.8	25.8	237.5	252.5
TOTAL						176	21,120		121.83					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/19/77 1200 THROUGH 09/20/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
T. MACULATUS	4	3	100	0	0	4	480	391.9	.71	.4	1.0	2.2	42.5	47.5
R. MARGINATA	4	2	75	0	25	4	480	678.8	4.51	6.1	7.1	10.6	117.5	132.5
C. SAPIDUS	4	2	90	0	10	10	1,200	1591.9	7.06	8.4	2.8	10.0	32.5	57.5
C. REGALIS	4	1	100	0	0	1	120	240.0	2.91	5.8	24.3	24.3	132.5	132.5
TOTAL						19	2,280		15.19					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/21/77 0855 THROUGH 09/22/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
C. SAPIDUS	4	3	100	0	0	8	960	783.8	5.50	6.3	2.1	15.2	32.5	62.5
R. MARGINATA	4	2	100	0	0	8	960	1175.7	19.98	24.4	13.9	33.3	137.5	187.5
TOTAL						16	1,920		25.48					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED),

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

IMPINGEMENT MONITORING PROGRAM
 SALEM NUCLEAR GENERATING STATION UNIT 1
 PSEB0, NEWARK, N.J.

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/22/77 1200 THROUGH 09/23/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
C. SAPIDUS	4	4	100	0	0	10	1,200	1142.6	15.14	25.3	1.1	93.0	27.5	127.5
R. MARGINATA	4	1	100	0	0	6	720	1440.0	12.67	25.3	12.0	27.4	117.5	177.5
TOTAL						16	1,920		27.81					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/26/77 1200 THROUGH 09/27/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
T. MACULATUS	4	1	100	0	0	1	120	240.0	.13	.2	1.1	1.1	42.5	42.5
C. BAFIDUS	4	4	100	0	0	9	1,080	908.6	9.29	7.2	.4	17.5	27.5	67.5
R. MARGINATA	4	2	100	0	0	2	240	277.1	4.96	5.8	24.0	24.0	137.5	162.5
TOTAL						12	1,440		14.38					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

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

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/28/77 1200 THROUGH 09/29/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	4	2	100	0	0	2	240	277.1	7.75	12.2	11.0	53.6	87.5	152.5
T. MACULATUS	4	1	100	0	0	1	120	240.0	.12	.2	1.0	10.0	32.5	32.5
C. RAPIDUS	4	2	100	0	0	4	480	554.2	2.07	2.5	2.0	8.2	22.5	47.5
TOTAL						7	840		9.94					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

IMPINGEMENT MONITORING PROGRAM
 SALEM NUCLEAR GENERATING STATION UNIT 1
 PSE10, NEWARK, N.J.

TABLE 2. - (CONTINUED).

SAMPLING PERIOD - 09/29/77 1200 THROUGH 09/30/77 0600

SPECIES	N	CF	% SURVIVAL			TOTAL NUMBER COLLECTED	MEAN ESTIMATED NUMBER/ 24 HOURS	STANDARD DEVIATION	MEAN ESTIMATED WT/24 HRS (KG)	STANDARD DEVIATION	WEIGHT (GM)		LENGTH (MM)	
			L	D	D*						MIN.	MAX.	MIN.	MAX.
R. MARGINATA	4	2	50	0	0	2	120	240.0	.96	1.9	8.0	8.0	127.5	127.5
TOTAL						1	120		.96					

N = NUMBER OF 3-MINUTE SAMPLES.

CF = CATCH FREQUENCY (NUMBER OF SAMPLES IN WHICH THE SPECIES APPEARED).

% SURVIVAL: L = LIVE; D = DEAD; D* = DAMAGED.

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.

MEAN ESTIMATED WEIGHT PER 24 HOURS FOR EACH SPECIES WAS CALCULATED BY THE SAME METHOD AS MEAN ESTIMATED NUMBER.

IMPINGEMENT MONITORING PROGRAM
 SALEM NUCLEAR GENERATING STATION UNIT 1
 PSEB0, NEWARK, N.J.

TABLE 3. - IMPINGEMENT - S.N.D.S. SERVICE WATER SYSTEM INTAKE, 1 SEPTEMBER TO 1 OCTOBER 1977,

SAMPLING PERIOD - 09/01/77 0830 TO 09/02/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
C. REGALIS	4	20.60	1.2	14.8	52.5	117.5
L. XANTHURUS	11	216.80	5.5	38.5	77.5	142.5
A. MITCHILLI	1	0.30	.3	.3	37.5	37.5
P. AMERICANUS	1	2.40	1.4	1.4	62.5	62.5
B. TYRANNUS	1	11.30	11.3	11.3	107.5	107.5
C. SAPIDUS	1	1.40	1.4	1.4	27.5	27.5
TOTAL	19	252.80				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSEB0, NEWARK, N.J.

TABLE 3. - (CONTINUED),

SAMPLING PERIOD - 09/05/77 0900 TO 09/06/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	4	47.20	13.3	39.0	102.5	137.5
C. REGALIS	1	1.20	1.2	1.2	47.5	47.5
B. TYRANNUS	2	6.90	1.2	2.8	62.5	62.5
R. MARGINATA	1	15.60	15.6	15.6	152.5	152.5
A. MITCHILLI	1	1.90	1.9	1.9	62.5	62.5
TOTAL	9	74.70				

IMPINGEMENT MONITORING PROGRAM
SALEM NUCLEAR GENERATING STATION UNIT 1
PSEB0, NEWARK, N.J.

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/07/77 0830 TO 09/08/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	4	77.20	9.3	39.5	92.5	137.5
B. TYRANNUS	3	17.50	3.3	12.2	62.5	92.5
A. MITCHILLI	2	3.40	.7	2.7	47.5	67.5
C. SAPIDUS	2	117.40	.6	2.7	22.5	22.5
P. FLAVESCENS	1	71.10	71.1	71.1	197.5	197.5
TOTAL	12	286.60				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/08/77 0830 TO 09/09/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
B. TYRANNUS	6	57.20	1.0	12.5	62.5	92.5
L. XANTHURUS	4	71.80	1.0	23.5	107.5	117.5
R. MARGINATA	1	11.60	16.4	23.5		
A. MITCHILLI	2	3.50	1.0	2.5	62.5	67.5
S. AQUOSUS	1	1.90	1.9	1.9	67.5	67.5
TOTAL	14	146.00				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/12/77 0830 TO 09/13/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
D. CEPEDIANUM	1	32.10	32.1	32.1	137.5	137.5
T. MACULATUS	3	1.80	.4	.9	32.5	37.5
C. SAPIDUS	2	2.70	1.2	1.5	22.5	27.5
P. DENTATUS	1	394.80	394.8	394.8	342.5	342.5
L. XANTHURUS	6	142.60	22.6	24.0	102.5	122.5
A. MITCHILLI	2	1.80	.8	1.0	37.5	42.5
TOTAL	15	575.80				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/14/77 0800 TO 09/15/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	6	109.30	10.9	29.2	87.5	117.5
T. MACULATUS	2	53.10	.9	44.1	37.5	122.5
C. REGALIS	1	2.90	2.9	2.9	57.5	57.5
C. SAPIDUS	3	3.80	.6	2.4	22.5	32.5
R. MARGINATA	1	24.50	24.5	24.5	162.5	162.5
O. TAU	1	2.90	2.9	2.9	62.5	62.5
TOTAL	14	196.50				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/15/77 0830 TO 09/16/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
T. MACULATUS	1	0.70	.7	.7	37.5	37.5
A. MITCHILLI	4	4.80	.5	2.6	32.5	62.5
L. XANTHURUS	10	92.60	7.5	24.3	77.5	122.5
B. TYRANNUS	2	7.60	3.3	4.3	62.5	72.5
C. BAPIDUS	6	30.30	2.8	8.0	32.5	47.5
M. AMERICANA	1	40.90	40.9	40.9	152.5	152.5
R. MARGINATA	1	12.40	12.4	12.4	132.5	132.5
TOTAL	25	189.30				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/19/77 0800 TO 09/20/77 0800

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	11	215.10	7.8	45.0	87.5	137.5
T. MACULATUS	2	68.40	3.0	65.4	42.5	147.5
A. ROSTRATA	1	34.20	3.0	3.0		
C. BAPIDUS	1	8.50	8.5	8.5	52.5	52.5
TOTAL	15	326.20				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/21/77 0830 TO 09/22/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
R. MARGINATA	1	9.20	8.3	22.7	127.5	127.5
T. MACULATUS	1	52.30	52.3	52.3	152.5	152.5
C. BAPIDUS	7	62.50	2.5	12.0	32.5	67.5
TOTAL	9	124.00				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/22/77 0830 TO 09/23/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	1	31.20	31.2	31.2	122.5	122.5
T. MACULATUS	2	3.30	.9	2.4	37.5	47.5
P. AMERICANUS	1	2.00	2.0	2.0	52.5	52.5
B. FUSCUS	1	0.90	.9	.9	137.5	137.5
TOTAL	5	37.40				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/26/77 0830 TO 09/27/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	1	0.00	16.5	16.5	97.5	97.5
O. TAU	1	0.00	3.3	3.3	57.5	57.5
C. RAPIDUS	6	1.00	1.0	4.0	22.5	42.5
TOTAL	8	1.00				

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

TABLE 3. - (CONTINUED).

SAMPLING PERIOD - 09/28/77 0830 TO 09/29/77 0830

SPECIES	NUMBER	WT. (GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
L. XANTHURUS	1	25.10	25.1	25.1	122.5	122.5
C. RAPIDUS	3	10.10	1.0	6.1	27.5	47.5
TOTAL	4	35.20				

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

SAMPLING PERIOD - 09/29/77 0830 TO 09/30/77 0830

SPECIES	NUMBER	WT.(GM)	WEIGHT		LENGTH	
			MIN.	MAX.	MIN.	MAX.
TOTAL	0	0.00				

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