

APPENDICES

- I. Anonymous. 1977. Section 316(a) Demonstration (Type I), Surry Power Station - Units 1 and 2. Submitted to the Virginia State Water Control Board by Virginia Electric and Power Company, Richmond, Virginia. 113 pp. plus appendices.
- II. Merriner, J. V., A. D. Estes, and R. K. Dias. 1977. Plant entrainment studies at the VEPCO Nuclear Power Plant. Section IIa, In R. A. Jordan, P. A. Goodwin, R. K. Carpenter, J. V. Merriner, A. D. Estes, and R. K. Dias. Ecological Study of the Tidal Segment of the James River Encompassing Hog Point - 1976 Final Technical Report. Special Scientific Report No. 84. Virginia Institute of Marine Science, Gloucester Point, Virginia.
- III. Merriner, J. V., A. D. Estes, and R. K. Dias. 1978. Plant entrainment of ichthyoplankton at the VEPCO Nuclear Power Plant. Section 3.5.2 In Annual Operating Report, 1977, Surry Power Station, Virginia Electric and Power Company. Docket Nos. 50-280 and 50-281. Volume 3.
- IV. Merriner, J. V., A. D. Estes, and R. K. Dias. 1979. Plant entrainment of ichthyoplankton at the VEPCO Nuclear Power Plant. Section 3.5.2 In Non-Radiological Environmental Operating Report, 1978, Surry Power Station, Virginia Electric and Power Company. Docket Nos. 50-280 and 50-281.
- V. Merriner, J. V., A. D. Estes, and R. K. Dias. 1980. Ichthyoplankton entrainment studies at VEPCO Nuclear Power Station, Final Technical Report.

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TABLE 1. SELECTED METEOROLOGICAL DATA RECORDED BY VEPCO AT THE SURRY POWER STATION FROM 1975 THROUGH 1978

<u>TYPE OF DATA</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>\bar{X}</u>
Average wind speed (mph)	5.045	5.812	5.695	6.207	5.690
Average daily temperature ($^{\circ}\text{F}$)	59.88	57.79	58.08	57.43	58.29
Maximum temperature ($^{\circ}\text{F}$)	93.33	94.50	97.25	94.58	94.91
Minimum temperature ($^{\circ}\text{F}$)	17.60	14.40	9.82	12.20	13.51
Maximum 1-hour precipitation (in)	2.21	1.15	1.10	2.00	1.61
Maximum 6-hour precipitation (in)	4.91	1.47	2.36	3.00	2.93
Maximum 12-hour precipitation (in)	5.60	1.97	2.51	3.00	3.27
Maximum 18-hour precipitation (in)	5.67	2.57	2.54	3.00	3.45
Maximum 24-hour precipitation (in)	6.12	2.84	2.56	3.02	3.63
Total annual precipitation (in)	59.07	32.66	29.82	38.32	39.97
Prevailing wind direction at 10 m	SSW	SW	SSW	SSW	SSW

NOTE: These data not converted to metric equivalents in order to facilitate ready comparisons data contained in Crockett (1971).

TABLE 2: TYPICAL INTAKE CURRENT VELOCITIES AT THE LOW-LEVEL INTAKE
STRUCTURE OF THE SURRY POWER STATION

<u>DEPTH (M)</u>	<u>VELOCITY (M/S)</u>
Sfc	0.23
1	0.28
2	0.30
3	0.33
4	0.34
5	0.35
6	0.51
7	0.35

NOTE: Data obtained with a Bendix Savonius Rotor
Current Speed Sensor Model B-1.

TABLE 3. FISH SPECIES COLLECTED IN MONTHLY HAUL SEINE SAMPLES
AT SURRY POWER STATION
FROM 1970 THROUGH 1978

OSTEICHTHYES

LEPISOSTEIDAE - gars
LEPISOSTEUS OSSEUS - longnose gar

ELOPIDAE - tarpons
ELOPS SAURUS - ladyfish

ALBULIDAE - bonefishes
ALBULA VULPES - bonefish

ANGUILLIDAE - freshwater eels
ANGUILLA ROSTRATA - American eel

CLUPEIDAE - herrings
ALOSA AESTIVALIS - blueback herring
ALOSA MEDIOCRIS - hickory shad
ALOSA PSEUDOHARENGUS - alewife
ALOSA SAPIDISSIMA - American shad
BREVOORTIA TYRANNUS - Atlantic menhaden
DOROSOMA CEPEDIANUM - gizzard shad
DOROSOMA PETENENSE - threadfin shad

ENGRAULIDAE - anchovies
ANCHOA HEPSETUS - striped anchovy
ANCHOA MITCHILLI - bay anchovy

UMBRIDAE - mudminnows
UMBRA PYGMAEA - eastern mudminnow

ESOCIDAE - pikes
ESOX AMERICANUS - redbfin, grass pickerel
ESOX NIGER - chain pickerel

TABLE 3. FISH SPECIES COLLECTED IN MONTHLY HAUL SEINE SAMPLES
AT SURRY POWER STATION
FROM 1970 THROUGH 1978

CYPRINIDAE - minnows and carps

CYPRINUS CARPIO - carp
HYBOGNATHUS HUCHALIS - silvery minnow
NOTEMIGONUS CRYSOLEUCAS - golden shiner
NOTROPIS ANALOSTANUS - satinfish shiner
NOTROPIS BIFRENATUS - bridle shiner
NOTROPIS CHALYBAEUS - ironcolor shiner
NOTROPIS CORNUTUS - common shiner
NOTROPIS HUDSONIUS - spottail shiner

CATOSTOMIDAE - suckers

MOXOSTOMA MACROLEPIDOTUM - shorthead redhorse

ICTALURIDAE - freshwater catfishes

ICTALURUS CATUS - white catfish
ICTALURUS NEBULOSUS - brown bullhead
ICTALURUS PUNCTATUS - channel catfish

BELONIDAE - needlefishes

STRONGYLURA MARINA - Atlantic needlefish

CYPRINODONTIDAE - killifishes

CYPRINODON VARIEGATUS - sheepshead minnow
FUNDULUS DIAPHANUS - banded killifish
FUNDULUS HETEROCLITUS - mummichog
FUNDULUS LUCIAE - spotfin killifish
FUNDULUS MAJALIS - striped killifish

POECILIIDAE - livebearers

GAMBUSIA AFFINIS - mosquitofish

ATHERINIDAE - silversides

MENBRAS MARTINICA - rough silverside
MENIDIA BERYLLINA - tidewater silverside
MENIDIA MENIDIA - Atlantic silverside

PERCICHTHYIDAE - temperate basses

MORONE AMERICANA - white perch
MORONE SAXATILIS - striped bass

TABLE 3. FISH SPECIES COLLECTED IN MONTHLY HAUL SEINE SAMPLES
AT SURRY POWER STATION
FROM 1970 THROUGH 1978

CENTRARCHIDAE - sunfishes
ENNEACANTHUS GLORIOSUS - bluespotted sunfish
LEPOMIS AURITUS - redbreast sunfish
LEPOMIS GIBBOSUS - pumpkinseed
LEPOMIS MACROCHIRUS - bluegill
MICROPTERUS DOLOMIEUI - smallmouth bass
MICROPTERUS SALMOIDES - largemouth bass
POMOXIS NIGROMACULATUS - black crappie

PERCIDAE - perches
ETHEOSTOMA NIGRUM - johnny darter
ETHEOSTOMA OLMSTEDI - tessellated darter
PERCA FLAVESCENS - yellow perch

POMOTOMIDAE - bluefishes
POMATOMUS SALTATRIX - bluefish

CARANGIDAE - jacks and pompanos
CARANX HIPPOS - crevalle jack

SCIAENIDAE - drums
BAIRDIELLA CHRYSURA - silver perch
CYNOSCION REGALIS - weakfish
LEIOSTOMUS XANTHURUS - spot
MICROPOGON UNDULATUS - Atlantic croaker

MUGILIDAE - mullets
MUGIL CEPHALUS - striped mullet
MUGIL CUREMA - white mullet

GOBIIDAE - gobies
GOBIOSOMA BOSCI - naked goby

STROMATEIDAE - butterfishes
PEPRILUS ALEPIDOTUS - harvestfish

TABLE 3. FISH SPECIES COLLECTED IN MONTHLY HAUL SEINE SAMPLES
AT SURRY POWER STATION
FROM 1970 THROUGH 1978

BOTHIDAE - lefteye flounders
PARALICHTHYS DENTATUS - summer flounder

SOLEIDAE - soles
TRINECTES MACULATUS - hogchoker

CYNOGLOSSIDAE - tonguefishes
SYMPHURUS PLAGIUSA - blackcheek tonguefish

TABLE 4. SAMPLE TOTALS PER YEAR AND PER SPECIES OF FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM AT THE SURRY POWER STATION

FROM 1970 THROUGH 1978
ALL FISHES NOT IDENTIFIED TO SPECIES HAVE BEEN ELIMINATED FROM THIS TABLE

SPECIES	_70	_71	_72	_73	_74	_75	_76	_77	_78	TOTAL	PERCENT
ALBULA VULPES	0	0	1	0	0	0	0	0	0	1	0.0
ALOSA AESTIVALIS	5419	2307	1131	4369	1990	2486	144	727	201	18774	14.1
ALOSA MEDIOCRIS	88	18	0	2	0	0	0	0	0	108	0.1
ALOSA PSEUDOHARENGUS	3183	95	22	201	3	4	0	0	5	3513	2.6
ALOSA SAPIDISSIMA	1	1629	695	57	35	27	1	3	2	2450	1.8
ANCHOA HEPSETUS	0	0	0	0	0	0	0	1	0	1	0.0
ANCHOA MITCHILLI	401	2658	3189	1070	3108	1056	706	4830	577	17595	13.2
ANGUILLA ROSTRATA	2	10	2	3	6	10	0	2	2	37	0.0
BAIRDIELLA CHRYSURA	2	0	0	0	0	0	0	0	0	2	0.0
BREVOORTIA TYRANNUS	1185	2544	3504	1312	3098	3771	4293	13655	2098	35460	26.6
CARANX HIPPOS	5	0	0	0	0	0	0	0	0	5	0.0
CYNOSCION REGALIS	0	6	0	0	0	0	0	0	0	6	0.0
CYPRINODON VARIEGATUS	0	0	1	0	1	0	0	0	0	2	0.0
CYPRINUS CARPIO	0	3	1	2	13	4	2	8	7	40	0.0
DOROSOMA CEPEDIANUM	5	35	81	70	51	68	41	22	48	421	0.3
DOROSOMA PETEHENSE	0	0	4	7	26	80	3	47	0	167	0.1
ELOPS SAURUS	0	0	1	6	16	0	0	0	0	23	0.0
ENNEACANTHUS GLORIOSUS	0	0	0	0	1	0	0	0	0	1	0.0
ESOX AMERICANUS	0	0	1	0	0	0	0	0	0	1	0.0
ESOX NIGER	0	0	7	0	0	0	0	0	0	7	0.0
ETHEOSTOMA NIGRUM	0	0	0	12	0	0	0	0	0	12	0.0
ETHEOSTOMA OLINSTEI	0	1	1	3	1	1	0	0	1	8	0.0
FUNDULUS DIAPHANUS	0	15	203	554	440	650	141	21	13	2037	1.5
FUNDULUS HETEROCLITUS	238	112	134	410	86	17	56	88	78	1219	0.9
FUNDULUS LUCIAE	0	0	2	0	0	0	0	0	0	2	0.0
FUNDULUS MAJALIS	6	10	1	15	0	0	0	1	0	33	0.0
GAMBUSIA AFFINIS	1	0	0	2	4	2	0	0	0	9	0.0
GOBIOSOMA BOSCI	1	2	0	0	1	5	0	1	1	11	0.0
HYBOGNIATHUS MUCHALIS	0	0	0	1	15	76	77	2	16	187	0.1
ICTALURUS CATUS	3	1	4	0	9	3	0	0	17	37	0.0
ICTALURUS NEBULOSUS	14	11	5	9	21	11	7	1	3	82	0.1
ICTALURUS PUNCTATUS	7	21	47	100	46	29	87	6	33	376	0.3
LEIOSTOMUS XANTHURUS	35	2159	364	781	229	241	168	2619	833	7429	5.6
LEPISOSTEUS OSSEUS	0	0	0	0	0	1	0	0	0	1	0.0
LEPOMIS AURITUS	0	0	0	0	1	0	0	0	0	1	0.0
LEPOMIS GIBBOSUS	3	28	19	15	33	27	25	8	17	175	0.1
LEPOMIS MACROCHIRUS	0	1	0	1	2	5	0	29	2	40	0.0
MEMBRAS MARTINICA	0	0	0	3	6	6	7	69	53	144	0.1
MEMIDIA BERYLLINA	34	1332	1198	3115	2717	6858	1396	456	556	17662	13.2
MEMIDIA MEMIDIA	4300	904	582	220	73	114	377	810	533	7913	5.9
MICROPOGON UNDULATUS	2	4	46	20	43	39	318	1	14	487	0.4
MICROPTERUS DOLOMIEUI	0	0	0	0	1	0	0	0	0	1	0.0
MICROPTERUS SALMOIDES	0	3	0	0	0	0	0	1	0	4	0.0
MORONE AMERICANA	1419	212	255	5	18	15	16	77	371	2388	1.8
MORONE SAXATILIS	538	69	3	5	0	2	4	33	250	904	0.7
MOXOSTOMA MACROLEPIDOTUM	0	0	0	0	0	1	0	0	0	1	0.0
MUGIL CEPHALUS	0	0	0	1	11	4	66	7	6	95	0.1
MUGIL CUREMA	0	0	1	0	0	2	1	0	0	4	0.0
MOTENIGONUS CRYSOLEUCAS	33	108	240	189	401	365	31	3	14	1384	1.0
NOTROPIS ANALOSTANUS	0	0	0	0	46	75	35	6	0	162	0.1
NOTROPIS BIFRENATUS	0	3	1	13	0	0	8	0	0	25	0.0
NOTROPIS CHALYBAEUS	0	0	0	0	0	2	0	0	0	2	0.0
NOTROPIS CORNUTUS	0	0	0	91	16	1	2	0	0	110	0.1

TABLE 4. SAMPLE TOTALS PER YEAR AND PER SPECIES OF FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM AT THE SURRY POWER STATION

FROM 1970 THROUGH 1978
ALL FISHES NOT IDENTIFIED TO SPECIES HAVE BEEN ELIMINATED FROM THIS TABLE

SPECIES	_70	_71	_72	_73	_74	_75	_76	_77	_78	TOTAL	PERCENT
NOTROPIS HUDSONIUS	102	1053	3532	2226	2109	1719	317	21	127	11206	8.4
PARALICHTHYS DENTATUS	0	3	2	5	14	3	0	7	0	34	0.0
PEPRILUS ALEPIDOTUS	0	2	0	0	0	0	0	0	0	2	0.0
PERCA FLAVESCENS	5	10	6	21	3	1	1	0	7	54	0.0
POHATOMUS SALTATRIX	1	0	0	0	0	0	10	12	1	24	0.0
POMOXIS NIGROMACULATUS	0	0	0	0	0	0	0	1	0	1	0.0
STRONGYLURA MARINA	286	7	0	1	0	1	12	6	0	313	0.2
SYMPHURUS PLAGIUSA	0	0	0	0	0	0	0	0	1	1	0.0
TRINECTES MACULATUS	46	25	6	3	3	1	53	39	11	187	0.1
UMBRA PYGMAEA	0	1	0	0	0	0	0	0	0	1	0.0
TOTAL	17365	15402	15292	14920	14697	17783	8405	23620	5898	133382	.

TABLE 5. FREQUENCY OF OCCURRENCE OF FISHES IN MONTHLY HAUL SEINE SAMPLES

FROM 1970 THROUGH 1978

FISHES NOT IDENTIFIED TO SPECIES ARE NOT SHOWN

SPECIES	OCC	PERCENT
ALBULA VULPES	1	0.1
ALOSA AESTIVALIS	246	31.8
ALOSA MEDIOCRIS	16	2.1
ALOSA PSEUDOHARENGUS	44	5.7
ALOSA SAPIDISSIMA	67	8.7
AMIA CALVA	1	0.1
ANCHOA HEPSETUS	1	0.1
ANCHOA MITCHILLI	379	49.0
ANGUILLA ROSTRATA	31	4.0
BAIRDIELLA CHRYSURA	1	0.1
BREVOORTIA TYRANNUS	165	21.3
CARANX HIPPOS	3	0.4
CENTRARCHUS MACROPTERUS	1	0.1
CYNOScion REGALIS	4	0.5
CYPRINODON VARIEGATUS	2	0.3
CYPRINUS CARPIO	27	3.5
DOROSOMA CEPEDIANUM	182	23.5
DOROSOMA PETERENSE	40	5.2
ELOPS SAURUS	8	1.0
ENNEACANTHUS GLORIOSUS	1	0.1
ESOX AMERICANUS	1	0.1
ESOX NIGER	1	0.1
ETHEOSTOMA NIGRUM	6	0.8
ETHEOSTOMA OLMSTEDI	9	1.2
FUNDULUS DIAPHANUS	118	15.2
FUNDULUS HETEROCLITUS	164	21.2
FUNDULUS LUCIAE	2	0.3
FUNDULUS HAJALIS	10	1.3
GAMBUSIA AFFINIS	7	0.9
GOBIOSOMA BOSCI	11	1.4
HYBOGNATHUS NUCHALIS	51	6.6
ICTALURUS CATUS	14	1.8
ICTALURUS NEBULOSUS	39	5.0
ICTALURUS PUNCTATUS	92	11.9
LEIOSTOMUS XANTHURUS	281	36.3
LEPISOSTEUS OSSEUS	2	0.3
LEPOMIS AURITUS	1	0.1
LEPOMIS GIBBOSUS	90	11.6
LEPOMIS MACROCHIRUS	13	1.7
MEMBRAS MARTINICA	41	5.3
MENIDIA BERYLLINA	432	55.8
MENIDIA MENIDIA	178	23.0
MICROPOGON UNDULATUS	81	10.5
MICROPTERUS DOLOMIEUI	1	0.1
MICROPTERUS SALMOIDES	4	0.5
MORONE AMERICANA	239	30.9
MORONE SAXATILIS	113	14.6
MOXOSTOMA MACROLEPIDOTUM	1	0.1
MUGIL CEPHALUS	31	4.0
MUGIL CUREMA	4	0.5
NOTEMIGONUS CRYSOLEUCAS	185	23.9
NOTROPIS ANALOSTANUS	51	6.6

TABLE 5. FREQUENCY OF OCCURRENCE OF FISHES IN MONTHLY HAUL SEINE SAMPLES
FROM 1970 THROUGH 1978

FISHES NOT IDENTIFIED TO SPECIES ARE NOT SHOWN

SPECIES	OCC	PERCENT
NOTROPIS BIFRENATUS	9	1.2
NOTROPIS CHALYBÆUS	1	0.1
NOTROPIS CORNUTUS	22	2.8
NOTROPIS HUDSONIUS	468	60.5
PARALICHTHYS DENTATUS	23	3.0
PEPRILUS ALEPIDOTUS	1	0.1
PERCA FLAVESCENS	32	4.1
POMATOMUS SALTATRIX	13	1.7
POMOXIS NIGROMACULATUS	1	0.1
STRONGYLURA MARINA	20	2.6
SYMPHURUS PLAGIUSA	1	0.1
TRINECTES MACULATUS	57	7.4
UMBRA PYGMAEA	2	0.3

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

SPECIES=ALOSA AESTIVALIS

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
70	5	.	.	.	.	.	.	.	.	.	.
70	6	.	1	122	9	.	.	.	.	.	132
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	69	2	.	.	.	.	.	71
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	6	37	.	.	.	.	.	43
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	.	1	.	.	.	.	.	1
71	1	.	.	.	12	.	.	.	.	.	12
71	2	.	.	1	7	.	.	.	.	.	8
71	3	.	.	1	100	8	1	1	1	.	112
71	4	.	.	1	9	3	.	.	.	.	13
71	5	.	.	.	1	.	.	.	.	.	1
71	6	.	.	.	.	.	.	.	.	.	.
71	7	.	6	18	.	.	.	.	.	.	24
71	8	.	2	31	1	.	.	.	.	.	34
71	9	.	.	.	.	.	.	.	.	.	.
71	10	.	.	123	25	.	.	.	.	.	148
71	11	.	.	43	22	.	.	.	.	.	65
71	12	.	.	53	156	2	.	.	.	.	211
72	1	.	.	5	13	1	.	.	.	.	19
72	2	.	.	10	80	.	.	.	.	.	90
72	3	.	.	3	24	1	.	.	.	.	28
72	4	.	.	1	41	10	.	.	.	.	52
72	5	.	.	.	.	.	.	.	.	.	.
72	6	.	.	1	.	.	.	.	.	.	1
72	7	.	11	45	.	.	.	.	.	.	56
72	8	.	6	128	.	.	.	.	.	.	134
72	9	.	1	81	15	.	.	.	.	.	97
72	10	.	.	20	27	.	.	.	.	.	47
72	11	.	.	1	26	.	.	.	.	.	27
72	12	.	.	7	79	4	.	.	.	.	90
73	1	.	.	.	.	.	.	.	.	.	.
73	2	.	.	.	9	.	.	.	.	.	9
73	3	.	.	1	44	8	.	.	.	.	53
73	4	.	.	1	24	6	.	.	.	.	31
73	5	.	1	1	4	6	1	.	.	.	13
73	6	.	58	92	.	.	.	.	.	.	150
73	7	.	23	26	2	.	.	.	.	.	51
73	8	.	1	47	2	.	.	.	.	.	50
73	9	.	.	.	.	.	.	.	.	.	.
73	10	.	.	7	.	.	.	.	.	.	7
73	11	.	.	81	14	.	.	.	.	.	95
73	12	.	.	2	1	.	.	.	.	.	3
74	1	.	.	6	38	.	.	.	.	.	44
74	2	.	.	3	13	.	.	.	.	.	16
74	3	.	.	5	196	3	.	.	.	.	204
74	4	.	.	.	108	6	.	.	.	.	114
74	5	.	.	.	2	.	.	.	.	.	2
74	6	.	.	.	.	.	.	.	.	.	.
74	7	.	.	67	.	1	.	.	.	.	68
74	8	.	.	4	.	.	.	.	.	.	4

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM
FROM 1970 THROUGH 1978

SPECIES=ALOSA AESTIVALIS											
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	48	2	1	.	.	.	.	51
74	10	.	.	11	6	.	.	.	.	.	17
74	11	.	.	12	4	.	.	.	.	.	16
74	12	.	.	2	2	.	.	.	.	.	4
75	1	.	.	.	2	1	.	.	.	.	3
75	2	.	.	.	1	1	.	.	.	.	2
75	3	.	.	.	5	1	.	.	.	.	6
75	4	.	.	.	2	.	.	.	.	.	2
75	5	.	.	.	.	.	.	.	.	.	.
75	6	.	35	10	1	.	.	.	.	.	46
75	7	.	73	18	.	.	.	.	.	.	91
75	8	.	21	2	.	.	.	.	.	.	23
75	9	.	23	22	.	.	.	.	.	.	45
75	10	.	11	49	.	.	.	.	.	.	60
75	11	.	4	59	.	.	.	.	.	.	63
75	12	.	.	61	.	.	.	.	.	.	61
76	1	.	.	3	.	.	.	.	.	.	3
76	2	.	.	60	3	3	.	.	.	.	66
76	3	.	.	15	.	.	.	.	.	.	15
76	4	.	.	10	6	.	.	.	.	.	16
76	5	.	.	.	.	.	.	.	.	.	.
76	6	.	.	.	.	.	.	.	.	.	.
76	7	.	.	.	.	.	.	.	.	.	.
76	8	.	.	.	.	.	.	.	.	.	.
76	9	.	.	.	.	.	.	.	.	.	.
76	10	.	.	.	.	.	.	.	.	.	.
76	11	.	.	.	.	.	.	.	.	.	.
76	12	.	.	.	.	.	.	.	.	.	.
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	.	.	.	.	.	.
77	3	.	.	1	68	62	1	.	.	.	132
77	4	.	.	.	.	.	.	.	.	.	.
77	5	.	.	.	.	.	.	.	.	.	.
77	6	.	.	1	.	.	.	.	.	.	1
77	7	.	.	.	.	.	.	.	.	.	.
77	8	.	.	2	.	.	.	.	.	.	2
77	9	.	.	.	.	.	.	.	.	.	.
77	10	.	.	.	.	.	.	.	.	.	.
77	11	.	.	.	.	.	.	.	.	.	.
77	12	.	.	1	5	.	.	.	.	.	6
78	1	.	.	2	13	.	.	.	.	.	15
78	2	.	.	1	3	.	.	.	.	.	4
78	3	.	.	2	21	3	.	.	.	.	26
78	4	.	.	3	35	3	.	.	.	.	41
78	5	.	.	.	.	.	.	.	.	.	.
78	6	.	.	.	.	.	.	.	.	.	.
78	7	.	.	2	.	.	.	.	.	.	2
78	8	.	.	.	.	.	.	.	.	.	.
78	9	.	.	15	.	.	.	.	.	.	15
78	10	.	.	15	.	.	.	.	.	.	15
78	11	.	.	.	.	.	.	.	.	.	.
78	12	.	.	21	3	.	.	.	.	.	24

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

----- SPECIES=ANCHOA MITCHILLI -----

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
70	5	.	.	2	.	.	.	.	.	.	2
70	6	.	.	1	11	.	.	.	.	.	12
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	30	19	5	.	.	.	.	54
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	10	10	.	.	.	.	.	20
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	.	.	.	.	.	.	.	.
71	1	.	.	.	2	.	.	.	.	.	2
71	2	.	.	.	.	.	.	.	.	.	.
71	3	.	1	35	11	1	.	.	.	.	48
71	4	.	3	154	8	.	.	.	.	.	165
71	5	.	7	34	4	.	.	.	.	.	45
71	6	.	.	.	1	.	.	.	.	.	1
71	7	.	3	5	.	.	.	.	.	.	8
71	8	.	15	49	5	.	.	.	.	.	69
71	9	.	6	103	15	2	1	.	.	.	127
71	10	.	1	156	14	4	.	.	.	.	175
71	11	.	9	119	3	1	.	.	.	.	132
71	12	.	17	150	9	.	.	.	.	.	176
72	1	.	12	25	1	.	.	.	.	.	38
72	2	.	.	.	.	.	.	.	.	.	.
72	3	.	2	143	6	.	.	.	.	.	151
72	4	.	14	259	22	1	.	.	.	.	296
72	5	.	.	161	129	5	.	.	.	.	295
72	6	.	.	2	27	1	.	.	.	.	30
72	7	.	.	.	2	.	.	.	.	.	2
72	8	.	8	1	.	.	.	.	.	.	9
72	9	.	3	49	2	.	.	.	.	.	54
72	10	.	.	137	19	4	.	.	.	.	160
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	1	6	.	.	.	.	.	.	7
73	1	.	5	8	.	.	.	.	.	.	13
73	2	.	.	1	.	.	.	.	.	.	1
73	3	.	10	18	.	.	.	.	.	.	28
73	4	.	3	91	13	2	.	.	.	.	109
73	5	.	3	112	49	2	.	.	.	.	166
73	6	.	.	23	31	.	.	.	.	.	54
73	7	.	.	47	32	.	.	.	.	.	79
73	8	.	1	9	21	.	.	.	.	.	31
73	9	.	3	12	1	.	.	.	.	.	16
73	10	.	6	10	13	.	.	.	.	.	29
73	11	.	18	32	2	.	.	.	.	.	52
73	12	.	.	3	.	.	.	.	.	.	3
74	1	.	.	4	.	.	.	.	.	.	4
74	2	.	.	33	2	.	.	.	.	.	35
74	3	.	4	126	20	2	.	.	.	.	152
74	4	.	10	120	12	.	.	.	.	.	142
74	5	.	2	188	49	4	.	.	.	.	243
74	6	.	.	71	39	.	.	.	.	.	110
74	7	.	.	69	80	.	.	.	.	.	149
74	8	.	5	38	102	.	.	.	.	.	145

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM
FROM 1970 THROUGH 1978

FROM 1970 THROUGH 1978

SPECIES=ANCHOA MITCHILLI

[illegible]

FROM 1970 THROUGH 1978

[illegible]

FROM 1970 THROUGH 1978

SPECIES=BREVOORTIA TYRANNUS

[illegible]

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

SPECIES=LEIOSTOMUS XANTHURUS

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
70	5	.	.	.	.	.	.	.	.	.	.
70	6	.	2	17	11	1	1	.	.	.	32
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	.	.	.	2	.	.	.	2
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	.	.	.	.	1	.	1
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	.	.	.	.	.	.	.	.
71	1	.	.	.	.	.	.	.	.	.	.
71	2	.	.	.	.	.	.	.	.	.	.
71	3	.	.	.	.	.	.	.	.	.	.
71	4	.	47	1	.	.	.	.	.	.	48
71	5	1	6	40	8	.	.	.	.	.	55
71	6	.	1	7	12	2	.	.	.	.	22
71	7	.	.	13	27	3	2	.	.	.	45
71	8	.	.	2	10	10	6	2	.	.	30
71	9	.	.	1	.	4	3	.	1	.	9
71	10	.	.	.	.	3	8	.	.	.	11
71	11	.	.	.	.	.	.	1	.	.	1
71	12	.	.	.	.	.	.	.	.	.	.
72	1	.	.	.	.	.	.	.	.	.	.
72	2	.	.	.	.	.	.	.	.	.	.
72	3	.	.	.	.	.	.	.	.	.	.
72	4	.	.	.	.	.	.	.	.	.	.
72	5	.	13	65	19	3	.	.	4	.	104
72	6	.	.	.	4	1	.	.	.	.	5
72	7	.	.	.	.	.	.	.	.	.	.
72	8	.	.	.	.	1	.	.	.	.	1
72	9	.	.	.	.	1	1	1	.	.	3
72	10	.	.	.	.	.	.	.	.	.	.
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	.	.	.	.	.	.	.	.	.
73	1	.	.	.	.	.	.	.	.	.	.
73	2	.	.	.	.	.	.	.	.	.	.
73	3	.	.	.	.	.	.	.	.	.	.
73	4	.	.	.	.	.	.	.	.	.	.
73	5	.	.	.	.	.	.	.	.	.	.
73	6	.	19	73	37	3	.	.	.	.	132
73	7	.	.	19	83	22	4	.	.	.	128
73	8	.	.	16	27	6	1	.	.	.	50
73	9	.	.	1	22	54	5	1	.	.	83
73	10	.	.	.	1	2	.	4	.	.	7
73	11	.	.	.	1	14	2	.	.	.	17
73	12	.	.	.	.	.	.	.	.	.	.
74	1	.	.	.	.	.	.	.	.	.	.
74	2	.	.	.	.	.	.	.	.	.	.
74	3	.	.	.	.	.	.	.	.	.	.
74	4	.	.	.	.	2	3	.	.	.	5
74	5	.	.	2	2	8	11	4	1	.	28
74	6	.	.	15	28	7	8	1	.	.	59
74	7	.	.	.	10	52	14	.	.	.	76
74	8	.	.	.	.	5	5	3	1	.	14

FROM 1970 THROUGH 1978

SPECIES=LEIOSTOMUS XANTHURUS

[illegible]

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

----- SPECIES=MENIDIA BERYLLINA -----

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
70	5	.	.	.	.	.	.	.	.	.	.
70	6	.	.	.	.	.	.	.	.	.	.
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	.	.	.	.	.	.	.	.
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	.	.	.	.	.	.	.
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	.	.	.	.	.	.	.	.
71	1	.	.	.	.	.	.	.	.	.	.
71	2	.	.	7	53	15	.	.	.	.	75
71	3	.	.	.	17	10	3	.	.	.	30
71	4	.	.	7	23	1	.	.	.	.	31
71	5	.	.	9	57	5	.	.	.	.	71
71	6	.	.	.	.	.	.	.	.	.	.
71	7	.	12	40	29	1	.	.	.	.	82
71	8	.	.	.	.	.	.	.	.	.	.
71	9	.	.	39	56	12	1	.	.	.	108
71	10	.	1	46	29	13	1	.	.	.	90
71	11	.	.	.	.	.	.	.	.	.	.
71	12	.	.	.	.	.	.	.	.	.	.
72	1	.	.	.	.	.	.	.	.	.	.
72	2	.	.	.	1	1	1	.	.	.	3
72	3	.	.	2	21	.	.	.	.	.	23
72	4	.	.	.	.	.	.	.	.	.	.
72	5	.	.	.	.	.	.	.	.	.	.
72	6	.	.	.	.	.	.	.	.	.	.
72	7	.	.	.	.	.	.	.	.	.	.
72	8	.	.	.	.	.	.	.	.	.	.
72	9	.	.	.	.	.	.	.	.	.	.
72	10	.	.	.	.	.	.	.	.	.	.
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	.	.	.	.	.	.	.	.	.
73	1	.	.	4	2	.	.	.	.	.	6
73	2	.	.	.	3	1	.	.	.	.	4
73	3	.	.	4	41	4	1	.	.	.	50
73	4	.	1	14	14	1	.	.	.	.	30
73	5	.	.	36	89	1	.	.	.	.	126
73	6	.	1	77	81	1	.	.	.	.	160
73	7	.	.	.	.	.	.	.	.	.	.
73	8	.	.	.	.	.	.	.	.	.	.
73	9	.	11	97	114	12	.	.	.	.	234
73	10	.	11	98	73	38	.	.	.	.	220
73	11	.	6	143	26	76	3	.	.	.	254
73	12	.	1	68	63	12	.	.	.	.	144
74	1	.	1	47	55	2	.	.	.	.	105
74	2	.	.	.	.	.	.	.	.	.	.
74	3	.	.	24	63	34	7	.	.	.	128
74	4	.	.	48	24	.	1	.	.	.	73
74	5	.	.	14	14	1	2	.	.	.	31
74	6	.	14	25	22	.	.	.	.	.	61
74	7	.	14	61	88	.	.	.	.	.	163
74	8	.	1	12	124	3	.	.	.	.	140

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM
FROM 1970 THROUGH 1978

SPECIES=MENIDIA BERYLLINA

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	12	70	142	28	.	.	.	.	252
74	10	.	9	28	16	19	1	.	.	.	73
74	11	.	.	47	69	72	26	.	1	.	215
74	12	.	11	101	93	1	.	.	.	.	206
75	1	.	.	22	24	.	.	.	.	.	46
75	2	.	2	42	55	2	.	.	.	.	101
75	3	.	2	47	86	.	.	.	.	.	135
75	4	.	1	44	26	.	.	.	.	.	71
75	5	.	.	6	11	1	.	.	.	.	18
75	6	.	23	34	18	.	.	.	.	.	75
75	7	.	48	43	14	.	.	.	.	.	105
75	8	.	42	46	10	.	.	.	.	.	98
75	9	.	12	65	20	2	.	.	.	.	99
75	10	.	21	62	22	.	.	.	.	.	105
75	11	.	3	47	36	.	.	.	.	.	86
75	12	.	.	19	31	.	.	.	.	.	50
76	1	.	.	10	12	.	.	.	.	.	22
76	2	.	.	9	27	1	.	.	.	.	37
76	3	.	.	9	17	.	.	.	.	.	26
76	4	.	.	9	4	.	.	.	.	.	13
76	5	.	.	26	36	.	.	.	.	.	62
76	6	.	.	38	39	.	.	.	.	.	77
76	7	.	.	3	15	.	.	.	.	.	18
76	8	.	.	18	69	2	.	.	.	.	89
76	9	.	.	6	3	.	.	.	.	.	9
76	10	.	15	23	19	.	.	.	.	.	57
76	11	.	.	9	44	.	.	.	.	.	53
76	12	.	1	15	30	3	.	.	.	.	49
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	2	1	.	.	.	.	3
77	3	.	.	5	17	.	.	.	.	.	22
77	4	.	1	42	12	.	.	.	.	.	55
77	5	.	.	1	21	.	.	.	.	.	22
77	6	.	.	2	11	4	.	.	.	.	17
77	7	.	1	1	2	.	.	.	.	.	4
77	8	.	1	.	.	.	.	.	.	.	1
77	9	.	.	.	.	.	.	.	.	.	.
77	10	.	2	47	9	.	.	.	.	.	58
77	11	.	.	13	26	.	.	.	.	.	39
77	12	.	.	27	29	.	.	.	.	.	56
78	1	.	.	10	7	.	.	.	.	.	17
78	2	.	.	3	1	.	.	.	.	.	4
78	3	.	.	2	3	.	.	.	.	.	5
78	4	.	.	9	21	.	.	.	.	.	30
78	5	.	.	4	13	.	.	.	.	.	17
78	6	.	.	1	9	.	.	.	.	.	10
78	7	.	1	1	8	.	.	.	.	.	10
78	8	.	1	.	1	.	.	.	.	.	2
78	9	.	.	2	1	.	.	.	.	.	3
78	10	.	1	36	10	.	.	.	.	.	47
78	11	.	.	9	7	.	.	.	.	.	16
78	12	.	2	127	136	.	.	.	.	.	265

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

SPECIES=MENIDIA MENIDIA

[illegible]

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM
FROM 1970 THROUGH 1978

----- SPECIES=MENIDIA MENIDIA -----											
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	.	.	.	.	.	.	.	.
74	10	.	.	.	.	.	.	.	.	.	.
74	11	.	.	1	4	6	8	.	.	.	19
74	12	.	.	1	19	7	12	.	.	.	39
75	1	.	.	2	3	1	1	.	.	.	7
75	2	.	.	2	.	4	4	.	.	.	10
75	3	.	.	.	.	.	.	1	.	.	1
75	4	.	.	1	.	3	2	.	.	.	6
75	5	.	.	.	.	.	.	.	.	.	.
75	6	.	.	.	.	.	.	.	.	.	.
75	7	.	.	.	.	.	.	.	.	.	.
75	8	.	.	.	.	.	.	.	.	.	.
75	9	.	.	5	10	.	.	.	.	.	15
75	10	.	.	.	17	2	.	.	.	.	19
75	11	.	.	1	2	.	.	.	.	.	3
75	12	.	.	1	3	1	.	.	.	.	5
76	1	.	.	.	.	.	.	.	.	.	.
76	2	.	.	.	.	.	.	.	.	.	.
76	3	.	.	.	2	1	.	.	.	.	3
76	4	.	.	.	3	3	.	.	.	.	6
76	5	.	.	1	.	7	3	.	.	.	11
76	6	.	4	5	.	2	1	.	.	.	12
76	7	.	.	24	11	.	.	.	.	.	35
76	8	.	.	.	.	.	.	.	.	.	.
76	9	.	.	6	52	13	.	.	.	.	71
76	10	.	.	.	3	2	1	.	.	.	6
76	11	.	.	.	.	.	.	.	.	.	.
76	12	.	.	.	.	.	.	.	.	.	.
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	.	.	.	.	.	.
77	3	.	.	.	8	11	2	.	.	.	21
77	4	.	.	.	.	1	.	.	.	.	1
77	5	.	18	.	.	8	3	.	.	.	29
77	6	.	29	87	.	.	.	.	.	.	116
77	7	.	.	36	32	.	.	.	.	.	68
77	8	.	.	20	76	1	.	.	.	.	97
77	9	.	.	3	60	12	.	.	.	.	75
77	10	.	.	.	38	26	2	.	.	.	66
77	11	.	.	.	24	40	2	.	.	.	66
77	12	.	.	.	.	1	.	.	.	.	1
78	1	.	.	.	.	.	.	.	.	.	.
78	2	.	.	.	.	.	.	.	.	.	.
78	3	.	.	.	.	.	.	.	.	.	.
78	4	.	.	.	.	.	.	.	.	.	.
78	5	.	.	.	.	.	.	.	.	.	.
78	6	.	.	.	.	.	.	.	.	.	.
78	7	.	.	15	3	.	.	.	.	.	18
78	8	.	.	20	14	.	.	.	.	.	34
78	9	.	.	52	101	.	.	.	.	.	153
78	10	.	.	1	23	9	.	.	.	.	33
78	11	.	.	.	7	8	.	.	.	.	15
78	12	.	.	.	2	2	.	.	.	.	4

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

SPECIES=MORONE AMERICANA

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
70	5	.	.	.	8	5	8	18	4	.	43
70	6	.	33	66	12	84	15	11	14	.	235
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	2	101	60	7	10	6	4	.	190
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	2	103	32	5	5	23	1	171
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	2	4	2	1	1	6	.	16
71	1	.	.	.	1	.	.	.	.	.	1
71	2	.	.	.	.	.	.	.	.	.	.
71	3	.	.	.	1	1	1	3	18	2	26
71	4	.	.	.	2	2	1	1	2	.	8
71	5	.	.	.	.	1	.	.	.	.	1
71	6	.	22	14	.	.	1	.	3	.	40
71	7	.	6	11	.	.	.	1	.	1	19
71	8	.	4	71	14	.	.	.	.	.	89
71	9	.	.	3	8	.	.	.	3	1	15
71	10	.	.	1	9	.	.	.	.	.	10
71	11	.	.	.	.	.	.	.	.	.	.
71	12	.	.	.	2	.	1	.	.	.	3
72	1	.	.	.	.	.	.	.	.	.	.
72	2	.	.	.	.	.	.	.	1	.	1
72	3	.	.	.	.	.	.	.	.	.	.
72	4	.	.	.	1	2	.	.	.	.	3
72	5	.	.	.	.	.	.	.	.	.	.
72	6	.	77	55	.	.	.	.	1	.	133
72	7	.	3	10	.	.	.	.	.	.	13
72	8	.	.	.	.	.	.	.	.	.	.
72	9	.	.	.	.	.	.	.	.	.	.
72	10	.	.	.	.	.	.	.	.	.	.
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	.	.	.	.	.	.	.	.	.
73	1	.	.	.	.	.	.	.	.	.	.
73	2	.	.	.	.	.	.	.	.	.	.
73	3	.	.	.	.	.	.	.	.	.	.
73	4	.	.	.	.	.	.	.	.	.	.
73	5	.	.	.	.	.	.	.	.	.	.
73	6	.	.	.	.	.	.	.	1	.	1
73	7	.	.	1	.	.	1	.	2	.	4
73	8	.	.	.	.	.	.	.	.	.	.
73	9	.	.	.	.	.	.	.	.	.	.
73	10	.	.	.	.	.	.	.	.	.	.
73	11	.	.	.	.	.	.	.	.	.	.
73	12	.	.	.	.	.	.	.	.	.	.
74	1	.	.	.	.	.	.	.	.	.	.
74	2	.	.	.	.	.	.	.	.	.	.
74	3	.	.	.	1	1	.	.	.	.	2
74	4	.	.	.	.	.	.	.	.	.	.
74	5	.	.	.	.	.	.	.	.	.	.
74	6	.	.	.	.	.	.	.	.	.	.
74	7	.	.	.	.	.	.	.	.	.	.
74	8	.	.	.	1	1	.	.	.	.	2

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

----- SPECIES=MORONE AMERICANA -----

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	.	.	6	5	.	.	.	11
74	10	.	.	.	.	1	.	.	.	.	1
74	11	.	.	.	.	.	1	.	.	.	1
74	12	.	.	.	.	1	.	.	.	.	1
75	1	.	.	.	.	.	.	.	.	.	.
75	2	.	.	.	.	.	.	.	.	.	.
75	3	.	.	.	.	.	.	.	.	.	.
75	4	.	.	.	.	.	.	.	.	.	.
75	5	.	.	.	.	.	.	.	.	.	.
75	6	.	.	.	.	.	.	.	.	.	.
75	7	.	.	2	5	.	.	1	1	.	9
75	8	.	.	.	1	.	.	.	.	.	1
75	9	.	.	.	.	1	.	.	.	.	1
75	10	.	.	.	.	3	.	.	1	.	4
75	11	.	.	.	.	.	.	.	.	.	.
75	12	.	.	.	.	.	.	.	.	.	.
76	1	.	.	.	.	.	.	.	.	.	.
76	2	.	.	.	.	.	1	.	.	.	1
76	3	.	.	.	.	.	.	.	.	.	.
76	4	.	.	.	.	.	.	.	.	.	.
76	5	.	.	.	.	.	1	.	1	.	2
76	6	.	.	.	.	.	.	.	.	.	.
76	7	.	.	5	1	.	.	1	.	.	7
76	8	.	.	.	.	.	.	.	.	.	.
76	9	.	.	.	2	.	.	.	.	.	2
76	10	.	.	.	1	1	1	1	.	.	4
76	11	.	.	.	.	.	.	.	.	.	.
76	12	.	.	.	.	.	.	.	.	.	.
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	1	.	.	.	1	2
77	3	.	.	.	.	3	3	5	2	.	13
77	4	.	.	.	1	7	1	.	1	.	10
77	5	.	.	.	.	2	6	2	.	.	10
77	6	.	.	.	.	.	2	3	.	.	5
77	7	.	.	2	.	.	3	3	7	.	15
77	8	.	.	.	3	.	1	3	1	.	8
77	9	.	.	.	.	.	1	.	5	.	6
77	10	.	.	.	1	.	.	.	.	.	1
77	11	.	.	.	1	2	.	1	2	.	6
77	12	.	.	.	.	1	.	.	.	.	1
78	1	.	.	.	2	1	.	.	1	.	4
78	2	.	.	.	.	.	.	.	1	1	2
78	3	.	.	.	5	9	2	3	2	.	21
78	4	.	.	.	1	.	1	1	2	.	5
78	5	.	.	.	.	6	2	.	.	.	8
78	6	.	1	.	.	12	10	.	1	.	24
78	7	.	21	87	2	1	10	.	4	.	125
78	8	.	.	6	2	1	9	12	1	.	31
78	9	.	.	5	2	.	4	3	3	1	18
78	10	.	.	10	11	1	5	12	4	.	43
78	11	.	.	15	6	.	4	8	3	.	36
78	12	.	.	.	1	.	.	1	1	.	3

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM

FROM 1970 THROUGH 1978

----- SPECIES=NOTROPIS HUDSONIUS -----

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
70	5	.	.	.	.	.	.	.	.	.	.
70	6	.	.	20	1	8	1	1	.	.	31
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	.	11	.	.	.	.	.	11
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	6	24	.	.	.	.	30
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	3	3	20	4	.	.	.	30
71	1	.	.	.	.	.	.	.	.	.	.
71	2	.	.	.	.	.	.	.	.	.	.
71	3	.	.	.	4	23	8	1	.	.	36
71	4	.	.	2	6	8	1	1	.	.	18
71	5	.	.	3	1	1	.	.	.	.	5
71	6	.	.	2	.	10	1	.	.	.	13
71	7	.	2	65	2	6	3	.	.	.	78
71	8	.	.	154	42	14	3	.	.	.	213
71	9	.	.	9	41	2	5	.	.	.	57
71	10	.	4	13	59	12	10	2	.	.	100
71	11	.	.	14	53	14	11	.	.	.	92
71	12	.	.	11	84	35	13	1	.	.	144
72	1	.	.	.	26	6	1	.	.	.	33
72	2	.	.	4	36	26	40	4	.	.	110
72	3	.	.	1	9	2	.	.	.	.	12
72	4	.	.	1	1	1	.	.	.	.	3
72	5	.	.	6	.	16	2	.	.	.	24
72	6	.	36	146	31	96	6	.	.	.	315
72	7	.	11	80	5	6	1	.	.	.	103
72	8	.	.	77	11	9	1	.	.	.	98
72	9	.	1	82	53	3	2	.	.	.	141
72	10	.	.	12	27	3	2	.	.	.	44
72	11	.	.	44	72	5	3	1	.	.	125
72	12	.	1	12	66	6	.	.	.	.	85
73	1	.	.	5	7	.	.	.	.	.	12
73	2	.	1	6	7	.	.	.	.	.	14
73	3	.	.	8	8	.	1	.	.	.	17
73	4	.	1	9	58	15	3	.	.	.	86
73	5	.	.	35	118	8	.	.	.	.	161
73	6	.	.	22	83	22	.	.	.	.	127
73	7	.	5	81	17	52	1	.	.	.	156
73	8	.	.	164	55	26	4	.	.	.	249
73	9	.	.	54	69	37	6	.	.	.	166
73	10	.	.	3	8	9	.	.	.	.	20
73	11	.	.	4	39	19	.	.	.	.	62
73	12	.	.	1	3	.	.	.	.	.	4
74	1	.	.	3	11	3	.	.	.	.	17
74	2	.	.	.	29	21	.	.	.	.	50
74	3	.	.	9	89	33	3	.	.	.	134
74	4	.	.	8	45	38	3	.	.	.	94
74	5	.	1	2	23	20	.	.	.	.	46
74	6	.	1	3	12	60	6	.	.	.	82
74	7	.	3	103	1	28	4	.	.	.	139
74	8	.	.	82	36	39	5	.	.	.	162

TABLE 6. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY HAUL SEINE PROGRAM
FROM 1970 THROUGH 1978

SPECIES=NOTROPIS HUDSONIUS

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	29	55	12	1	.	.	.	97
74	10	.	.	5	22	21	6	.	.	.	54
74	11	.	.	3	31	52	21	.	.	.	107
74	12	.	42	12	13	7	4	.	.	.	78
75	1	.	.	.	6	2	.	.	.	.	8
75	2	.	1	3	9	.	.	.	.	.	13
75	3	.	.	5	41	11	4	.	.	.	61
75	4	.	.	19	70	6	3	.	.	.	98
75	5	.	.	.	15	13	4	.	.	.	32
75	6	.	20	2	23	28	3	.	.	.	76
75	7	.	11	58	5	23	4	.	.	.	101
75	8	.	1	55	8	10	5	.	.	.	79
75	9	.	3	22	12	10	.	.	.	.	47
75	10	.	5	35	29	12	.	.	.	.	81
75	11	.	2	17	9	1	.	.	.	.	29
75	12	.	.	3	5	2	1	.	.	.	11
76	1	.	.	.	.	.	.	.	.	.	.
76	2	.	.	21	16	12	.	.	.	.	49
76	3	.	.	3	10	.	.	.	.	.	13
76	4	.	.	9	20	1	.	.	.	.	30
76	5	.	.	2	25	4	.	.	.	.	31
76	6	.	.	.	41	7	.	.	.	.	48
76	7	.	.	1	32	14	.	.	.	.	47
76	8	.	.	.	1	1	.	.	.	.	1
76	9	.	.	.	1	1	.	.	.	.	2
76	10	.	2	.	2	1	.	.	.	.	5
76	11	.	.	.	.	.	.	.	.	.	.
76	12	.	.	.	4	6	1	.	.	.	11
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	1	.	.	.	.	1
77	3	.	.	.	.	6	.	.	.	.	6
77	4	.	.	.	.	1	.	.	.	.	1
77	5	.	.	.	1	.	.	.	.	.	1
77	6	.	.	.	.	.	.	.	.	.	.
77	7	.	.	1	.	2	1	.	.	.	4
77	8	.	.	.	.	.	.	.	.	.	.
77	9	.	.	.	1	.	.	.	.	.	1
77	10	.	.	.	.	2	.	.	.	.	2
77	11	.	.	.	4	1	.	.	.	.	5
77	12	.	.	.	.	.	.	.	.	.	.
78	1	.	.	.	.	.	.	.	.	.	.
78	2	.	.	.	.	1	.	.	.	.	1
78	3	.	.	.	2	19	5	.	.	.	26
78	4	.	.	.	.	1	.	.	.	.	1
78	5	.	.	.	1	9	.	.	.	.	10
78	6	.	1	.	.	3	.	.	.	.	4
78	7	.	.	8	.	1	.	.	.	.	9
78	8	.	.	3	18	.	.	.	.	.	21
78	9	.	.	5	17	.	.	.	.	.	22
78	10	.	.	.	9	.	.	.	.	.	9
78	11	.	.	.	3	2	.	.	.	.	5
78	12	.	.	.	2	.	.	.	.	.	2

TABLE 7. MONTHLY DIVERSTIY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

STATION								
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
5-70	*	*	0.8502	1.6995	1.2652	0.3828	2.5194	1.8776
6-70	*	1.7730	1.4481	1.1676	1.5322	1.4644	2.1075	2.3835
8-70	*	1.3267	0.6904	1.9173	1.6371	1.9141	1.1261	2.2028
10-70	0.3140	0.5823	1.1618	0.8900	1.5858	1.5530	1.7044	1.2235
12-70	0.0000	0.5181	2.4671	0.6300	1.4268	0.9568	0.0857	1.2535

* NO SAMPLE TAKEN.

TABLE 7. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-71	0.2108	0.0000	*	0.5927	0.0000	1.3912	0.0000	0.9091
2-71	0.3534	0.5852	0.5033	0.0000	0.4262	0.4395	0.4690	1.7786
3-71	1.2341	1.0520	2.1266	1.0712	1.5558	0.6840	2.0239	1.9130
4-71	2.2918	0.9519	0.9946	1.9219	1.1548	1.8140	1.6400	1.8840
5-71	1.1007	1.0772	1.4183	0.2109	1.9970	0.9281	1.4401	1.3303
6-71	0.6519	0.3461	0.7941	0.6445	1.7919	1.1244	0.4038	0.8326
7-71	2.5633	2.5602	2.7392	2.7045	0.6302	1.8278	1.6277	2.5989
8-71	0.8751	1.6693	2.2936	2.3363	2.1922	2.8983	2.1870	2.7730
9-71	1.8071	1.5452	2.5585	2.2785	2.3395	2.2046	1.7999	2.7822
10-71	0.0000	1.9581	1.6765	1.4393	2.3514	1.3137	1.0816	2.0819
11-71	1.2327	0.6837	2.0615	2.1305	1.9728	1.4266	0.3351	1.8110
12-71	1.9534	1.7779	1.5484	1.8419	0.8936	1.9138	1.3117	1.9699

* NO SAMPLE TAKEN.

TABLE 7. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-72	0.9886	0.8366	1.1568	0.4690	0.0000	1.4837	1.2516	1.5009
2-72	0.0000	0.9183	1.0362	1.5157	0.6090	0.4837	0.9980	1.4778
3-72	1.3128	0.1282	1.6855	1.1532	1.5850	1.6500	0.0000	0.9920
4-72	0.7584	1.0396	0.2698	0.8767	1.0471	0.6237	0.9971	1.1280
5-72	1.8078	1.4040	1.7187	0.5582	0.8544	0.6575	2.0102	1.5028
6-72	1.8852	1.4149	1.5667	1.1970	1.8414	1.4943	1.6550	2.0018
7-72	1.5737	1.9242	1.2455	2.0402	1.2167	0.8406	2.4734	2.9049
8-72	1.2618	2.5361	1.4591	1.8458	1.5991	1.6753	2.5467	2.6210
9-72	1.8944	1.5609	2.1200	1.9040	0.3262	1.5832	1.4974	1.9772
10-72	1.3710	1.2366	1.5471	1.5914	1.9363	1.6161	2.2199	2.2977
11-72	1.3710	1.9219	1.8672	0.6784	0.8001	1.3369	1.2757	2.0706
12-72	0.8343	0.2823	1.9043	1.5850	1.7109	1.8063	1.2336	2.1312

TABLE 7. MONTHLY DIVERSTIY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-73	1.2807	1.6577	1.7500	1.4913	0.8113	1.7527	0.6500	2.5524
2-73	*	*	1.7360	0.2818	0.5226	1.3222	1.4509	1.0861
3-73	*	1.0000	1.8400	1.1975	1.0301	1.5000	1.6577	2.0712
4-73	1.5356	1.3133	1.8424	1.6774	0.6500	1.9073	1.1358	1.9883
5-73	0.7319	1.5965	0.9056	1.2566	0.4791	1.9349	2.0104	1.9117
6-73	1.8751	0.9815	1.1767	0.7498	1.9359	1.0970	0.6402	1.8119
7-73	0.5950	2.2090	2.6983	2.2453	2.9528	2.0532	1.8467	3.2389
8-73	1.2748	1.7062	2.2523	1.6066	0.7587	1.0543	0.8120	2.5176
9-73	1.3384	1.2839	1.9941	2.0213	1.9504	2.6122	1.2200	2.1066
10-73	1.2516	0.3228	1.3867	0.7386	1.3462	1.7631	0.5436	1.4269
11-73	0.1437	0.0000	3.4189	1.3248	0.7765	2.3005	0.8744	2.0402
12-73	0.0000	1.5850	0.5436	0.1289	0.7219	1.5759	0.0000	0.3835

* NO FISH TAKEN.

TABLE 7. MONTHLY DIVERSTIY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-74	1.5219	0.0000	1.4166	0.0000	1.5000	1.5395	1.6172	1.5115
2-74	1.2432	0.9898	1.3610	0.4262	0.9183	1.4591	1.2807	2.1410
3-74	0.9251	1.9277	1.8462	0.9661	0.7977	0.5860	2.2667	1.8085
4-74	0.6611	1.9253	2.5110	1.0994	1.8622	0.2690	1.3826	1.9824
5-74	1.5115	1.1513	1.5468	0.9346	1.5522	0.9311	2.2403	1.5555
6-74	0.6729	2.3474	2.4269	0.6265	2.1690	1.7297	1.2133	1.7001
7-74	1.9950	2.2902	1.9750	2.1453	2.0404	1.3970	2.3846	2.9236
8-74	2.4750	2.5216	2.0368	1.1211	1.4377	0.4679	2.3029	2.2630
9-74	0.9773	1.0162	1.3477	1.1780	1.1056	1.7113	2.2317	2.3076
10-74	0.9863	2.2382	1.7516	0.9752	1.3151	2.2671	1.7833	2.5307
11-74	1.2072	0.6960	2.3187	1.7131	1.9654	0.8910	2.1339	2.3830
12-74	2.3811	1.4711	1.6137	0.2129	0.2294	1.7294	2.2246	1.3143

TABLE 7. MONTHLY DIVERSTIY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-75	1.9183	1.5305	0.7104	0.1897	2.0000	1.7500	0.7086	0.6980
2-75	2.3072	1.8424	0.9183	0.5116	0.2329	1.2718	0.0000	1.2603
3-75	1.8424	1.5613	1.5459	1.8940	1.8675	0.9183	1.6062	2.0957
4-75	2.1755	2.5155	2.1237	1.9877	1.7738	2.1763	2.1268	2.6966
5-75	2.3555	1.7337	2.1031	1.7714	1.9540	1.5761	2.5826	2.8001
6-75	0.2902	0.2653	2.1781	1.3782	1.5955	2.7470	2.4931	1.9798
7-75	2.7004	1.4456	2.0826	2.4075	1.7113	1.4788	2.7204	2.3846
8-75	1.2980	2.4628	1.4282	1.3934	1.8058	2.7529	0.5769	1.7726
9-75	0.9015	1.3720	1.0855	1.6106	1.0865	1.4941	2.2140	2.0242
10-75	2.0130	2.2155	0.4436	1.5259	1.4513	2.1458	2.1031	2.1266
11-75	2.3936	0.5033	0.5682	1.1914	0.9310	1.0804	1.0121	1.4066
12-75	1.8675	1.4591	0.9995	0.9183	0.4206	1.1399	0.0905	1.4555

TABLE 7. MONTHLY DIVERSTIY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-76	0.0000	*	0.0000	0.0000	*	0.9780	*	0.7442
2-76	1.1441	1.2261	2.0464	1.5028	1.2155	0.8795	2.1131	2.3896
3-76	2.4697	2.2222	2.0382	1.7245	2.0967	2.6464	2.1710	3.2661
4-76	1.4568	1.9899	2.2126	1.1568	**	2.9508	2.4319	3.2095
5-76	0.0226	0.8755	2.3418	0.5662	1.5342	0.2924	2.2125	1.2432
6-76	0.2637	0.6983	1.7216	2.8640	2.5274	2.1380	2.8701	1.3022
7-76	1.2472	0.4537	2.1120	1.6855	1.9980	2.6013	1.5214	3.0734
8-76	0.2728	0.3363	0.2285	0.2108	0.0000	1.6664	0.0000	0.4936
9-76	0.3510	0.9945	0.1537	0.3555	0.5312	0.3912	*	1.1748
10-76	2.4194	2.6815	1.6643	2.1740	1.0488	1.2230	0.6500	3.0577
11-76	0.0000	0.0000	1.0000	0.9464	0.0000	0.5917	0.0000	0.4174
12-76	0.0000	0.0000	1.5567	0.1654	1.0219	1.9301	0.0000	1.1886

* NO FISH TAKEN.

** SAMPLE ACCIDENTLY INCLUDED WITH JAMESTOWN ISLAND.

TABLE 7. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
2-77	0.0000	0.9183	0.0000	0.0000	1.0000	*	0.0000	2.4464
3-77	2.0984	1.6907	0.5286	0.2199	1.1568	0.9807	1.2242	1.1130
4-77	0.1097	1.5069	1.0940	1.0826	1.4591	0.8905	1.4785	1.7267
5-77	0.2191	1.2805	0.1386	0.7328	1.4604	0.2440	1.3067	0.3965
6-77	0.3946	0.8803	2.1860	1.3581	0.9183	2.4888	0.4723	1.2337
7-77	1.2544	1.9838	1.8435	1.4716	2.3966	0.9089	1.0761	2.3271
8-77	1.2414	0.8106	1.7143	1.7202	1.0636	1.9249	1.1050	1.7650
9-77	0.9561	1.6955	0.8454	1.2432	0.8044	1.8591	1.7551	1.6578
10-77	1.2463	1.5885	1.2557	1.9161	0.4971	1.6188	1.3662	2.1080
11-77	1.2009	0.6337	2.7103	0.7607	2.3496	2.3148	1.0000	2.7727
12-77	1.5000	1.5850	0.4126	0.4741	0.0000	1.0892	0.0000	0.8197

* NO SAMPLE TAKEN.

TABLE 7. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-78	0.0000	0.0000	1.6764	0.8454	*	1.5850	0.9183	2.2547
2-78	1.0000	*	1.7925	1.5000	*	1.0000	*	2.5216
3-78	1.0842	1.0949	0.0000	2.1181	1.4238	0.6988	1.1863	2.5549
4-78	1.5197	1.2389	0.9183	0.0000	1.5850	1.0714	0.8842	1.7297
5-78	2.0000	3.0333	2.1800	1.2075	2.2359	0.7295	2.2167	1.6649
6-78	0.7699	0.7728	2.2783	1.5519	1.6288	0.7778	1.5428	1.5379
7-78	1.5360	0.7669	1.7791	1.6620	2.0588	2.1877	2.3899	2.6924
8-78	0.7046	2.2758	2.4540	2.5281	1.8685	2.5152	2.2199	3.2575
9-78	0.4251	2.0252	2.5334	2.6145	1.3585	0.9792	1.0423	1.9949
10-78	0.9183	1.6499	1.8895	2.0480	2.0699	1.2020	2.0058	2.9045
11-78	1.0000	1.7988	2.0850	1.0389	2.2810	1.8361	1.0000	2.3711
12-78	0.1231	0.3912	0.0000	1.2403	0.0710	1.3548	0.2352	0.6219

* NO FISH TAKEN.

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
5-70	*	*	0.4251	0.6575	0.6326	0.1481	0.8398	0.5074
6-70	*	0.5125	0.5602	0.4159	0.5458	0.4085	0.6344	0.5716
8-70	*	0.4726	0.2301	0.6049	0.5832	0.6038	0.4850	0.5283
10-70	0.1215	0.2253	0.4494	0.2967	0.7929	0.4675	0.6593	0.3306
12-70	0.0000	0.2591	0.8788	0.2713	0.5082	0.4784	0.0857	0.3208

* NO SAMPLE TAKEN.

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-71	0.2108	0.0000	*	0.2963	0.0000	0.6956	0.0000	0.3238
2-71	0.3534	0.5852	0.5033	0.0000	0.4262	0.4395	0.4690	0.5611
3-71	0.5315	0.5260	0.9159	0.5356	0.6700	0.6840	0.7209	0.5530
4-71	0.8163	0.3683	0.4283	0.9610	0.3849	0.7813	0.5174	0.4822
5-71	0.3472	0.3837	0.7091	0.0816	0.7725	0.3094	0.5130	0.3078
6-71	0.2522	0.1092	0.3971	0.3222	0.5973	0.3250	0.1274	0.1841
7-71	0.8086	0.7707	0.8641	0.7818	0.2245	0.5284	0.6297	0.5917
8-71	0.3769	0.4825	0.6630	0.8322	0.7307	0.7419	0.7290	0.6416
9-71	0.6437	0.6655	0.7702	0.8815	0.7798	0.7853	0.6963	0.6956
10-71	0.0000	0.8433	0.5972	0.6199	0.7838	0.4680	0.3256	0.5329
11-71	0.7777	0.2645	0.7975	0.7589	0.8496	0.4501	0.1675	0.5052
12-71	0.8413	0.6878	0.4661	0.7933	0.3183	0.7404	0.5649	0.5174

* NO SAMPLE TAKEN.

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-72	0.6237	0.8366	0.7298	0.4690	0.0000	0.9361	0.7897	0.6464
2-72	0.0000	0.9183	0.6538	0.9563	0.2169	0.2418	0.9980	0.4122
3-72	0.6564	0.1282	0.8427	0.5766	1.0000	0.7106	0.0000	0.3307
4-72	0.4785	0.6559	0.1162	0.8767	0.3490	0.3118	0.9971	0.3558
5-72	0.6026	0.4429	0.6649	0.2404	0.4272	0.2544	0.6701	0.4061
6-72	0.5449	0.3947	0.5222	0.3776	0.6138	0.4319	0.4472	0.4558
7-72	0.5606	0.9621	0.5364	0.7267	0.3663	0.3252	0.7150	0.6966
8-72	0.4881	0.9034	0.9206	0.7141	0.5045	0.6481	0.9071	0.6709
9-72	0.9472	0.6038	0.8201	0.8200	0.1162	0.6124	0.4991	0.5061
10-72	0.8650	0.6183	0.5511	0.6854	0.7490	0.6960	0.6682	0.6035
11-72	0.8650	0.9610	0.6651	0.4280	0.4001	0.5758	0.4935	0.5776
12-72	0.5264	0.1781	0.8201	1.0000	0.8554	0.6988	0.5313	0.6723

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-73	0.8080	0.8289	0.8750	0.7457	0.8113	0.8764	0.6500	0.8052
2-73	*	*	0.7477	0.1778	0.5226	0.8342	0.6249	0.3620
3-73	*	1.0000	0.7924	0.7555	0.5151	0.9464	0.8289	0.7378
4-73	0.6613	0.5080	0.9212	0.8387	0.6500	0.7378	0.5679	0.5985
5-73	0.2607	0.5322	0.5714	0.4861	0.1707	0.8333	0.8658	0.4893
6-73	0.6250	0.3797	0.3542	0.2257	0.8338	0.3461	0.4039	0.4530
7-73	0.1877	0.6969	0.7527	0.6068	0.8237	0.5549	0.5026	0.6891
8-73	0.6374	0.8531	0.8023	0.5068	0.3268	0.3755	0.3141	0.6444
9-73	0.5178	0.8100	0.7714	0.7200	0.6501	0.8707	0.4346	0.5154
10-73	0.7897	0.3228	0.5972	0.2857	0.5798	0.5877	0.5436	0.3856
11-73	0.1437	0.0000	0.8980	0.5125	0.4899	0.7257	0.3383	0.4893
12-73	0.0000	1.0000	0.5436	0.0644	0.7219	0.6096	0.0000	0.1278

* NO FISH TAKEN.

TABLE 8. MONTHLY EVERNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-74	0.9602	0.0000	0.7083	0.0000	0.9464	0.6630	0.8086	0.5847
2-74	0.4809	0.4949	0.8587	0.4262	0.9183	0.9206	0.8080	0.7137
3-74	0.2918	0.7457	0.6576	0.6096	0.2659	0.1953	0.6823	0.4257
4-74	0.3305	0.6858	0.7258	0.4253	0.8020	0.1345	0.4162	0.4667
5-74	0.5038	0.4959	0.4880	0.3329	0.6005	0.3104	0.6249	0.3599
6-74	0.2397	0.7405	0.7306	0.2088	0.7230	0.6161	0.3652	0.4159
7-74	0.6005	0.6894	0.7640	0.7151	0.8787	0.4976	0.7522	0.6656
8-74	0.8816	0.8405	0.6425	0.3737	0.5562	0.2339	0.8203	0.5427
9-74	0.3258	0.3931	0.6739	0.4196	0.6976	0.7370	0.6718	0.5907
10-74	0.6223	0.7973	0.6239	0.3773	0.4149	0.6825	0.6352	0.5762
11-74	0.3808	0.2998	0.6703	0.6102	0.6200	0.2970	0.9190	0.5610
12-74	0.8481	0.7355	0.8069	0.1064	0.0988	0.5765	0.8606	0.3552

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-75	0.9591	0.9656	0.3059	0.0948	1.0000	0.8750	0.4471	0.2202
2-75	0.8925	0.9212	0.9183	0.3228	0.2329	0.8024	0.0000	0.4201
3-75	0.9212	0.9851	0.6658	0.6747	0.7302	0.9183	0.5354	0.5663
4-75	0.8416	0.8960	0.7079	0.6626	0.6318	0.6071	0.5933	0.6597
5-75	0.8391	0.7467	0.8136	0.7629	0.7559	0.6788	0.8609	0.7355
6-75	0.0967	0.0767	0.8426	0.4149	0.6872	0.8269	0.8310	0.4748
7-75	0.6912	0.4032	0.5095	0.6959	0.5151	0.4125	0.7352	0.4960
8-75	0.8190	0.8209	0.4505	0.4645	0.5037	0.7679	0.1820	0.3817
9-75	0.3882	0.4573	0.4675	0.6231	0.4203	0.5322	0.8565	0.4765
10-75	0.7170	0.7385	0.2218	0.4814	0.4838	0.7153	0.6331	0.5100
11-75	0.9260	0.5033	0.2841	0.5957	0.4009	0.6268	0.3915	0.3801
12-75	0.8043	0.9206	0.9995	0.9183	0.2103	0.4410	0.0905	0.4592

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HA SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-76	0.0000	*	0.0000	0.0000	*	0.6171	*	0.4695
2-76	0.3444	0.4743	0.8814	0.6472	0.6077	0.4398	0.7527	0.5625
3-76	0.9554	0.8597	0.8778	0.7427	0.6989	0.9427	0.9350	0.8360
4-76	0.6274	0.9949	0.9529	0.7298	**	0.7974	0.7672	0.8024
5-76	0.0226	0.4377	0.9059	0.3573	0.5935	0.0880	0.6660	0.3108
6-76	0.0794	0.3007	0.7415	0.7989	0.7608	0.7616	0.7346	0.3065
7-76	0.5372	0.4537	0.7040	0.8427	0.7117	0.7520	0.4799	0.7684
8-76	0.1721	0.2122	0.2285	0.2108	0.0000	0.8332	0.0000	0.1645
9-76	0.3510	0.9945	0.1537	0.2243	0.2288	0.3912	*	0.4545
10-76	0.9359	0.8072	0.6438	0.7744	0.6617	0.6115	0.6500	0.8031
11-76	0.0000	0.0000	1.0000	0.5971	0.0000	0.5917	0.0000	0.1487
12-76	0.0000	0.0000	0.9821	0.1654	0.5110	0.8313	0.0000	0.3962

* NO FISH TAKEN.

** SAMPLE ACCIDENTLY INCLUDED WITH JAMESTOWN ISLAND.

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
2-77	0.0000	0.9183	0.0000	0.0000	1.0000	*	0.0000	0.9464
3-77	0.7475	0.8453	0.1528	0.0783	0.7298	0.4904	0.3685	0.2620
4-77	0.0548	0.5368	0.3293	0.5413	0.9206	0.8905	0.9328	0.4317
5-77	0.0943	0.4954	0.0417	0.4623	0.7302	0.0770	0.4654	0.1015
6-77	0.1973	0.3791	0.8457	0.5254	0.9183	0.7851	0.1827	0.3158
7-77	0.4468	0.7066	0.6567	0.5693	0.8537	0.5735	0.5380	0.5693
8-77	0.4802	0.4053	0.8571	0.6127	0.3789	0.6857	0.6972	0.4412
9-77	0.3187	0.7302	0.8454	0.4428	0.4022	0.6197	0.7559	0.4354
10-77	0.5368	0.7943	0.7922	0.7413	0.3136	0.5766	0.4866	0.5537
11-77	0.7577	0.3169	0.8550	0.4799	0.8369	0.7716	1.0000	0.7734
12-77	0.9464	1.0000	0.2604	0.2991	0.0000	0.5446	0.0000	0.2732

* NO SAMPLE TAKEN.

TABLE 8. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-78	0.0000	0.0000	0.8382	0.8454	*	1.0000	0.9183	0.8031
2-78	1.0000	*	0.8962	0.9464	*	1.0000	*	0.8982
3-78	0.4194	0.6908	0.0000	0.9122	0.7119	0.3494	0.5931	0.6710
4-78	0.7599	0.7817	0.9183	0.0000	1.0000	0.6760	0.5579	0.6161
5-78	1.0000	0.9131	0.8434	0.6038	0.9630	0.2301	0.6673	0.4261
6-78	0.2978	0.2753	0.8814	0.4896	0.5802	0.2593	0.5968	0.3762
7-78	0.6615	0.3834	0.5613	0.6429	0.8867	0.6103	0.9245	0.7072
8-78	0.7046	0.6578	0.7742	0.7610	0.6656	0.8959	0.8588	0.7669
9-78	0.1645	0.7835	0.9024	0.8248	0.8571	0.3788	0.5212	0.5240
10-78	0.9183	0.6383	0.8138	0.7295	0.7373	0.4650	0.7759	0.7849
11-78	1.0000	0.6959	0.8979	0.5195	0.8824	0.5792	1.0000	0.5801
12-78	0.1231	0.3912	0.0000	0.5342	0.0710	0.6774	0.2352	0.2406

* NO FISH TAKEN.

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

STATION								
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
5-70	*	*	0.6382	0.7388	0.5495	0.6404	1.1499	1.3514
6-70	*	1.0470	0.6378	0.6815	0.7062	0.8404	0.8605	1.2556
8-70	*	0.6891	0.8341	0.9608	0.7500	0.8470	0.6383	1.5399
10-70	0.4962	0.6482	0.6846	0.8058	0.3821	1.3969	0.6529	1.0698
12-70	0.0000	0.4862	1.0199	0.5762	0.9518	0.6727	0.1529	1.5605

* NO SAMPLE TAKEN.

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-71	0.2038	0.0000	*	0.5019	0.0000	0.6382	0.0000	0.8466
2-71	0.2560	0.1714	0.3155	0.0000	0.2211	0.2891	0.3010	1.1392
3-71	0.5922	0.3326	1.0000	0.4599	0.7862	0.2891	1.1274	1.0331
4-71	1.0117	0.6733	0.8234	1.2920	1.0245	0.6800	0.9598	1.4621
5-71	0.9650	0.7679	0.8368	0.4717	0.9214	0.8033	0.7910	1.6624
6-71	0.6098	0.8979	0.5121	0.3496	1.0447	1.2309	0.8715	1.9839
7-71	1.3096	1.6586	1.3901	1.3158	0.7039	1.6208	0.8003	2.0461
8-71	0.5490	1.1959	1.4608	1.0743	1.0865	1.8748	0.8813	1.8669
9-71	1.0199	0.6146	1.3576	0.9912	1.4892	1.0199	0.8610	1.7193
10-71	1.0000	0.9107	0.7532	0.9786	0.9847	0.5636	0.9569	1.2277
11-71	0.4796	0.6566	0.8859	0.9112	0.7737	0.9166	0.3472	1.0730
12-71	0.6642	0.5502	1.2878	1.0000	0.6019	0.6220	0.5123	1.1680

* NO SAMPLE TAKEN.

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-72	0.3081	0.2560	0.4628	0.2314	0.0000	0.4893	0.3709	0.4993
2-72	1.0000	0.3155	0.3899	0.4362	0.7737	0.4097	0.1906	1.2338
3-72	0.5019	0.1112	0.6941	0.5238	0.4796	0.7017	1.0000	0.7381
4-72	0.3869	0.2332	0.4436	0.1738	0.7481	0.5000	0.1526	0.7396
5-72	0.7728	0.7961	0.6804	0.4432	0.3114	0.5303	1.0837	1.0076
6-72	1.3761	1.2742	1.0630	0.8832	0.9374	0.9207	1.4299	1.6956
7-72	1.0426	0.7879	0.6718	0.9663	1.2776	0.6517	1.5186	1.8254
8-72	0.6618	1.0077	0.7737	0.8535	1.0000	0.8688	1.0199	1.4869
9-72	0.5897	0.5311	0.9272	0.7568	0.6245	0.9528	0.7605	1.2605
10-72	0.8614	0.7679	0.8357	0.8152	0.9912	0.5887	1.1901	1.4374
11-72	0.8614	1.2920	0.9491	0.4421	0.5563	0.5970	0.7559	1.2972
12-72	0.4893	0.3544	0.9416	1.2619	0.6460	0.8130	0.6772	1.0080

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-73	0.5579	0.9464	1.0000	0.7500	0.5000	0.9464	0.2789	1.3052
2-73	*	*	0.9786	0.2901	0.1966	0.5781	0.8074	0.9058
3-73	*	1.0000	0.7242	0.4307	0.4831	1.0000	0.9464	0.8195
4-73	0.7862	0.6632	1.0686	0.7500	0.2398	0.9002	0.5600	1.0655
5-73	0.7449	0.9906	0.5119	0.6338	0.6393	0.5040	0.8724	1.3164
6-73	0.8320	0.6343	0.9823	0.8077	0.6745	0.7245	0.4893	1.2048
7-73	0.8773	1.0516	1.2679	1.2490	1.4746	1.4715	1.1583	2.2124
8-73	0.3663	0.4424	0.9051	0.9489	0.5571	0.7484	0.8572	1.3524
9-73	0.7432	0.4160	0.9460	0.8368	0.9633	1.2001	0.6803	1.6102
10-73	0.7737	0.2447	0.6462	0.6220	0.7930	1.0343	0.1519	1.3013
11-73	0.1781	0.0000	2.3671	0.6703	0.3526	1.0785	0.5880	1.7360
12-73	0.0000	1.2619	0.3333	0.3297	0.4307	0.8729	0.0000	0.7461

* NO FISH TAKEN.

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-74	0.4307	0.0000	0.5637	0.0000	1.0000	0.8614	0.8672	0.6725
2-74	0.9671	0.5121	0.6021	0.2211	0.6309	0.7737	0.5579	0.9709
3-74	0.8439	1.1053	0.9154	0.3509	0.9003	0.7036	1.1636	1.6116
4-74	0.6240	0.9412	1.8665	0.6703	0.8152	0.3910	1.0245	1.8054
5-74	1.2164	0.3967	1.1357	0.6587	0.8572	0.8179	1.5640	1.6932
6-74	0.6510	1.0516	1.3053	0.7520	0.7705	0.9574	1.1462	1.4254
7-74	1.1901	1.3008	0.9671	0.7916	1.1563	0.7187	1.1964	1.9452
8-74	1.3660	1.2340	1.1038	0.7587	0.6263	0.3967	0.9197	1.6336
9-74	1.2403	0.8500	0.5166	0.8117	0.4255	0.4555	1.4361	1.4323
10-74	0.2991	1.2000	1.3086	0.7741	1.0043	1.2501	1.1199	2.1232
11-74	1.1915	0.5854	1.5561	1.0332	1.0125	0.9238	1.0810	1.8651
12-74	1.3086	0.6175	0.4816	0.3951	0.4354	0.8133	1.0515	1.1575

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-75	1.1606	0.6309	0.5957	0.3729	1.5000	1.0000	0.3285	0.9031
2-75	1.2233	1.0686	0.3869	0.3931	0.1586	0.5000	0.0000	0.9537
3-75	1.0686	0.5000	0.5661	0.9091	0.9748	0.3869	1.0083	1.2781
4-75	0.6241	0.9927	1.1273	1.2602	0.9693	1.4364	1.4606	1.6290
5-75	1.0526	0.8234	0.8905	0.7678	0.9395	0.8724	1.1499	1.5807
6-75	0.6709	0.9021	1.0292	0.8063	0.4424	1.1741	1.0630	1.3375
7-75	2.0132	1.3094	1.8597	1.2333	0.9742	1.2574	1.7227	2.4197
8-75	0.3201	1.3066	1.2293	0.8573	1.4272	1.6190	0.7876	2.1949
9-75	0.8412	0.9003	0.5541	0.7542	0.5931	0.5830	1.0092	1.6286
10-75	0.9856	1.2340	0.5401	0.9952	0.8492	1.0264	1.2338	1.7053
11-75	1.1991	0.3155	0.4128	0.4351	0.5063	1.0426	0.6505	1.2331
12-75	0.8724	0.7737	0.1892	0.3869	0.4202	0.6041	0.1552	0.8640

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-76	1.0000	*	0.0000	0.0000	*	0.4893	*	0.4255
2-76	1.0535	0.8859	1.2041	0.6383	0.5600	0.7062	1.0743	1.9414
3-76	1.3512	1.4453	1.0810	0.7017	1.3339	1.8062	1.2041	1.9445
4-76	0.7516	0.7679	0.9107	0.6021	**	1.5917	1.4836	1.8084
5-76	0.1018	0.4773	0.7646	0.2533	1.1053	0.9063	1.2161	1.3300
6-76	0.8218	0.4639	0.9416	1.3901	1.4196	1.0743	2.1674	1.5683
7-76	0.6146	0.2277	1.4722	0.9031	1.0199	1.5561	1.0913	1.6988
8-76	0.2475	0.2496	0.2103	0.2038	0.0000	0.6309	1.0000	0.7491
9-76	0.1486	0.1810	0.1821	0.3459	0.5627	0.2702	*	0.5777
10-76	1.5773	1.6029	0.8572	1.4679	0.4553	0.5121	0.2789	1.6665
11-76	0.0000	0.0000	1.0000	0.5253	0.0000	0.3562	1.0000	0.8441
12-76	0.0000	0.0000	0.7124	0.1867	0.6941	1.0238	0.0000	1.0655

* NO FISH TAKEN.

** SAMPLE ACCIDENTLY INCLUDED WITH JAMESTOWN ISLAND.

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
2-77	0.0000	0.6309	1.0000	1.0000	1.0000	*	1.0000	1.5051
3-77	1.0378	0.5166	1.1030	0.5738	0.6021	0.2784	0.8770	1.4634
4-77	0.3566	1.1352	1.0421	0.5100	0.7737	0.2702	0.3459	1.5257
5-77	0.3248	0.7154	0.7787	0.2728	0.6382	0.6476	0.8278	1.0179
6-77	0.3485	0.4357	1.0092	0.8333	0.3869	1.3235	0.6837	1.3540
7-77	0.7279	0.9491	1.1433	0.8688	1.2111	0.3811	0.5849	1.7434
8-77	0.8648	0.5372	0.7062	1.3086	0.9927	1.0526	0.4708	1.8417
9-77	0.8661	0.9255	0.2891	0.9789	0.5189	1.0189	0.8412	1.4196
10-77	0.6858	0.4265	0.3811	0.9214	0.2922	0.8236	0.9011	1.3942
11-77	0.4553	0.5189	1.5474	0.3784	1.5000	0.9549	1.0000	1.3148
12-77	1.0000	1.2619	0.3400	0.3562	0.0000	0.7879	0.0000	0.9777

* NO SAMPLE TAKEN.

TABLE 9. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY HAUL SEINE PROGRAM DATA FROM 1970 THROUGH 1978

	STATION							
	0001	0002	0003	0004	0005	0006	0007	COMPOSITE
1-78	1.0000	1.0000	0.6175	0.2891	*	1.2619	0.6309	1.0743
2-78	1.0000	*	1.1606	1.0000	*	1.0000	*	1.5759
3-78	0.8688	0.5253	1.0000	1.1563	0.7500	0.6382	0.7500	1.8288
4-78	0.7340	0.5405	0.6309	0.0000	1.2619	0.3509	0.4628	0.8831
5-78	1.5000	1.9380	1.2500	0.8368	1.4248	0.9745	1.4837	1.6022
6-78	0.8158	0.8628	0.8572	1.0835	1.0286	0.6905	0.7417	1.4900
7-78	0.6117	0.5372	1.1288	0.9460	1.2619	1.2414	1.2798	1.3468
8-78	0.1800	1.3466	1.6468	1.5639	1.1894	1.1433	1.0292	2.0807
9-78	0.5685	0.8365	1.3264	1.6148	0.3709	0.5649	0.6309	1.2881
10-78	0.3869	0.8859	0.6642	0.9031	1.0242	0.7318	0.9158	1.3681
11-78	1.0000	1.2500	1.1158	0.7679	1.5773	0.9885	1.0000	1.9134
12-78	0.1450	0.2702	0.0000	0.6483	0.1456	0.6000	0.2127	0.5817

* NO FISH TAKEN.

TABLE 10. FISH SPECIES COLLECTED IN MONTHLY OTTER TRAWL SAMPLES
FROM 1970 THROUGH 1978

OSTEICHTHYES

ACIPENSERIDAE - sturgeons
ACIPENSER OXYRHYNCHUS - Atlantic sturgeon

LEPISOSTEIDAE - gar
LEPISOSTEUS OSSEUS - longnose gar

ELOPIDAE - tarpons
ELOPS SAURUS - ladyfish

ANGUILLIDAE - freshwater eels
ANGUILLA ROSTRATA - American eel

CLUPEIDAE - herrings
ALOSA AESTIVALIS - blueback herring
ALOSA MEDIOCRIS - hickory shad
ALOSA PSEUDOHARENGUS - alewife
ALOSA SAPIDISSIMA - American shad
BREVOORTIA TYRANNUS - Atlantic menhaden
DOROSOMA CEPEDIANUM - gizzard shad
DOROSOMA PETENSE - threadfin shad

ENGRAULIDAE - anchovies
ANCHOA HEPSETUS - striped anchovy
ANCHOA MITCHILLI - bay anchovy

CYPRINIDAE - minnows and carps
CYPRINUS CARPIO - carp
HYBOGNATHUS NUCHALIS - silvery minnow
NOTROPIS HUDSONIUS - spottail shiner

ICTALURIDAE - freshwater catfishes
ICTALURUS CATUS - white catfish
ICTALURUS NEBULOSUS - brown bullhead
ICTALURUS PUNCTATUS - channel catfish

TABLE 10. FISH SPECIES COLLECTED IN MONTHLY OTTER TRAWL SAMPLES

FROM 1970 THROUGH 1978

GADIDAE - codfishes
UROPHYCIS REGIUS - spotted hake

CYPRINODONTIDAE - killifishes
FUNDULUS DIAPHANUS - banded killifish

ATHERINIDAE - silversides
MENIDIA BERYLLINA - tidewater silverside
MENIDIA MENIDIA - Atlantic silverside

PERCICHTHYIDAE - temperate basses
MORONE AMERICANA - white perch
MORONE SAXATILIS - striped bass

CENTRARCHIDAE - sunfishes
ENNEACANTHUS GLORIOSUS - bluespotted sunfish
LEPOMIS AURITUS - redbreast sunfish
LEPOMIS GIBBOSUS - pumpkinseed

PERCIDAE - perches
ETHEOSTOMA OLMSTEDI - tessellated darter
PERCA FLAVESCENS - yellow perch

POMOTOMIDAE - bluefishes
POMATOMUS SALTATRIX - bluefish

CARANGIDAE - jacks and pompanos
CARANX HIPPOS - crevalle jack

GERRIDAE - mojarra
EUCINOSTOMUS ARGENTEUS - spotfin mojarra

SCIAENIDAE - drums
BAIRDIELLA CHRYSURA - silver perch
CYNOSCION REGALIS - weakfish
LEIOSTOMUS XANTHURUS - spot
MICROPOGON UNDULATUS - Atlantic croaker

TABLE 10. FISH SPECIES COLLECTED IN MONTHLY OTTER TRAWL SAMPLES
FROM 1970 THROUGH 1978

GOBIIDAE - gobies
GOBIOSOMA BOSCI - naked goby
GOBIOSOMA GINSBURGI - seaboard goby

STROMATEIDAE - butterfishes
PEPRILUS ALEPIDOTUS - harvestfish
PEPRILUS TRIACANTHUS - butterfish

BOTHIDAE - lefteye flounders
PARALICHTHYS DENTATUS - summer flounder

SOLEIDAE - soles
TRINECTES MACULATUS - hogchoker

CYNOGLOSSIDAE - tonguefishes
SYMPHURUS PLAGIUSA - blackcheek tonguefish

TABLE 11. SAMPLE TOTALS PER YEAR AND PER SPECIES OF FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM AT THE SURRY POWER STATION

FROM 1970 THROUGH 1978
ALL FISHES NOT IDENTIFIED TO SPECIES HAVE BEEN ELIMINATED FROM THIS TABLE

SPECIES	_70	_71	_72	_73	_74	_75	_76	_77	_78	TOTAL	PERCENT
ACIPENSER OXYRHYNCHUS	0	0	3	0	0	0	0	0	0	3	0.0
ALOSA AESTIVALIS	2	9	19	6	21	16	18	1	5	97	0.3
ALOSA MEDIOCRIS	8	2	0	0	0	0	0	0	0	10	0.0
ALOSA PSEUDOHARENGUS	70	48	7	16	35	26	16	1	4	223	0.6
ALOSA SAPIDISSIMA	17	43	24	10	9	2	3	0	0	108	0.3
ANCHOA HEPSETUS	0	0	0	0	0	0	0	0	6	6	0.0
ANCHOA MITCHILLI	43	74	126	305	620	265	292	1420	389	3534	9.5
ANGUILLA ROSTRATA	3	17	37	42	33	31	20	41	44	268	0.7
BAIRDIELLA CHRYSURA	3	10	1	2	0	0	0	0	3	19	0.1
BREVOORTIA TYRANNUS	0	0	1	2	25	22	15	9	14	88	0.2
CARANX HIPPOS	0	4	1	1	0	0	0	0	16	22	0.1
CYHOSCIION REGALIS	7	30	3	0	3	1	25	18	43	130	0.3
CYPRINUS CARPIO	1	13	19	10	10	9	31	11	9	113	0.3
DOROSOMA CEPEDIANUM	3	2	14	26	22	37	101	5	25	235	0.6
DOROSOMA PETENENSE	0	0	0	2	47	742	29	1	0	821	2.2
ELOPS SAURUS	0	0	0	1	0	0	0	0	0	1	0.0
ENNEACANTHUS GLORIOSUS	0	0	1	0	0	0	0	0	0	1	0.0
ETHEOSTOMA OLMSTEDI	1	1	2	36	1	0	0	0	0	41	0.1
EUCINOSTOMUS ARGENTEUS	0	0	0	0	0	1	0	0	0	1	0.0
FUNDULUS DIAPHANUS	0	0	0	0	0	0	3	0	0	3	0.0
GOBIOSOMA BOSCI	0	0	0	0	5	4	1	0	0	10	0.0
GOBIOSOMA GINSBURGI	1	0	0	1	0	0	0	0	0	2	0.0
HYBOGNATHUS NUCHALIS	0	0	0	0	0	1	0	0	0	1	0.0
ICTALURUS CATUS	25	65	114	113	236	136	438	180	197	1504	4.0
ICTALURUS NEBULOSUS	15	23	18	14	0	2	2	0	21	95	0.3
ICTALURUS PUNCTATUS	0	110	673	789	830	795	872	339	427	4835	13.0
LEIOSTOMUS XANTHURUS	2	365	116	324	56	1246	1116	2654	2363	8242	22.1
LEPISTOSTEUS OSSEUS	0	0	0	1	0	0	0	0	0	1	0.0
LEPOMIS AURITUS	0	0	0	1	0	0	0	0	0	1	0.0
LEPOMIS GIBBOSUS	1	3	13	29	2	2	0	1	0	51	0.1
MEHIDIA BERYLLINA	0	0	0	0	2	0	27	0	1	30	0.1
MEHIDIA MEHIDIA	1	1	0	0	5	1	1	0	0	9	0.0
MICROPOGON UNDULATUS	21	32	389	60	68	645	1861	173	266	3515	9.4
MORONE AMERICANA	193	170	40	16	59	51	177	129	1052	1887	5.1
MORONE SAXATILIS	16	15	1	2	0	1	2	1	85	123	0.3
MOTROPIS HUDSONIUS	0	16	268	241	147	212	27	0	4	915	2.5
PARALICHTHYS DENTATUS	0	0	1	4	24	0	2	10	0	41	0.1
PEPRILUS ALEPIDOTUS	0	1	0	0	0	0	0	1	6	8	0.0
PEPRILUS TRIACANTHUS	0	0	0	0	0	0	1	0	0	1	0.0
PERCA FLAVESCENS	0	0	8	0	2	0	0	0	0	10	0.0
POMATOMUS SALTATRIX	0	0	0	0	0	0	1	1	1	3	0.0
SYMPHYRUS PLAGIUSA	0	0	0	0	0	0	0	0	2	2	0.0
TRINECTES MACULATUS	415	1424	526	555	686	176	397	2357	3785	10321	27.6
UROPHYCIS REGIUS	0	0	0	0	1	0	0	0	0	1	0.0
TOTAL	848	2478	2425	2609	2949	4424	5478	7353	8768	37332	.

TABLE 12. FREQUENCY OF OCCURRENCE OF FISHES IN MONTHLY OTTER TRAWL SAMPLES

1970-1978

FISHES NOT IDENTIFIED TO SPECIES ARE NOT SHOWN

SPECIES	OCC	PERCENT
ACIPENSER OXYRHYNCHUS	4	0.6
ALOSA AESTIVALIS	47	7.5
ALOSA MEDIOCRIS	4	0.6
ALOSA PSEUDOHARENGUS	70	11.2
ALOSA SAPIDISSIMA	40	6.4
ANCHOA HEPSETUS	2	0.3
ANCHOA MITCHILLI	282	45.3
ANGUILLA ROSTRATA	152	24.4
BAIRDIELLA CHRYSURA	9	1.4
BREVOORTIA TYRANNUS	45	7.2
CARANX HIPPOS	8	1.3
CYNOSCION REGALIS	56	9.0
CYPRINUS CARPIO	83	13.3
DOROSOMA CEPEDIANUM	67	10.8
DOROSOMA PETENSE	40	6.4
ELOPS SAURUS	1	0.2
ENNEACANTHUS GLORIOSUS	1	0.2
ETHEOSTOMA OLMSTEDI	17	2.7
EUCIHOSTOMUS ARGENTEUS	1	0.2
FUNDULUS DIAPHANUS	1	0.2
GOBIOSOMA BOSCI	9	1.4
GOBIOSOMA GINSBURGI	2	0.3
HYBOGNATHUS NUCHALIS	1	0.2
ICTALURUS CATUS	347	55.7
ICTALURUS NEBULOSUS	40	6.4
ICTALURUS PUNCTATUS	439	70.5
LEIOSTOMUS XANTHURUS	313	50.2
LEPISOSTEUS OSSEUS	1	0.2
LEPOMIS AURITUS	1	0.2
LEPOMIS GIBBOSUS	21	3.4
MENIDIA BERYLLINA	4	0.6
MENIDIA MENIDIA	4	0.6
MENIDIA SP.	2	0.3
MICROPOGON UNDULATUS	288	46.2
MORONE AMERICANA	281	45.1
MORONE SAXATILIS	47	7.5
MUGIL CEPHALUS	1	0.2
NOTROPIS HUDSONIUS	163	26.2
PARALICHTHYS DENTATUS	26	4.2
PEPRILUS ALEPIDOTUS	5	0.8
PEPRILUS TRIACANTHUS	1	0.2
PERCA FLAVESCENS	7	1.1
POHATOMUS SALTATRIX	4	0.6
SYMPHURUS PLAGIUSA	1	0.2
TRINECTES MACULATUS	438	70.3
UROPHYCIS REGIUS	1	0.2

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=ANCHOVA MITCHELLI												
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL	
70	5	.	.	5	.	2	2	1	.	.	8	
70	6	.	.	.	2	.	1	.	.	.	3	
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	1	11	7	.	.	.	.	19
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	.	.	.	.	.	.	.
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	10	2	1	.	.	.	.	13
71	1	.	.	.	.	.	.	.	.	.	.
71	2	.	.	.	.	.	.	.	.	.	.
71	3	.	.	5	7	5	.	.	.	.	17
71	4	.	.	1	2	1	.	.	.	.	4
71	5	.	.	.	.	.	.	.	.	.	.
71	6	.	.	.	.	.	.	.	.	.	.
71	7	.	.	.	.	.	.	.	.	.	.
71	8	.	.	1	.	.	.	.	.	.	1
71	9	.	.	4	5	1	.	.	.	.	10
71	10	.	1	4	1	.	.	.	.	.	3
71	11	.	.	2	3	.	.	.	.	.	5
71	12	.	.	15	17	2	.	.	.	.	34
72	1	.	.	25	5	.	.	.	.	.	30
72	2	.	.	.	.	.	.	.	.	.	.
72	3	.	.	46	11	.	.	.	.	.	57
72	4	.	1	19	3	.	.	.	.	.	23
72	5	.	.	3	3	.	.	.	.	.	6
72	6	.	.	.	.	.	.	.	.	.	.
72	7	.	.	.	.	.	.	.	.	.	.
72	8	.	.	.	.	.	.	.	.	.	.
72	9	.	.	.	.	.	.	.	.	.	.
72	10	.	.	2	2	.	.	.	.	.	4
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	.	.	.	.	.	.	.	.	.
73	1	.	2	1	.	.	.	.	.	.	3
73	2	.	.	.	.	.	.	.	.	.	.
73	3	.	.	3	1	.	.	.	.	.	4
73	4	.	.	.	.	.	.	.	.	.	.
73	5	.	.	2	.	.	.	.	.	.	2
73	6	.	.	38	18	.	.	.	.	.	56
73	7	.	.	3	9	.	.	.	.	.	12
73	8	.	43	7	29	1	.	.	.	.	80
73	9	.	.	3	8	1	.	.	.	.	12
73	10	.	.	2	5	1	.	.	.	.	8
73	11	.	6	10	2	.	.	.	.	.	18
73	12	.	.	9	6	.	.	.	.	.	15
74	1	.	.	.	.	.	.	.	.	.	.
74	2	.	4	19	.	.	.	.	.	.	23
74	3	.	21	147	5	1	.	.	.	.	174
74	4	.	1	60	4	.	.	.	.	.	65
74	5	.	4	45	11	.	.	.	.	.	60
74	6	.	.	3	2	.	.	.	.	.	5
74	7	.	6	1	4	.	.	.	.	.	11
74	8	.	.	2	3	1	.	.	.	.	6

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=ANCHOA MITCHILLI											
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	5	35	5	7	.	.	.	.	.	52
74	10	.	2	3	19	2	.	.	.	.	26
74	11	.	2	3	4	.	.	.	.	.	9
74	12	.	5	17	4	.	.	.	.	.	26
75	1	.	.	5	.	.	.	.	.	.	5
75	2	.	.	.	.	.	.	.	.	.	.
75	3	.	.	.	.	.	.	.	.	.	.
75	4	.	.	.	.	.	.	.	.	.	.
75	5	.	.	1	.	.	.	.	.	.	1
75	6	.	.	4	1	.	.	.	.	.	5
75	7	.	.	1	2	.	.	.	.	.	3
75	8	1	21	11	6	.	.	.	.	.	39
75	9	.	22	26	4	.	.	.	.	.	52
75	10	.	6	9	5	.	.	.	.	.	20
75	11	.	3	25	15	1	.	.	.	.	44
75	12	.	4	33	19	2	.	.	.	.	58
76	1	.	.	.	.	.	.	.	.	.	.
76	2	.	4	23	3	1	.	.	.	.	31
76	3	.	6	11	.	.	.	.	.	.	17
76	4	.	3	12	1	.	.	.	.	.	16
76	5	.	.	3	4	1	.	.	.	.	8
76	6	.	1	10	4	1	.	.	.	.	16
76	7	.	15	8	5	.	.	.	.	.	28
76	8	.	1	1	4	.	.	.	.	.	6
76	9	.	1	3	16	1	.	.	.	.	21
76	10	.	13	5	.	.	.	.	.	.	18
76	11	.	2	5	1	.	.	.	.	.	8
76	12	.	.	.	.	.	.	.	.	.	.
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	.	.	.	.	.	.
77	3	.	7	248	31	3	.	.	.	.	289
77	4	.	4	12	.	.	.	.	.	.	16
77	5	.	.	.	2	.	.	.	.	.	2
77	6	.	.	.	5	.	.	.	.	.	5
77	7	.	.	1	7	1	.	.	.	.	9
77	8	.	18	10	15	.	.	.	.	.	43
77	9	.	.	18	11	.	.	.	.	.	29
77	10	.	.	5	4	1	.	.	.	.	10
77	11	.	5	11	1	.	.	.	.	.	17
77	12	.	9	5	.	.	.	.	.	.	14
78	1	.	.	.	.	.	.	.	.	.	.
78	2	.	.	.	.	.	.	.	.	.	.
78	3	.	.	.	.	.	.	.	.	.	.
78	4	.	.	.	.	.	.	.	.	.	.
78	5	.	.	.	.	.	.	.	.	.	.
78	6	.	.	1	1	.	.	.	.	.	2
78	7	.	6	1	9	.	.	.	.	.	16
78	8	.	25	10	7	.	.	.	.	.	42
78	9	.	10	13	11	5	39
78	10	.	31	97	11	2	141
78	11	.	8	9	3	1	21
78	12	.	1	12	9	4	26

FROM 1970 THROUGH 1978

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FROM 1970 THROUGH 1978

SPECIES=DOROSOMA PETENENSE

[illegible]

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM

FROM 1970 THROUGH 1978

SPECIES=ICTALURUS CATUS												TOTAL
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200		
70	5	.	.	.	.	2	3	3	1	3	12
70	6	.	.	.	.	.	.	.	.	1	1
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	.	.	.	.	.	3	7	10
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	.	.	.	.	.	.	.
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	.	.	.	.	.	.	2	2
71	1	.	.	.	.	.	.	.	.	.	.
71	2	.	.	.	.	.	.	.	.	1	1
71	3	.	.	.	.	.	.	.	.	.	.
71	4	.	.	.	.	.	.	.	.	.	.
71	5	.	.	.	.	.	.	.	.	.	.
71	6	.	.	.	.	.	.	.	.	.	.
71	7	.	.	.	.	.	.	.	2	3	5
71	8	.	.	7	2	.	.	1	4	1	15	
71	9	.	.	.	1	18	.	1	2	5	22	
71	10	.	.	.	1	2	1	.	5	3	12	
71	11	.	.	.	.	.	.	.	.	.	.
71	12	.	.	.	1	3	3	1	.	2	10	
72	1	.	.	.	.	1	2	.	.	.	1
72	2	.	.	.	.	1	2	.	.	1	4
72	3	.	.	.	.	1	1	.	1	4	7
72	4	.	.	.	1	11	1	.	1	3	21	
72	5	.	.	.	2	12	7	1	1	2	25	
72	6	.	6	.	.	.	1	2	2	1	9	
72	7	.	.	4	.	.	1	5	1	1	19	
72	8	.	.	.	.	.	.	1	1	1	3
72	9	.	.	.	9	3	.	3	5	1	22	
72	10	.	.	1	.	.	.	.	.	.	.
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	.	.	.	.	.	.	.	.	.
73	1	.	.	2	3	1	1	1	1	3	14	
73	2	.	.	.	.	3	1	1	.	1	5
73	3	.	.	.	.	.	.	.	.	.	.
73	4	.	.	1	1	1	2	.	.	.	4	
73	5	.	.	1	2	4	3	.	.	1	16	
73	6	.	.	.	4	4	3	.	4	1	23	
73	7	.	1	.	.	6	13	.	2	1	5	
73	8	.	.	1	1	.	.	2	.	.	4	
73	9	.	.	.	3	.	1	.	.	.	14	
73	10	.	.	.	1	7	1	2	6	5	22	
73	11	.	.	.	2	5	1	3	6	1	19	
73	12	.	.	.	.	9	1	.	5	1	20
74	1	.	.	.	3	3	1	6	9	.	66	
74	2	.	.	.	1	7	1	3	6	6	11	
74	3	.	.	.	.	36	2	2	.	.	11
74	4	.	.	.	6	.	.	.	1	.	1	
74	5	.	.	.	.	.	.	.	.	.	.
74	6	.	.	.	.	.	.	.	.	.	.
74	7	.	.	.	.	.	.	.	.	.	.
74	8	.	.	1	.	.	.	13	.	.	26	

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM

FROM 1970 THROUGH 1978

SPECIES=ICTALURUS CATUS

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	2	2	2	.	3	9	1	19
74	10	.	.	1	2	4	1	4	18	9	39
74	11	.	.	.	.	.	.	.	1	.	1
74	12	.	.	.	.	.	.	.	.	2	2
75	1	.	.	.	.	.	.	.	1	1	2
75	2	.	.	2	1	1	.	1	3	.	8
75	3	.	.	1	7	2	7	7	7	6	37
75	4	.	.	.	1	3	1	1	.	1	7
75	5	.	.	.	.	2	.	.	.	1	3
75	6	.	.	.	.	2	1	.	1	.	4
75	7	.	.	.	.	.	.	.	.	1	1
75	8	.	.	3	.	.	.	1	.	.	4
75	9	.	1	3	8	3	.	.	3	.	18
75	10	.	.	.	2	.	.	2	.	.	4
75	11	.	.	.	8	5	.	2	8	.	23
75	12	.	.	.	.	4	.	4	7	10	25
76	1	.	.	.	1	.	.	1	8	4	14
76	2	.	.	.	8	6	3	4	4	.	25
76	3	.	.	.	6	4	2	1	1	2	16
76	4	.	.	1	22	7	3	.	3	.	36
76	5	.	.	.	2	2	.	1	.	2	7
76	6	.	.	.	.	.	.	.	1	2	3
76	7	.	.	.	.	3	.	.	.	1	4
76	8	.	.	.	1	5	16	4	21	13	60
76	9	.	.	.	.	7	24	14	50	47	142
76	10	.	.	.	.	1	.	1	1	.	3
76	11	.	.	.	.	.	1	.	.	1	2
76	12	.	.	.	.	.	2	1	5	1	9
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	.	.	.	.	4	4
77	3	.	.	.	.	2	5	9	16	1	33
77	4	.	.	.	.	1	3	.	2	.	6
77	5	.	.	.	.	.	4	7	6	1	18
77	6	.	.	.	.	.	.	2	25	12	39
77	7	.	.	.	.	.	.	1	24	6	31
77	8	.	.	.	.	.	.	.	8	8	16
77	9	.	.	.	.	.	.	.	1	5	6
77	10	.	.	.	.	.	.	.	2	3	5
77	11	.	.	.	.	.	.	.	3	1	4
77	12	.	.	.	.	.	.	1	3	4	8
78	1	.	.	.	.	.	.	.	11	9	20
78	2	.	.	.	.	.	.	.	11	5	16
78	3	.	.	.	.	.	1	.	12	.	13
78	4	.	.	.	1	1	.	3	3	.	8
78	5	.	.	.	.	2	3	.	3	2	10
78	6	.	.	.	.	.	.	.	2	.	2
78	7	.	.	1	.	.	.	.	1	1	3
78	8	.	.	.	4	5	.	.	.	2	11
78	9	.	.	.	4	10	5	.	2	4	25
78	10	.	.	.	.	7	13	2	1	9	32
78	11	.	.	.	.	6	5	.	.	4	15
78	12	.	.	.	.	3	7	.	2	4	16

FROM 1970 THROUGH 1978

[illegible]

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=ICTALURUS PUNCTATUS

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	.	.	1	3	1	20	18	43
74	10	.	.	.	.	1	8	4	13	10	36
74	11	.	.	1	.	4	13	10	16	16	60
74	12	.	.	.	.	4	12	8	19	43	86
75	1	.	.	.	3	3	6	3	4	13	32
75	2	.	.	.	1	7	19	20	17	17	81
75	3	.	.	2	2	6	16	12	50	37	125
75	4	.	.	.	4	6	24	34	56	37	161
75	5	.	.	.	.	1	.	4	9	26	40
75	6	.	4	7	.	.	1	8	19	15	54
75	7	.	1	4	12	2	2	2	10	7	40
75	8	.	.	.	.	1	.	.	3	.	4
75	9	.	.	.	.	.	2	.	4	2	8
75	10	.	.	.	2	4	2	1	3	.	12
75	11	.	.	1	6	5	6	7	11	10	46
75	12	.	.	.	2	3	5	6	19	23	58
76	1	.	.	.	.	1	1	3	12	9	26
76	2	.	.	.	8	4	11	7	17	20	67
76	3	.	.	3	6	9	19	7	16	31	91
76	4	.	.	1	15	13	11	7	13	8	68
76	5	.	.	.	3	3	1	7	8	28	50
76	6	.	.	.	.	1	.	.	4	2	7
76	7	.	.	1	.	.	2	3	5	14	25
76	8	.	.	.	.	.	2	1	22	29	54
76	9	.	.	1	.	.	.	3	21	37	62
76	10	.	.	.	.	.	.	14	25	13	52
76	11	.	.	.	.	.	.	2	4	1	7
76	12	.	.	.	.	1	5	26	19	9	60
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	.	.	.	.	3	3
77	3	.	.	.	.	.	.	16	61	44	121
77	4	.	.	.	.	.	.	5	17	6	28
77	5	.	.	.	.	.	.	.	25	18	43
77	6	.	.	.	.	.	.	.	8	15	23
77	7	.	.	.	.	.	.	.	2	22	24
77	8	.	.	.	.	.	.	.	.	5	5
77	9	.	.	.	.	.	.	.	1	2	3
77	10	.	.	.	.	.	.	.	2	16	18
77	11	.	.	.	.	.	.	.	.	23	23
77	12	.	.	.	.	.	.	.	.	16	16
78	1	.	.	.	.	.	.	.	2	34	36
78	2	.	.	.	.	.	.	.	1	36	37
78	3	.	.	.	.	.	.	.	3	56	59
78	4	.	.	.	.	.	.	.	5	30	35
78	5	.	.	.	.	.	.	.	1	24	25
78	6	.	.	.	.	.	.	.	2	19	21
78	7	.	1	.	.	.	.	1	3	12	17
78	8	.	.	.	.	.	1	.	.	5	6
78	9	.	.	.	.	.	.	4	1	5	10
78	10	.	.	.	.	.	.	.	.	4	4
78	11	.	.	.	.	.	.	1	3	5	9
78	12	.	.	.	.	1	5	1	3	9	19

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM

FROM 1970 THROUGH 1978

		SPECIES=LEIOSTOMUS XANTHURUS											
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL		
70	5	.	.	.	.	.	.	.	.	.	.	.	.
70	6	.	.	.	.	.	.	.	.	.	.	.	.
70	7	.	.	.	.	.	.	.	.	.	.	.	.
70	8	.	.	.	.	.	1	1	.	.	2	.	.
70	9	.	.	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	.	.	.	.	.	.	.	.	.
70	11	.	.	.	.	.	.	.	.	.	.	.	.
70	12	.	.	.	.	.	.	.	.	.	.	.	.
71	1	.	.	.	.	.	.	.	.	.	.	.	.
71	2	.	.	.	.	.	.	.	.	.	.	.	.
71	3	.	.	.	.	.	.	.	.	.	.	.	.
71	4	.	.	.	.	.	.	.	.	.	.	.	.
71	5	.	.	.	1	.	1	.	.	.	2	.	.
71	6	.	2	20	26	5	1	.	.	.	54	.	.
71	7	.	.	26	37	23	15	4	.	.	105	.	.
71	8	.	.	11	19	7	9	4	.	.	50	.	.
71	9	.	.	.	.	11	20	14	1	.	46	.	.
71	10	.	.	.	.	1	9	.	.	.	10	.	.
71	11	.	1	.	.	.	1	.	.	.	2	.	.
71	12	.	.	.	.	.	.	1	.	.	1	.	.
72	1	.	.	.	.	.	.	.	.	.	.	.	.
72	2	.	.	.	.	.	.	.	.	.	.	.	.
72	3	.	.	.	.	.	.	.	.	.	.	.	.
72	4	.	.	.	.	.	.	.	.	.	.	.	.
72	5	.	4	5	.	1	1	16	3	2	22	.	.
72	6	.	.	4	1	2	.	.	.	.	13	.	.
72	7	.	.	.	1	1	.	.	.	.	7	.	.
72	8	.	.	.	.	3	4	1	.	.	2	.	.
72	9	.	.	.	.	.	10	5	1	.	6	.	.
72	10	.	.	.	.	3	33	11	.	1	16	.	.
72	11	.	.	.	.	.	.	.	.	.	46	.	.
72	12	.	.	.	.	.	.	.	.	.	.	.	.
73	1	.	.	.	.	.	.	.	.	.	.	.	.
73	2	.	.	.	.	.	.	.	.	.	.	.	.
73	3	.	.	.	.	.	.	.	.	.	.	.	.
73	4	.	.	.	.	.	.	.	.	.	.	.	.
73	5	.	.	.	.	.	.	.	.	.	.	.	.
73	6	.	15	48	8	.	.	.	.	.	71	.	.
73	7	.	.	15	15	3	.	.	1	.	34	.	.
73	8	.	.	1	1	8	3	.	.	.	13	.	.
73	9	.	.	.	2	6	.	.	.	.	9	.	.
73	10	.	.	.	1	21	19	6	1	.	48	.	.
73	11	.	.	.	1	10	11	3	3	.	28	.	.
73	12	.	.	.	.	2	16	1	2	.	21	.	.
74	1	.	.	.	.	.	.	.	.	.	.	.	.
74	2	.	.	.	.	.	.	.	.	.	.	.	.
74	3	.	.	.	.	.	1	1	.	.	2	.	.
74	4	.	.	.	1	4	19	3	1	.	28	.	.
74	5	.	.	.	.	.	3	.	.	.	3	.	.
74	6	.	.	.	.	1	1	1	1	.	2	.	.
74	7	.	.	.	.	.	1	1	1	.	3	.	.
74	8	.	.	.	.	2	6	5	.	.	14	.	.

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=LEIOSTOMUS XANTHURUS												
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL	
74	9	.	.	.	.	.	.	1	1	.	2	
74	10	.	.	.	.	.	.	.	.	.	.
74	11	.	.	.	.	.	.	.	1	.	1	
74	12	.	.	.	.	.	.	1	.	.	1	
75	1	.	.	.	.	.	.	.	.	.	.
75	2	.	.	.	.	.	.	.	.	.	.
75	3	.	.	.	.	.	.	.	.	.	.
75	4	.	.	.	.	.	1	2	.	.	3	
75	5	.	21	32	.	.	8	8	6	.	75	
75	6	.	2	29	23	4	3	9	.	.	70	
75	7	.	.	9	29	7	.	.	1	.	46	
75	8	.	.	.	18	4	6	2	.	.	36	
75	9	.	.	2	41	13	2	1	.	.	59	
75	10	.	.	.	14	7	.	.	.	.	21	
75	11	.	.	.	11	17	6	2	1	.	37	
75	12	.	.	.	1	4	3	.	.	.	8	
76	1	.	.	.	.	.	.	.	.	.	.
76	2	.	.	.	.	.	.	.	.	.	.
76	3	.	2	.	.	12	8	.	1	.	23	
76	4	.	.	.	.	23	34	5	2	.	64	
76	5	.	.	1	.	16	55	4	5	.	81	
76	6	.	.	.	3	3	17	3	1	.	27	
76	7	1	.	3	24	8	34	4	1	.	75	
76	8	.	.	.	3	12	23	7	.	.	45	
76	9	.	.	.	.	1	31	30	3	.	65	
76	10	.	.	.	.	15	17	15	1	.	48	
76	11	.	.	.	.	.	.	.	.	.	.
76	12	.	.	.	.	.	.	.	.	.	.
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	.	.	.	.	.	.
77	3	.	1	.	.	.	.	.	.	.	.
77	4	9	13	.	.	1	57	16	2	1	99	
77	5	.	13	12	9	.	3	31	13	.	81	
77	6	.	.	9	14	9	2	12	28	.	74	
77	7	.	.	3	24	19	9	3	10	.	68	
77	8	.	1	.	21	21	10	1	8	.	62	
77	9	.	.	.	50	80	17	4	12	.	163	
77	10	.	.	.	1	23	13	4	10	1	52	
77	11	.	.	.	7	34	11	.	3	.	55	
77	12	.	.	.	1	1	.	.	.	.	2	
78	1	.	.	.	.	.	.	.	.	.	.
78	2	.	.	.	.	.	.	.	.	.	.
78	3	.	.	.	.	.	.	.	.	.	.
78	4	.	.	.	.	.	.	.	.	.	.
78	5	.	1	.	.	.	26	12	1	.	40	
78	6	.	16	82	32	.	1	22	7	.	160	
78	7	.	4	130	77	12	4	2	19	.	248	
78	8	.	.	18	104	29	16	2	2	.	171	
78	9	.	.	1	101	50	64	22	16	.	254	
78	10	.	.	.	1	35	24	8	5	.	73	
78	11	.	.	.	.	9	21	3	9	.	42	
78	12	.	.	.	1	32	19	2	8	.	62	

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM

FROM 1970 THROUGH 1978

----- SPECIES=MICROPOGON UNDULATUS -----

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
70	5	.	.	.	.	.	.	.	.	.	.
70	6	.	.	.	.	.	.	.	2	.	2
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	1	.	.	.	.	.	.	.	1
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	.	.	.	.	.	.	.
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	1	11	4	2	.	.	.	.	18
71	1	.	.	.	.	.	.	.	.	.	.
71	2	.	.	.	.	.	.	.	.	.	.
71	3	.	.	.	.	.	.	.	.	.	.
71	4	.	.	.	.	.	.	.	.	.	.
71	5	.	.	.	.	.	.	.	.	.	.
71	6	.	.	.	.	.	1	.	.	.	1
71	7	.	.	.	.	.	.	1	.	.	1
71	8	.	.	2	6	2	.	.	.	.	10
71	9	.	.	.	.	.	.	.	.	.	.
71	10	.	.	.	.	.	.	.	.	.	.
71	11	.	.	.	.	.	.	.	.	.	.
71	12	1	18	1	.	.	.	.	.	.	20
72	1	.	.	1	.	.	.	.	.	.	1
72	2	.	.	.	.	.	.	.	.	.	.
72	3	.	10	93	14	1	.	.	.	.	118
72	4	.	17	96	15	1	.	.	.	.	129
72	5	.	.	14	7	1	.	.	.	.	22
72	6	.	1	.	2	2	1	.	.	.	6
72	7	.	2	1	.	2	2	.	.	.	7
72	8	.	8	4	.	.	1	2	.	.	15
72	9	.	.	.	.	.	.	1	1	.	2
72	10	.	5	5	6	8	4	2	3	.	33
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	.	.	.	.	.	.	.	.	.
73	1	.	.	.	.	.	.	.	.	.	.
73	2	.	.	.	.	.	.	.	.	.	.
73	3	.	.	2	.	.	.	.	.	.	2
73	4	.	2	1	10	4	.	.	.	.	17
73	5	.	2	.	.	.	.	.	.	.	2
73	6	.	.	1	.	.	.	.	.	.	1
73	7	.	5	11	1	.	.	1	.	.	18
73	8	.	.	.	.	.	.	.	.	.	.
73	9	.	.	.	.	.	.	.	.	.	.
73	10	.	.	.	.	.	.	1	2	.	3
73	11	.	4	2	.	.	.	1	2	.	9
73	12	.	1	.	.	.	.	1	1	.	3
74	1	.	.	.	.	.	.	.	.	.	.
74	2	.	4	2	5	.	.	.	.	.	11
74	3	.	.	10	2	.	.	.	.	.	12
74	4	.	.	2	4	.	.	.	.	.	6
74	5	.	.	.	1	1	.	.	1	.	3
74	6	.	.	.	.	.	.	.	.	.	.
74	7	.	.	.	.	.	.	.	.	.	.
74	8	.	.	.	.	2	3	4	1	.	10

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=MICROPOGON UNDULATUS

YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	1	.	.	.	.	.	.	.	1
74	10	.	.	.	.	.	.	.	3	.	3
74	11	.	.	.	.	.	.	1	1	.	2
74	12	13	7	.	.	.	.	.	.	.	20
75	1	1	13	1	2	.	.	.	.	.	17
75	2	.	1	.	.	.	.	.	.	.	1
75	3	.	.	.	.	.	.	.	.	.	.
75	4	.	5	7	6	1	.	.	.	.	19
75	5	.	1	4	5	10	1	2	13	3	39
75	6	.	5	.	13	9	3	.	3	.	34
75	7	.	3	2	4	5	5	1	2	1	23
75	8	1	25	2	.	.	5	5	2	.	40
75	9	1	18	7	.	.	.	8	2	.	36
75	10	.	.	.	1	.	.	.	.	.	1
75	11	.	16	4	.	1	1	7	8	.	37
75	12	.	48	6	2	1	.	1	2	1	61
76	1	.	.	.	.	.	.	.	.	.	.
76	2	1	32	2	.	.	.	.	.	.	35
76	3	.	47	36	2	3	.	.	.	.	88
76	4	.	23	19	18	6	2	3	22	4	97
76	5	.	1	11	30	15	5	4	5	2	73
76	6	.	1	.	1	2	2	1	2	.	9
76	7	.	.	.	12	32	5	.	1	.	50
76	8	.	.	.	4	18	34	4	1	.	61
76	9	.	.	.	.	12	47	16	.	.	75
76	10	.	14	12	2	7	2	2	.	.	39
76	11	3	4	2	.	.	2	1	.	.	12
76	12	.	.	.	.	.	.	.	.	.	.
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	.	.	.	.	.	.
77	3	.	.	.	.	.	.	.	.	.	.
77	4	.	.	.	.	.	.	.	.	.	.
77	5	.	.	.	.	.	.	.	1	2	3
77	6	.	.	.	2	.	.	.	.	.	2
77	7	.	.	.	1	.	.	.	.	1	2
77	8	.	.	.	.	.	.	5	.	.	5
77	9	.	.	1	.	2	.	.	16	.	19
77	10	.	14	2	1	.	.	1	6	.	24
77	11	.	23	17	5	6	1	2	3	.	57
77	12	3	34	2	.	.	.	.	.	.	39
78	1	.	.	.	.	.	.	.	.	.	.
78	2	.	.	.	.	.	.	.	.	.	.
78	3	.	.	.	.	.	.	.	.	.	.
78	4	.	.	.	.	.	.	.	.	.	.
78	5	.	.	.	.	.	.	.	1	.	9
78	6	.	6	2	.	.	.	.	.	.	15
78	7	.	.	1	1	7	5	1	.	.	26
78	8	.	.	5	10	1	6	4	.	.	53
78	9	.	1	.	9	28	8	5	2	.	30
78	10	.	5	1	.	2	11	8	3	.	37
78	11	.	9	2	.	1	2	9	14	.	47
78	12	1	15	15	1	7	7	1	.	.	

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAIL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=HORONE AMERICANA												
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL	
70	5	.	.	.	1	1	3	9	9	.	23	
70	6	.	2	1	.	.	1	.	.	.	4	
70	7	.	.	.	.	.	.	.	.	.	.
70	8	.	.	36	7	.	3	.	2	.	48	
70	9	.	.	.	.	.	.	.	.	.	.
70	10	.	.	.	.	.	.	.	.	.	.
70	11	.	.	.	.	.	.	.	.	.	.
70	12	.	.	7	62	20	5	2	2	.	118	
71	1	.	.	.	.	.	.	.	.	.	.
71	2	.	.	.	26	16	1	3	4	.	54	
71	3	.	1	.	23	15	6	5	7	3	62	
71	4	.	.	.	.	3	1	1	9	1	14	
71	5	1	.	.	.	.	.	1	1	.	4	
71	6	.	.	2	.	.	.	1	1	.	1	
71	7	.	.	2	.	.	.	1	1	.	3	
71	8	.	2	2	1	.	.	1	1	.	6	
71	9	.	.	.	.	.	.	.	.	.	.
71	10	.	.	.	.	1	.	.	.	1	1	
71	11	.	.	.	12	6	1	1	2	1	24	
71	12	.	.	.	2	.	.	1	1	1	4	
72	1	.	.	.	2	2	.	.	4	.	6	
72	2	.	.	.	9	2	.	.	1	3	15	
72	3	.	.	.	.	.	.	.	3	.	4	
72	4	.	.	.	.	.	.	.	.	1	.	
72	5	.	.	3	.	.	.	.	.	.	3	
72	6	.	.	1	.	.	.	.	.	.	1	
72	7	.	1	1	.	.	.	.	.	.	2	
72	8	.	.	.	.	.	.	.	.	1	1	
72	9	.	.	.	.	.	.	.	.	.	.
72	10	.	.	.	.	.	.	.	.	.	.
72	11	.	.	.	.	.	.	.	.	.	.
72	12	.	.	.	.	2	.	.	.	.	2	
73	1	.	.	.	.	5	.	.	.	.	5	
73	2	.	.	.	.	2	.	.	.	.	2	
73	3	.	.	.	.	.	.	.	.	.	.
73	4	.	.	.	.	.	.	.	.	.	.
73	5	.	.	.	.	.	1	.	.	.	1	
73	6	.	.	.	.	.	.	.	.	.	.
73	7	.	.	.	.	.	.	.	.	.	.
73	8	.	.	.	.	.	.	.	.	.	.
73	9	.	.	.	.	.	.	.	.	.	.
73	10	.	.	.	.	.	3	.	1	.	4	
73	11	.	.	.	.	.	1	.	.	.	1	
73	12	.	.	.	.	.	2	1	.	.	3	
74	1	.	.	.	1	6	5	4	.	.	6	
74	2	.	.	.	2	.	6	2	.	.	20	
74	3	.	.	.	.	.	1	.	.	.	3	
74	4	.	.	.	.	.	1	1	1	.	2	
74	5	.	.	.	.	.	.	.	.	.	1	
74	6	.	.	.	.	.	.	.	.	.	.
74	7	.	.	.	.	.	.	.	.	.	.
74	8	.	.	.	2	2	.	1	.	.	5	

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=MORONE AMERICANA											
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	.	.	4	3	.	.	.	7
74	10	.	.	.	.	.	5	.	1	.	6
74	11	.	.	.	.	.	2	.	1	.	3
74	12	.	.	.	.	1	3	.	2	.	6
75	1	.	.	.	.	1	1	.	.	.	2
75	2	.	.	.	.	.	.	.	.	.	.
75	3	.	.	.	.	4	3	.	.	.	7
75	4	.	.	.	.	.	.	.	.	.	.
75	5	.	.	.	.	.	.	.	.	.	.
75	6	.	.	.	.	.	.	.	.	.	.
75	7	.	.	.	.	.	.	.	.	.	.
75	8	.	.	.	5	.	.	.	.	.	5
75	9	.	.	.	1	4	1	.	.	.	6
75	10	.	.	.	.	.	.	.	.	.	.
75	11	.	.	.	.	4	8	6	2	.	20
75	12	.	.	.	.	2	3	3	3	.	11
76	1	.	.	.	3	12	8	1	4	.	28
76	2	.	.	.	.	3	.	.	.	.	3
76	3	.	.	.	2	3	6	4	.	.	15
76	4	.	.	.	.	.	.	.	1	.	1
76	5	.	.	.	.	.	.	1	.	.	1
76	6	.	.	.	.	.	.	.	.	.	4
76	7	.	3	.	.	.	1	.	.	.	1
76	8	.	.	.	.	.	1	.	.	.	.
76	9	.	.	.	.	.	.	.	.	.	.
76	10	.	.	.	.	4	3	3	3	1	14
76	11	.	.	.	3	24	3	7	5	.	42
76	12	.	.	.	3	19	5	8	3	.	38
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	.	4	.	7	9	1	21
77	3	.	.	.	1	8	3	8	6	.	26
77	4	.	.	.	.	1	1	1	.	.	3
77	5	.	.	.	.	.	.	.	.	.	.
77	6	.	.	.	.	.	.	.	1	.	1
77	7	.	.	.	.	.	.	1	.	.	1
77	8	.	.	.	.	.	.	.	.	.	.
77	9	.	.	.	.	.	.	.	3	.	3
77	10	.	.	.	.	.	2	4	1	3	10
77	11	.	.	.	8	4	1	2	5	3	23
77	12	.	.	.	15	10	2	6	6	1	40
78	1	.	.	.	33	17	6	42	61	1	160
78	2	.	.	.	17	12	7	25	83	18	162
78	3	.	.	.	9	8	2	1	7	2	29
78	4	.	.	.	.	6	5	14	7	.	32
78	5	.	.	.	.	4	3	.	1	.	8
78	6	.	.	.	.	.	.	.	1	.	1
78	7	.	12	23	1	.	.	.	1	.	37
78	8	.	7	10	3	.	.	1	1	.	22
78	9	.	.	17	11	.	3	3	5	.	39
78	10	.	.	1	3	.	2	2	3	3	14
78	11	.	.	2	1	.	.	.	1	.	4
78	12	.	.	4	25	3	1	11	12	2	58

FROM 1970 THROUGH 1978

[illegible]

TABLE 13. MODAL LENGTHS OF SELECTED FISHES COLLECTED IN THE MONTHLY OTTER TRAWL PROGRAM
FROM 1970 THROUGH 1978

SPECIES=TRINECTES MACULATUS											
YEAR	MONTH	_0	_20	_40	_60	_80	_100	_120	_140	GE200	TOTAL
74	9	.	.	.	.	.	1	.	.	.	1
74	10	.	.	.	2	9	28	22	3	.	64
74	11	.	.	2	1	4	31	18	3	.	59
74	12	.	.	1	.	.	7	3	1	.	12
75	1	.	.	.	.	1	4	6	1	.	12
75	2	.	.	1	.	1	7	6	.	.	15
75	3	.	.	.	7	5	11	10	.	.	33
75	4	.	.	1	4	4	14	11	2	.	36
75	5	.	.	.	1	.	.	.	.	.	1
75	6	.	1	1	3	.	.	.	.	.	5
75	7	.	.	.	2	1	.	.	.	.	3
75	8	.	.	.	.	.	.	.	.	.	.
75	9	.	1	.	3	2	6	1	.	.	13
75	10	.	1	1	.	1	.	1	.	.	4
75	11	.	9	3	2	4	9	1	.	.	28
75	12	.	5	1	2	1	3	3	1	.	16
76	1	.	1	.	.	.	.	.	.	.	1
76	2	.	12	6	5	3	5	4	.	.	35
76	3	.	20	3	8	5	8	7	.	.	51
76	4	.	7	3	1	2	3	3	.	.	19
76	5	.	3	5	1	1	.	.	.	.	10
76	6	.	.	.	.	.	.	.	.	.	.
76	7	.	.	9	4	.	.	.	.	.	13
76	8	.	.	5	12	.	.	.	.	.	17
76	9	.	.	18	17	2	.	1	.	.	38
76	10	.	17	15	24	4	5	2	.	.	67
76	11	.	6	5	12	.	.	.	.	.	23
76	12	.	4	8	11	3	.	.	.	.	26
77	1	.	.	.	.	.	.	.	.	.	.
77	2	.	.	.	3	.	.	.	.	.	3
77	3	.	50	30	90	35	7	11	.	.	223
77	4	.	22	21	83	7	5	7	.	.	145
77	5	.	15	20	8	1	.	.	.	.	44
77	6	.	.	10	3	1	.	.	.	.	14
77	7	.	.	21	4	1	1	.	.	.	27
77	8	.	.	7	13	3	.	.	.	.	23
77	9	.	10	6	83	50	1	.	.	.	150
77	10	.	17	7	62	50	6	2	2	.	146
77	11	.	62	42	91	33	12	.	1	.	241
77	12	.	17	37	125	61	5	.	.	.	245
78	1	.	13	19	30	14	1	.	.	.	77
78	2	.	4	5	19	2	.	.	.	.	30
78	3	.	39	37	139	41	4	.	.	.	260
78	4	.	41	47	229	94	17	2	.	.	430
78	5	.	17	18	26	10	1	.	.	.	72
78	6	.	4	34	3	1	.	.	.	.	42
78	7	.	.	46	39	3	.	.	.	.	88
78	8	.	1	5	59	4	.	.	.	.	69
78	9	.	3	9	109	32	1	.	.	.	154
78	10	.	1	1	16	16	2	.	.	.	36
78	11	.	4	.	93	94	21	3	.	.	215
78	12	.	16	12	143	133	16	1	.	.	321

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						COMPOSITE
	0009	0010	0011	0012	0013	0014	
5-70	0.9914	*	1.0976	*	1.5794	1.2888	1.4063
6-70	*	1.0759	*	*	*	1.9628	1.7146
8-70	2.0124	1.4703	2.1627	*	*	2.0765	2.5969
12-70	2.1224	2.4154	1.3716	2.1677	2.3382	*	2.3101

* NO SAMPLE TAKEN.

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
2-71	*	*	0.8502	1.5568	1.0862	*	1.2930
3-71	0.4412	1.8756	1.9231	1.4319	1.2615	1.2949	1.7023
4-71	0.2455	0.9235	*	0.7008	*	0.1777	0.5092
5-71	0.8659	2.1281	*	0.0000	*	0.7732	1.7038
6-71	1.9219	0.2600	*	0.0000	*	1.4488	0.9273
7-71	1.2573	0.2608	*	1.6266	*	2.6121	1.1951
8-71	2.1632	2.0266	*	2.1471	*	2.4658	3.1439
9-71	1.6049	1.7977	*	2.1812	*	2.6689	2.7979
10-71	0.2931	*	*	1.4692	1.8262	1.1096	1.2751
11-71	0.3912	1.8703	*	1.2955	*	0.9911	2.0414
12-71	1.6994	2.4660	*	1.9577	*	1.2215	2.5267

* NO SAMPLE TAKEN.

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-72	2.0886	2.7101	*	0.5917	*	1.0024	2.2958
2-72	1.5078	2.4657	1.2776	1.5219	1.0676	1.0947	2.0584
3-72	1.7042	1.9746	2.0974	2.1175	0.9183	1.6270	2.4377
4-72	1.8257	1.7359	2.3056	2.1782	1.9582	2.4349	2.8507
5-72	2.1174	2.3131	1.6680	1.8024	2.1615	1.7464	2.8329
6-72	0.9183	2.2066	2.1671	2.0543	2.0501	0.9183	2.5861
7-72	2.3903	1.6625	2.2752	1.5710	1.3093	1.6832	2.7495
8-72	0.0000	2.1330	0.7219	1.5324	2.5850	1.7196	2.4443
9-72	1.4299	0.0000	2.0000	1.9219	1.5000	1.9219	2.6350
10-72	1.3675	2.1032	1.7341	1.8118	1.8484	1.0000	2.3779
11-72	*	*	*	*	*	1.2213	1.2213
12-72	1.0000	2.0000	**	0.0000	0.9950	0.7219	1.3800

* NO SAMPLE TAKEN.

** NO FISH TAKEN.

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-73	1.4056	2.5120	1.2080	1.6414	1.2008	0.0000	2.6462
2-73	1.6603	2.0381	0.2223	0.9874	1.8728	1.2554	1.9785
3-73	1.3375	2.0387	2.6016	2.0932	1.6457	0.9373	2.5570
4-73	1.2505	1.9043	1.8010	0.7419	2.1972	1.7004	1.9257
5-73	1.9183	1.1212	1.9219	1.4337	*	1.4591	2.1648
6-73	2.7153	1.1003	1.7759	2.3461	0.8417	1.7496	2.2515
7-73	2.1922	1.9306	*	0.9183	2.4849	1.6858	2.7309
8-73	1.5784	0.3639	1.0000	1.0000	2.1281	1.4969	1.0455
9-73	1.4488	1.5919	0.0000	0.9183	0.0000	2.4677	2.8050
10-73	2.1929	2.0000	0.0000	1.1096	1.5710	0.9183	2.5075
11-73	1.2546	1.9447	2.4342	1.6645	2.3087	1.3268	2.2098
12-73	0.0000	1.7925	1.4488	2.4371	1.0000	1.6108	2.2742

* NO FISH TAKEN.

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						COMPOSITE
	0009	0010	0011	0012	0013	0014	
1-74	0.5652	2.0515	1.4703	1.1981	0.9751	1.5971	1.5068
2-74	1.6772	2.5076	1.1241	1.5765	1.6195	1.7224	1.8795
3-74	0.9786	2.4803	2.5878	1.7236	2.0585	1.8566	2.0434
4-74	2.9346	2.7556	2.3629	2.4245	3.1717	1.5000	3.1890
5-74	0.9183	1.0000	0.0000	1.1969	1.3843	1.6289	2.1874
6-74	0.0000	0.0000	0.0000	1.0000	0.9183	*	1.9610
7-74	0.0000	*	0.0000	0.0000	1.3710	*	1.3245
8-74	0.7496	2.8424	2.4138	1.8138	2.6142	1.3245	2.9354
9-74	1.7296	2.1007	1.0263	2.0016	1.0219	1.2532	2.6787
10-74	0.4364	1.6844	1.7717	2.3378	2.2689	0.9656	2.2194
11-74	0.5608	1.3710	1.1771	1.9939	0.0000	1.2289	1.9277
12-74	1.5546	2.4382	1.8262	1.7612	2.9476	1.0525	2.5917

* NO FISH TAKEN.

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-75	1.0721	0.4812	1.5919	0.6338	0.2015	0.7611	1.5502
2-75	1.9610	0.7219	1.4614	1.0409	1.6172	0.4060	1.4843
3-75	2.0871	1.3631	2.0605	1.2768	1.4731	1.3546	2.1597
4-75	1.6018	1.5149	1.4427	0.4427	1.0227	1.0338	2.1369
5-75	1.7826	1.8201	1.7265	2.0720	2.3197	0.7219	2.2493
6-75	2.2845	1.6802	0.6534	1.0740	0.7722	0.7219	1.1355
7-75	0.5033	1.3710	2.1457	1.6446	1.8690	0.9183	2.0066
8-75	0.8454	1.3868	1.5219	1.7114	1.9778	0.0000	2.1248
9-75	2.0169	2.4309	1.6573	2.2152	1.3483	1.5850	2.0791
10-75	1.3753	1.5305	2.2040	1.5305	0.0000	0.0000	2.5258
11-75	2.9001	2.1665	2.9306	3.0521	2.3200	1.9577	3.3577
12-75	1.9155	2.5766	2.8936	1.4238	1.8068	1.5343	2.6873

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-76	1.9916	1.4958	2.0382	1.9845	1.6862	2.1556	2.6596
2-76	2.1867	1.6320	1.2085	1.6557	2.1324	1.4447	2.4120
3-76	1.9527	2.4495	1.1812	1.8262	2.2356	1.6166	2.1067
4-76	1.9818	1.5165	1.9898	1.8145	1.8981	0.9934	1.9620
5-76	2.0655	1.4591	1.6263	1.8521	1.5947	1.7097	1.9749
6-76	1.7500	1.3610	0.6995	2.1281	1.3788	1.9387	1.9956
7-76	1.8871	0.9183	1.4197	1.9283	1.2066	1.7047	2.0778
8-76	2.1693	1.7332	2.1537	2.1281	1.7752	2.0388	2.2558
9-76	2.3608	1.9764	1.3791	1.9316	1.2693	1.6768	2.1413
10-76	2.1856	1.5604	1.6929	1.9166	2.1896	1.7341	2.7494
11-76	2.3950	2.5000	1.3840	1.2362	1.5628	1.7381	2.3620
12-76	1.5710	0.8113	1.4108	1.7013	1.9071	1.1918	2.0292

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OYSTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
2-77	0.0000	0.0000	1.2419	0.0000	1.7500	*	1.5704
3-77	1.5289	1.3299	1.9372	0.7105	0.9889	1.7030	1.3288
4-77	0.8128	1.2887	1.7548	1.8231	1.5589	1.9219	1.7558
5-77	1.1339	1.2941	1.7710	0.8430	0.1810	0.9784	0.8450
6-77	2.4252	1.4216	1.7611	0.6249	0.3905	1.8851	1.6816
7-77	1.9788	1.9764	1.7448	0.9841	1.3372	2.2451	2.1361
8-77	0.8182	1.1905	1.5466	1.6633	1.0316	1.6027	1.8421
9-77	1.1822	1.8532	1.0625	1.7584	1.5275	2.2205	1.6829
10-77	0.7526	1.0610	1.9056	1.3956	1.5850	2.0112	1.4795
11-77	1.8389	1.7457	1.8911	0.9861	1.8319	0.7271	1.6947
12-77	1.2725	1.7316	1.2196	0.6415	0.7732	0.3228	1.2056

* NO FISH TAKEN.

TABLE 14. MONTHLY DIVERSITY (H') VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-78	1.1326	1.3713	1.8979	1.5887	1.4207	0.5917	1.9681
2-78	1.2516	1.2635	1.3288	1.6313	1.5292	0.5665	1.6208
3-78	0.2543	0.5913	1.5686	1.4511	0.8796	0.5700	1.0406
4-78	0.1914	0.2223	0.7004	0.8550	0.4167	1.5339	0.7212
5-78	0.6998	0.8707	1.9657	1.5892	1.6106	1.9131	1.7577
6-78	1.4009	2.1194	0.2833	1.0978	1.7181	2.1266	1.5188
7-78	1.4514	1.6683	1.2733	1.2949	0.6951	1.9691	1.3915
8-78	2.1021	2.2929	1.5026	2.0887	1.5361	1.5962	2.0550
9-78	1.7611	2.5497	1.4329	1.6011	1.7015	1.6459	2.0087
10-78	1.7719	1.9962	2.0561	0.9274	1.6043	0.3581	2.3118
11-78	1.0486	1.4054	2.5048	*	1.4610	1.1951	1.5095
12-78	0.9581	2.0461	2.2876	2.1367	2.5811	0.4808	1.7296

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
5-70	0.4270	*	0.5488	*	0.9965	0.6444	0.5440
6-70	*	0.4634	*	*	*	0.8453	0.5715
8-70	0.7785	0.7352	0.7704	*	*	0.6922	0.7244
12-70	0.7560	0.6982	0.4886	0.6838	0.7794	*	0.5652

* NO SAMPLE TAKEN.

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
2-71	*	*	0.4251	0.6022	0.5431	*	0.4606
3-71	0.1900	0.8078	0.6850	0.5100	0.5433	0.5577	0.4600
4-71	0.1227	0.3977	*	0.2336	*	0.0889	0.1533
5-71	0.5463	0.9165	*	0.0000	*	0.4879	0.6591
6-71	0.9610	0.1640	*	0.0000	*	0.9141	0.3303
7-71	0.5415	0.1304	*	0.7005	*	0.8240	0.3598
8-71	0.9316	0.6393	*	0.8306	*	0.8219	0.8047
9-71	0.6912	0.7742	*	0.8438	*	0.8419	0.7805
10-71	0.1466	*	*	0.4897	0.9131	0.7001	0.3686
11-71	0.3912	0.8055	*	0.8173	*	0.9911	0.7272
12-71	0.6574	0.6664	*	0.6974	*	0.4726	0.6182

* NO SAMPLE TAKEN.

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-72	0.7440	0.7834	*	0.5917	*	0.5012	0.6030
2-72	0.7539	0.8783	0.6388	0.9602	0.6736	0.4235	0.5950
3-72	0.5130	0.5708	0.6991	0.7543	0.9183	0.7007	0.6094
4-72	0.6086	0.5476	0.6665	0.7759	0.6975	0.8116	0.7127
5-72	0.8191	0.8239	0.7183	0.7763	0.7205	0.7521	0.8189
6-72	0.9183	0.6961	0.8384	0.7318	0.7303	0.9183	0.6989
7-72	0.9247	0.5542	0.8104	0.9912	0.8261	0.7249	0.7430
8-72	0.0000	0.7598	0.7219	0.6600	0.9208	0.8598	0.7358
9-72	0.7150	0.0000	1.0000	0.9610	0.9464	0.9610	0.7617
10-72	0.5290	0.6635	0.5780	0.7803	0.5831	1.0000	0.6633
11-72	*	*	*	*	*	0.6106	0.6106
12-72	1.0000	1.0000	**	0.0000	0.9950	0.7219	0.6900

* NO SAMPLE TAKEN.

** NO FISH TAKEN.

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						COMPOSITE
	0009	0010	0011	0012	0013	0014	
1-73	0.8869	0.8373	0.6040	0.7069	0.6004	0.0000	0.7381
2-73	0.6423	0.7260	0.2223	0.3820	0.7245	0.5407	0.5519
3-73	0.5174	0.7887	0.8672	0.9015	0.8229	0.5914	0.6910
4-73	0.5386	0.6783	0.7756	0.2870	0.9463	0.7323	0.6075
5-73	0.9591	0.7074	0.9610	0.7168	*	0.9206	0.6829
6-73	0.9672	0.4257	0.8879	0.7820	0.3625	0.8748	0.6508
7-73	0.7809	0.8314	*	0.9183	0.7480	0.8429	0.7380
8-73	0.7892	0.1820	1.0000	1.0000	0.9165	0.6447	0.3485
9-73	0.9141	0.7960	0.0000	0.9183	0.0000	0.9546	0.8849
10-73	0.7310	1.0000	0.0000	0.5548	0.7855	0.9183	0.6995
11-73	0.6273	0.6927	0.6578	0.8322	0.7283	0.4423	0.5202
12-73	0.0000	0.8962	0.9141	0.8681	1.0000	0.6231	0.5973

* NO FISH TAKEN.

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-74	0.2434	0.7307	0.7352	0.7559	0.9751	0.6178	0.4536
2-74	0.5974	0.8932	0.4841	0.5255	0.5769	0.5741	0.5079
3-74	0.3786	0.7825	0.8164	0.4658	0.5407	0.7996	0.5367
4-74	0.9258	0.8295	0.7876	0.7648	0.8331	0.9464	0.7973
5-74	0.9183	1.0000	0.0000	0.4630	0.5355	0.7015	0.6323
6-74	0.0000	0.0000	0.0000	1.0000	0.9183	*	0.8445
7-74	0.0000	*	0.0000	0.0000	0.8650	*	0.6622
8-74	0.7496	0.9475	0.9338	0.7812	0.8714	0.6622	0.7933
9-74	0.8648	0.6072	0.5132	0.6672	0.5110	0.5397	0.7035
10-74	0.2182	0.6000	0.6854	0.9044	0.8082	0.9656	0.6681
11-74	0.3538	0.8650	0.5886	0.7713	0.0000	0.6144	0.5377
12-74	0.7773	0.7692	0.9131	0.6813	0.8873	0.4533	0.6341

* NO FISH TAKEN.

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTIER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-75	0.6764	0.1861	0.7960	0.2452	0.1008	0.3805	0.4666
2-75	0.8445	0.7219	0.6294	0.6567	0.8086	0.4060	0.4948
3-75	0.8074	0.5871	0.8874	0.5499	0.5247	0.8546	0.7693
4-75	0.8009	0.5396	0.5581	0.2793	0.3643	0.6523	0.6741
5-75	0.7677	0.7839	0.6679	0.8015	0.8263	0.7219	0.6502
6-75	0.8137	0.5985	0.4122	0.3580	0.2987	0.7219	0.3282
7-75	0.5033	0.8650	0.7643	0.5188	0.6230	0.9183	0.5597
8-75	0.8454	0.6934	0.9602	0.7371	0.6593	0.0000	0.7083
9-75	0.8686	0.8103	0.7138	0.7384	0.4494	1.0000	0.6010
10-75	0.6876	0.9656	0.7851	0.9656	0.0000	0.0000	0.7968
11-75	0.8090	0.6835	0.7919	0.9188	0.8264	0.7573	0.8215
12-75	0.7410	0.8128	0.8072	0.4116	0.5040	0.5935	0.6878

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-76	0.8577	0.9438	0.8778	0.8547	0.6006	0.9284	0.8390
2-76	0.6583	0.6313	0.4028	0.5519	0.7596	0.7224	0.6728
3-76	0.8410	0.8165	0.4208	0.6087	0.7452	0.6254	0.6090
4-76	0.7059	0.5055	0.6633	0.7020	0.5988	0.3311	0.5473
5-76	0.7990	0.9206	0.7004	0.6174	0.6169	0.7363	0.5945
6-76	0.8750	0.8587	0.3013	0.9165	0.8699	0.7500	0.5769
7-76	0.6722	0.9183	0.4732	0.6083	0.5196	0.5682	0.5796
8-76	0.7727	0.7465	0.9275	0.9165	0.5917	0.7887	0.7116
9-76	0.7869	0.7040	0.5335	0.6439	0.6347	0.7221	0.6446
10-76	0.8455	0.5558	0.6030	0.6389	0.7800	0.7468	0.6874
11-76	0.7555	0.9671	0.5354	0.7799	0.7814	0.8691	0.6828
12-76	0.7855	0.8113	0.7054	0.8506	0.8213	0.5959	0.7228

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
2-77	0.0000	0.0000	0.7836	0.0000	0.8750	*	0.6763
3-77	0.7644	0.5145	0.7494	0.2531	0.3826	0.6588	0.4192
4-77	0.3501	0.6444	0.6788	0.9115	0.6714	0.9610	0.5853
5-77	0.4883	0.4610	0.7627	0.2810	0.0780	0.3261	0.2443
6-77	0.8084	0.5500	0.5870	0.3124	0.2463	0.8119	0.4861
7-77	0.7655	0.6588	0.7515	0.3505	0.5759	0.7997	0.6175
8-77	0.3524	0.5953	0.7733	0.6435	0.6509	0.8014	0.6140
9-77	0.4573	0.7169	0.4110	0.6264	0.7638	0.7910	0.4865
10-77	0.2911	0.4105	0.9528	0.6978	1.0000	0.6345	0.4454
11-77	0.5801	0.6218	0.9455	0.3815	0.5779	0.3131	0.4580
12-77	0.4923	0.5772	0.4344	0.2285	0.4879	0.3228	0.3629

* NO FISH TAKEN.

TABLE 15. MONTHLY EVENNESS (J) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-78	0.7146	0.6857	0.8174	0.6146	0.7104	0.5917	0.6560
2-78	0.7897	0.7972	0.5140	0.6311	0.5916	0.5665	0.5403
3-78	0.2543	0.3731	0.6068	0.5614	0.5550	0.2850	0.3707
4-78	0.1914	0.1111	0.3016	0.4275	0.1794	0.5934	0.2790
5-78	0.4416	0.5493	0.7604	0.6148	0.8053	0.7401	0.5859
6-78	0.7005	0.9128	0.1417	0.5489	0.6646	0.9159	0.4572
7-78	0.5170	0.8342	0.4536	0.4316	0.2193	0.7618	0.3881
8-78	0.7007	0.7643	0.4740	0.6962	0.5120	0.5686	0.5028
9-78	0.7585	0.9082	0.7165	0.5703	0.5672	0.4758	0.5428
10-78	0.7631	0.7722	0.6854	0.4637	0.5715	0.1385	0.6247
11-78	0.4516	0.6053	0.8922	*	0.7305	0.3770	0.3965
12-78	0.3413	0.7288	0.8149	0.7122	0.8143	0.2071	0.4824

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

STATION							
	0009	0010	0011	0012	0013	0014	COMPOSITE
5-70	0.7516	*	0.5238	*	0.5000	0.5289	0.6829
6-70	*	0.8510	*	*	*	1.0238	1.3066
8-70	0.8158	0.6175	1.1894	*	*	1.2221	1.4606
12-70	0.9927	1.6104	0.7799	1.2549	1.4000	*	1.8076

* NO SAMPLE TAKEN.

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
2-71	*	*	0.6382	1.1569	0.6632	*	0.9822
3-71	0.5696	0.6594	1.1794	0.9891	0.7162	0.7622	1.3978
4-71	0.3849	0.6008	*	0.9050	*	0.3809	0.9384
5-71	0.5781	1.4248	*	0.0000	*	0.5405	0.9912
6-71	1.2920	0.3146	*	0.0000	*	0.7124	0.9091
7-71	0.7162	0.4343	*	1.0000	*	1.7227	1.1677
8-71	0.8614	1.4103	*	1.0767	*	1.3153	1.9609
9-71	0.7242	0.8152	*	1.2233	*	1.2323	1.4636
10-71	0.4759	*	*	1.1803	0.8107	0.3120	1.2667
11-71	0.2702	1.0506	*	0.6021	*	0.3155	1.0863
12-71	0.9828	1.9645	*	0.9112	*	0.7359	1.9333

* NO SAMPLE TAKEN.

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-72	1.0378	1.9196	*	0.3562	*	0.4506	1.7007
2-72	0.6114	1.0990	0.8672	0.8614	0.4421	0.8104	1.3278
3-72	1.2718	1.3058	1.0680	1.3086	0.6309	0.6858	1.6651
4-72	1.1273	1.3009	1.6208	1.2481	1.2619	0.9937	1.7325
5-72	1.0000	1.3455	0.9416	1.0000	1.5074	0.9107	1.4131
6-72	0.6309	1.3096	1.1384	1.1433	1.1606	0.6309	1.6196
7-72	1.0905	1.2673	1.1794	0.6021	0.5781	0.9416	1.6737
8-72	1.0000	1.1518	0.4307	0.9107	1.6737	0.7062	1.3699
9-72	0.7879	1.0000	1.5000	1.2920	1.0000	1.2920	1.9824
10-72	0.8104	1.2583	1.0810	0.6504	1.1142	1.0000	1.2431
11-72	*	*	*	*	*	0.5529	0.5529
12-72	1.0000	1.5000	**	0.0000	0.2181	0.2560	0.5372

* NO SAMPLE TAKEN.

** NO FISH TAKEN.

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-73	0.6667	1.3877	0.6175	0.7622	0.5600	1.0000	1.5217
2-73	0.8333	1.1352	0.2080	0.9214	0.9158	0.8614	1.3880
3-73	0.8815	1.0515	1.6196	0.8970	0.7340	0.4485	1.6409
4-73	0.5603	1.1894	0.9107	0.7291	1.2619	1.0810	0.9547
5-73	1.1606	0.4421	1.2920	0.6460	*	0.7737	1.3284
6-73	1.4125	0.6547	0.6382	1.3540	0.6888	0.5759	1.1705
7-73	1.2111	0.8614	*	0.6309	1.2878	0.8672	1.5744
8-73	0.6941	0.4134	1.0000	0.5000	1.4248	0.8724	0.9074
9-73	0.7124	0.7500	1.0000	0.6309	1.0000	1.3132	1.4836
10-73	1.0582	1.5000	1.0000	0.5289	0.9031	0.6309	1.4898
11-73	0.4981	1.4389	1.8625	1.0686	1.7448	0.8732	2.0349
12-73	0.0000	1.1606	0.7124	1.4125	1.0000	0.6703	1.6822

* NO FISH TAKEN.

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						COMPOSITE
	0009	0010	0011	0012	0013	0014	
1-74	0.5392	0.9412	0.6175	0.4160	0.2103	0.8648	1.0443
2-74	0.9663	1.0286	0.5204	1.0189	0.9725	1.0536	1.2917
3-74	0.7781	1.3333	1.3901	1.5448	2.0229	1.0238	1.4395
4-74	1.7448	1.4784	1.2108	1.3544	2.0623	1.0000	1.8338
5-74	0.6309	1.0000	1.0000	0.9912	0.9272	0.8321	1.4775
6-74	0.0000	1.0000	0.0000	1.0000	0.6309	*	1.2041
7-74	1.0000	*	0.0000	0.0000	0.8614	*	0.7500
8-74	0.2626	1.8385	1.3132	0.7622	1.2164	0.7500	1.6600
9-74	0.8368	1.6315	0.6460	1.2534	0.6941	0.7418	1.6749
10-74	0.5372	1.0990	0.8905	1.0515	1.0802	0.2211	1.1400
11-74	0.4076	0.8614	0.6460	1.0637	0.0000	0.5372	1.5385
12-74	0.7679	1.5244	0.8107	0.9214	1.7028	0.6208	2.0314

* NO FISH TAKEN.

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-75	0.4000	0.6041	0.7500	0.7120	0.3588	0.5463	0.9229
2-75	1.2041	0.4307	0.7568	0.5579	0.8672	0.1920	1.0245
3-75	0.9528	0.8321	0.8074	0.6745	0.9822	0.4037	0.7489
4-75	0.5676	0.9337	0.8771	0.4160	0.9491	0.3252	0.9439
5-75	0.7798	0.8152	1.0905	0.9333	1.1274	0.3010	1.3348
6-75	1.3660	1.0426	0.3146	0.8389	0.6363	0.3010	1.0526
7-75	0.3155	0.8614	1.0475	1.0913	1.0383	0.6309	1.3094
8-75	0.2891	0.6543	0.8614	0.6745	0.9922	0.0000	0.8860
9-75	0.9592	1.3153	0.7930	1.0447	0.9374	1.2619	1.1695
10-75	0.7679	0.6309	1.1794	0.6309	1.0000	1.0000	1.3096
11-75	1.8474	1.3838	1.8439	1.8928	1.1352	0.8610	1.9124
12-75	0.8729	1.4248	1.5982	1.3120	1.6705	0.8027	1.5218

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-76	0.9416	0.4893	1.0810	0.7418	1.1518	1.3333	1.1288
2-76	1.3576	0.6945	1.2340	1.1073	1.3086	0.6632	1.2603
3-76	0.5995	1.1238	0.7385	1.0117	0.9537	0.9395	1.0411
4-76	0.9822	0.9458	1.0630	0.6011	0.9699	1.1803	1.1009
5-76	0.8078	0.5579	0.5204	0.9633	0.8572	0.6667	0.9842
6-76	1.0000	0.6021	0.6667	1.4248	0.7124	1.2233	1.4662
7-76	0.8973	0.6309	1.0153	1.2924	0.6208	1.2981	1.2589
8-76	0.9856	0.9255	0.5533	1.4248	0.9343	1.1770	0.9097
9-76	1.0680	0.9071	0.6554	0.9354	0.4087	0.7201	0.9371
10-76	0.8688	0.9011	0.9693	1.0491	0.9546	0.8074	1.7088
11-76	1.3715	1.6667	0.7683	0.4628	0.7679	0.8107	1.3034
12-76	0.9031	0.2314	0.7194	0.5401	0.7798	0.6941	0.8300

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
2-77	0.0000	0.0000	0.5119	1.0000	1.0000	*	0.8000
3-77	0.4468	0.6459	0.6772	0.6291	0.5937	0.7318	0.7463
4-77	0.5995	0.4139	0.7593	0.8672	1.0238	1.2920	0.8165
5-77	0.4657	0.8765	1.2041	0.9229	0.4116	0.9229	0.9292
6-77	1.2981	0.9912	1.1623	0.5372	0.3309	0.9416	1.2357
7-77	0.9748	1.2054	0.9592	0.9133	0.9416	1.2351	1.2536
8-77	0.6162	0.4928	0.8107	0.9460	0.3758	0.6460	0.8638
9-77	0.6846	0.8272	0.6109	0.9051	0.7194	1.1606	1.0657
10-77	0.6523	0.7478	1.0000	0.4928	1.2619	1.1339	0.9981
11-77	1.1603	0.7983	0.9464	0.6696	1.0427	0.5171	1.2218
12-77	0.8272	1.0655	0.8491	0.7340	0.4255	0.2447	0.9685

* NO FISH TAKEN.

TABLE 16. MONTHLY RICHNESS (D) VALUES CALCULATED FOR MONTHLY OTTER TRAWL PROGRAM DATA FROM 1970 THROUGH 1978

	STATION						
	0009	0010	0011	0012	0013	0014	COMPOSITE
1-78	0.3459	0.6309	0.4990	0.6837	0.5495	0.3562	0.7687
2-78	0.7737	0.3899	0.5782	0.7087	0.7055	0.2560	0.7365
3-78	0.1295	0.2896	0.6837	0.7252	0.2901	0.5166	0.6240
4-78	0.1966	0.4173	0.5213	0.3896	0.5456	0.8333	0.5168
5-78	0.4076	0.3686	1.0000	0.8333	0.7879	0.9460	0.8981
6-78	0.5079	0.8152	0.4118	0.6055	0.9002	1.0000	1.0702
7-78	1.0426	0.4644	0.7168	1.0153	0.8680	0.8500	1.0697
8-78	1.2221	1.2822	1.0633	1.0810	0.9608	0.8992	1.7214
9-78	0.6504	0.9464	0.6727	0.7967	0.9314	1.0985	1.1890
10-78	0.5781	0.7143	1.2900	0.6632	0.9574	0.6674	1.3101
11-78	0.4637	0.5833	1.4125	*	0.6941	1.0953	1.3731
12-78	0.7371	0.7835	1.1606	0.9354	1.3838	0.4786	1.0913

TABLE 17: POPULATION ESTIMATES, STANDARD DEVIATIONS, AND COEFFICIENTS OF VARIATION OF SHORE ZONE FISHES FOR SELECTED SAMPLING DATES BASED UPON DATA OBTAINED IN THE SPECIAL HAUL SEINE PROGRAM AT THE SURRY POWER STATION

<u>DATE</u>	<u># SAMPLES</u>	<u>POPULATION ESTIMATES</u>	<u>STANDARD DEVIATION OF ESTIMATES</u>	<u>COEFFICIENT OF VARIATION</u>
7-6-73	6	14,533	3,018	51
7-18-73	6	15,933	3,132	48
8-10-73	6	23,200	5,255	55.
8-13-73	6	17,667	4,680	65
8-14-73	6	41,867	15,683	92
8-15-73	6	23,133	15,408	163
8-16-73	6	7,067	1,947	67
8-21-73	6	21,867	4,609	52
8-24-73	6	20,533	5,830	69
8-31-73	6	25,267	7,068	69
9-11-73	6	9,733	2,472	62
9-18-73	6	4,333	872	49
9-24-73	6	3,533	842	58
10-9-73	6	18,333	7,172	96
10-10-73	10	26,400	12,554	150
10-12-73	14	35,971	14,849	154
10-17-73	6	8,467	3,427	89
10-19-73	6	5,267	1,373	64
10-24-73	6	13,800	4,900	87
11-8-73	6	23,467	11,272	118
11-12-73	6	21,733	10,328	116
11-19-73	6	22,733	8,453	91
11-28-79	6	15,133	3,871	63
12-14-73	6	32,200	22,831	174
12-18-73	6	8,133	1,370	41
12-26-73	6	16,800	9,198	134

TABLE 18. FISH SPECIES COLLECTED IN SPECIAL HAUL SEINE SAMPLES

FROM 1973 THROUGH 1978

OSTEICHTHYES

ELOPIDAE - tarpons
ELOPS SAURUS - ladyfish

ANGUILLIDAE - freshwater eels
ANGUILLA ROSTRATA - American eel

CLUPEIDAE - herrings
ALOSA AESTIVALIS - blueback herring
ALOSA MEDIOCRIS - hickory shad
ALOSA PSEUDOHARENGUS - alewife
ALOSA SAPIDISSIMA - American shad
BREVOORTIA TYRANNUS - Atlantic menhaden
DOROSOMA CEPEDIANUM - gizzard shad
DOROSOMA PETENENSE - threadfin shad

ENGRAULIDAE - anchovies
ANCHOA HEPSETUS - striped anchovy
ANCHOA MITCHILLI - bay anchovy

CYPRINIDAE - minnows and carps
CYPRINUS CARPIO - carp
HYBOGNATHUS NUCHALIS - silvery minnow
NOTEMIGONUS CRYSOLEUCAS - golden shiner
NOTROPIS ANALOSTANUS - satinfish shiner
NOTROPIS BIFRENATUS - bridle shiner
NOTROPIS CORNUTUS - common shiner
NOTROPIS HUDSONIUS - spottail shiner
NOTROPIS PROCNE - swallowtail shiner

ICTALURIDAE - freshwater catfishes
ICTALURUS CATUS - white catfish
ICTALURUS NEBULOSUS - brown bullhead
ICTALURUS PUNCTATUS - channel catfish

TABLE 18. FISH SPECIES COLLECTED IN SPECIAL HAUL SEINE SAMPLES

FROM 1973 THROUGH 1978

- BELONIDAE - needlefishes
STRONGYLURA MARINA - Atlantic needlefish
- CYPRINODONTIDAE - killifishes
CYPRINODON VARIEGATUS - sheepshead minnow
FUNDULUS DIAPHANUS - banded killifish
FUNDULUS HETEROCLITUS - mummichog
FUNDULUS MAJALIS - striped killifish
- ATHERINIDAE - silversides
MEMBRAS MARTINICA - rough silverside
MENIDIA BERYLLINA - tidewater silverside
MENIDIA MENIDIA - Atlantic silverside
- PERCICHTHYIDAE - temperate basses
MORONE AMERICANA - white perch
MORONE SAXATILIS - striped bass
- CENTRARCHIDAE - sunfishes
LEPOMIS GIBBOSUS - pumpkinseed
LEPOMIS MACROCHIRUS - bluegill
MICROPTERUS SALMOIDES - largemouth bass
- PERCIDAE - perches
ETHEOSTOMA NIGRUM - johnny darter
ETHEOSTOMA OLMSTEDI - tessellated darter
PERCA FLAVESCENS - yellow perch
- POMOTOMIDAE - bluefishes
POMATOMUS SALTATRIX - bluefish
- CARANGIDAE - jacks and pompanos
CARANX HIPPOS - crevalle jack
- LUTJANIDAE - snappers
LUTJANUS GRISEUS - gray snapper

TABLE 18. FISH SPECIES COLLECTED IN SPECIAL HAUL SEINE SAMPLES

FROM 1973 THROUGH 1978

SCIAENIDAE - drums
CYNOScion REGALIS - weakfish
LEIOSTOMUS XANTHURUS - spot
MICROPOGON UNDULATUS - Atlantic croaker

MUGILIDAE - mullets
MUGIL CEPHALUS - striped mullet
MUGIL CUREMA - white mullet

GOBIIDAE - gobies
GOBIOSOMA BOSCI - naked goby

BOTHIDAE - lefteye flounders
CITHARICHTHYS SPILOPTERUS - bay whiff
PARALICHTHYS DENTATUS - summer flounder

SOLEIDAE - soles
TRINECTES MACULATUS - hogchoker

TABLE 19. SAMPLE TOTALS PER YEAR AND PER SPECIES OF FISHES COLLECTED IN THE SPECIAL HAUL SEINE PROGRAM AT THE SURRY POWER STATION

FROM 1973 THROUGH 1978							
ALL FISHES NOT IDENTIFIED TO SPECIES HAVE BEEN ELIMINATED FROM THIS TABLE							
SPECIES	_73	_74	_75	_76	_77	_78	TOTAL PERCENT
ALOSA AESTIVALIS	938	304	590	241	11	14	2098 2.7
ALOSA MEDIOCRIS	5	0	0	0	1	0	6 0.0
ALOSA PSEUDOHARENGUS	106	1	1	1	0	0	109 0.1
ALOSA SAPIDISSIMA	62	16	15	5	0	0	98 0.1
ANCHOA HEPSETUS	0	0	2	1	0	0	3 0.0
ANCHOA MITCHILLI	524	2578	545	819	1260	237	5963 7.8
ANGUILLA ROSTRATA	8	10	3	6	4	1	32 0.0
BREVOORTIA TYRANNUS	1914	2109	14200	2881	9011	7953	38068 49.6
CARANX HIPPOS	3	0	2	2	0	0	7 0.0
CITHARICHTHYS SPILOPTERUS	0	1	0	0	0	0	1 0.0
CYNOSCIOM REGALIS	0	0	1	0	0	0	1 0.0
CYPRINODON VARIEGATUS	2	9	1	2	0	0	14 0.0
CYPRINUS CARPIO	2	18	13	7	6	8	54 0.1
DOROSOMA CEPEDIANUM	232	109	181	36	44	39	641 0.8
DOROSOMA PETENENSE	2	24	67	20	25	0	138 0.2
ELOPS SAURUS	2	13	0	3	0	0	18 0.0
ETHEOSTOMA NIGRUM	2	0	0	0	0	0	2 0.0
ETHEOSTOMA OLINSTEDEI	0	1	2	1	0	0	4 0.0
FUNDULUS DIAPHANUS	28	31	187	39	0	6	291 0.4
FUNDULUS HETEROCLITUS	564	27	54	152	189	255	1241 1.6
FUNDULUS MAJALIS	3	1	0	0	0	0	4 0.0
GOBIOSOMA BOSCI	0	1	0	1	1	0	3 0.0
HYBOGNATHUS NUCHALIS	1	35	139	62	2	0	239 0.3
ICTALURUS CATUS	1	3	4	2	0	0	10 0.0
ICTALURUS NEBULOSUS	4	38	58	6	6	2	114 0.1
ICTALURUS PUNCTATUS	17	21	72	27	7	1	145 0.2
LEIOSTOMUS XANTHURUS	326	175	1539	631	1866	642	5179 6.7
LEPOMIS GIBBOSUS	3	19	37	14	5	3	81 0.1
LEPOMIS MACROCHIRUS	1	0	0	0	1	0	2 0.0
LUTJANUS GRISEUS	0	0	1	0	0	0	1 0.0
MEMBRAS MARTINICA	10	8	6	14	110	19	167 0.2
MENIDIA BERYLLINA	824	1943	899	443	256	279	4644 6.0
MENIDIA MENIDIA	4433	1835	1080	503	999	1078	9928 12.9
MICROPOGON UNDULATUS	69	96	61	478	1	2	707 0.9
MICROPTERUS SALMOIDES	0	0	1	0	1	0	2 0.0
MORONE AMERICANA	6	31	36	111	57	151	392 0.5
MORONE SAXATILIS	0	0	16	10	17	63	106 0.1
MUGIL CEPHALUS	7	42	26	241	15	28	359 0.5
MUGIL CURENA	2	0	0	0	0	0	2 0.0
NOTEMIGONUS CRYSOLEUCAS	580	386	568	119	40	8	1701 2.2
NOTROPIS ANALOSTANUS	0	3	3	3	0	0	9 0.0
NOTROPIS BIFRENATUS	0	0	30	2	0	0	32 0.0
NOTROPIS CORNUTUS	2	0	0	0	0	0	2 0.0
NOTROPIS HUDSONIUS	469	1249	1634	682	7	33	4074 5.3
NOTROPIS PROCHNE	0	1	0	0	0	0	1 0.0
PARALICHTHYS DENTATUS	6	14	7	3	5	0	35 0.0
PERCA FLAVESCENS	4	2	0	0	0	5	11 0.0
POHATOMUS SALTATRIX	0	0	4	9	6	13	32 0.0
STRONGYLURA MARINA	1	0	0	14	1	6	22 0.0
TRINECTES MACULATUS	0	1	0	19	5	1	26 0.0
TOTAL	11163	11155	22085	7610	13959	10847	76819 .

TABLE 20. FREQUENCY OF OCCURRENCE OF FISHES IN THE SPECIAL HAUL SEINE PROGRAM

1973-1978

FISHES NOT IDENTIFIED TO SPECIES ARE NOT SHOWN

SPECIES	OCC	PERCENT
ALOSA AESTIVALIS	141	13.2
ALOSA MEDIOCRIS	4	0.4
ALOSA PSEUDOHARENGUS	30	2.8
ALOSA SAPIDISSIMA	51	4.8
ANCHOA HEPSETUS	2	0.2
ANCHOA MITCHILLI	398	37.2
ANGUILLA ROSTRATA	31	2.9
BREVOORTIA TYRANNUS	212	19.8
CARANX HIPPOS	7	0.7
CITHARICHTHYS SPILOPTERUS	1	0.1
CYNOSCION REGALIS	1	0.1
CYPRINODON VARIEGATUS	7	0.7
CYPRINUS CARPIO	38	3.6
DOROSOMA CEPEDIANUM	189	17.7
DOROSOMA PETENENSE	50	4.7
ELOPS SAURUS	13	1.2
ETHEOSTOMA NIGRUM	2	0.2
ETHEOSTOMA OLIMSTEDI	4	0.4
FUNDULUS DIAPHANUS	103	9.6
FUNDULUS HETEROCILITUS	166	15.5
FUNDULUS MAJALIS	3	0.3
GOBIOSOMA BOSCI	3	0.3
HYBOGNATHUS NUCHALIS	70	6.5
ICTALURUS CATUS	10	0.9
ICTALURUS NEBULOSUS	59	5.5
ICTALURUS PUNCTATUS	69	6.4
LEIOSTOMUS XANTHURUS	440	41.1
LEPOMIS GIBBOSUS	60	5.6
LEPOMIS MACROCHIRUS	2	0.2
LUTJANUS GRISEUS	1	0.1
MENBRAS MARTINICA	43	4.0
MENIDIA BERYLLINA	478	44.7
MENIDIA MENIDIA	541	50.6
MENIDIA SP.	103	9.6
MICROPOGON UNDULATUS	128	12.0
MICROPTERUS SALMOIDES	2	0.2
MORONE AMERICANA	175	16.4
MORONE SAXATILIS	52	4.9
MUGIL CEPHALUS	113	10.6
MUGIL CUREMA	1	0.1
NOTEMIGONUS CRYSOLEUCAS	280	26.2
NOTROPIS ANALOSTANUS	8	0.7
NOTROPIS BIFRENATUS	11	1.0
NOTROPIS CORNUTUS	2	0.2
NOTROPIS HUDSONIUS	536	50.1
NOTROPIS PROCNE	1	0.1
PARALICHTHYS DENTATUS	27	2.5
PERCA FLAVESCENS	10	0.9
POMATOMUS SALTATRIX	24	2.2
STRONGYLURA MARINA	15	1.4
TRINECTES MACULATUS	17	1.6

TABLE 21. FISH SPECIES COLLECTED IN LOW-LEVEL IMPINGEMENT SAMPLES
FROM 1974 THROUGH 1978

AGNATHA

PETROMYZONTIDAE - lampreys
PETROMYZON MARINUS - sea lamprey

CHONDRICHTHYES

MYLIOBATIDAE - eagle rays
RHINOPTERA BONASUS - cownose ray

OSTEICHTHYES

LEPISOSTEIDAE - gars
LEPISOSTEUS OSSEUS - longnose gar

AMIIDAE - bowfins
AMIA CALVA - bowfin

ELOPIDAE - tarpons
ELOPS SAURUS - ladyfish

ANGUILLIDAE - freshwater eels
ANGUILLA ROSTRATA - American eel

CLUPEIDAE - herrings
ALOSA AESTIVALIS - blueback herring
ALOSA MEDIOCRIS - hickory shad
ALOSA PSEUDOHARENGUS - alewife
ALOSA SAPIDISSIMA - American shad
BREVOORTIA TYRANNUS - Atlantic menhaden
DOROSOMA CEPEDIANUM - gizzard shad
DOROSOMA PETENENSE - threadfin shad

TABLE 21. FISH SPECIES COLLECTED IN LOW-LEVEL IMPINGEMENT SAMPLES

FROM 1974 THROUGH 1978

ENGRAULIDAE - anchovies
 ANCHOA MITCHILLI - bay anchovy

SALMONIDAE - trouts
 SALMO GAIRDNERI - rainbow trout

ESOCIDAE - pikes
 ESOX NIGER - chain pickerel

CYPRINIDAE - minnows and carps
 CYPRINUS CARPIO - carp
 HYBOGNATHUS NUCHALIS - silvery minnow
 NOTEMIGONUS CRYSOLEUCAS - golden shiner
 NOTROPIS ANALOSTANUS - satinfish shiner
 NOTROPIS HUDSONIUS - spottail shiner
 SEMOTILUS ATROMACULATUS - creek chub

CATOSTOMIDAE - suckers
 MOXOSTOMA MACROLEPIDOTUM - shorthead redhorse

ICTALURIDAE - freshwater catfishes
 ICTALURUS CATUS - white catfish
 ICTALURUS NEBULOSUS - brown bullhead
 ICTALURUS PUNCTATUS - channel catfish

GOBIESOCIDAE - clingfishes
 GOBIESOX STRUMOSUS - skilletfish

BELONIDAE - needlefishes
 STRONGYLURA MARINA - Atlantic needlefish

CYPRINODONTIDAE - killifishes
 CYPRINODON VARIEGATUS - sheepshead minnow
 FUNDULUS CONFLUENTUS - marsh killifish
 FUNDULUS DIAPHANUS - banded killifish
 FUNDULUS HETEROCLITUS - mummichog
 FUNDULUS MAJALIS - striped killifish

TABLE 21. FISH SPECIES COLLECTED IN LOW-LEVEL IMPINGEMENT SAMPLES
FROM 1974 THROUGH 1978

ATHERINIDAE - silversides
MEMBRAS MARTINICA - rough silverside
MENIDIA BERYLLINA - tidewater silverside
MENIDIA MENIDIA - Atlantic silverside

GASTEROSTEIDAE - sticklebacks
GASTEROSTEUS ACULEATUS - threespine stickleback

SYNGNATHIDAE - pipefishes and seahorses
SYNGNATHUS FUSCUS - northern pipefish

PERCICHTHYIDAE - temperate basses
MORONE AMERICANA - white perch
MORONE SAXATILIS - striped bass

CENTRARCHIDAE - sunfishes
CENTRARCHUS MACROPTERUS - flier
ENNEACANTHUS GLORIOSUS - bluespotted sunfish
LEPOMIS AURITUS - redbreast sunfish
LEPOMIS GIBBOSUS - pumpkinseed
LEPOMIS MACROCHIRUS - bluegill
MICROPTERUS SALMOIDES - largemouth bass
POMOXIS NIGROMACULATUS - black crappie

PERCIDAE - perches
ETHEOSTOMA OLMSTEDI - tessellated darter
PERCA FLAVESCENS - yellow perch

POMOTOMIDAE - bluefishes
POMATOMUS SALTATRIX - bluefish

CARANGIDAE - jacks and pompanos
CARANX HIPPOS - crevalle jack
SELENE VOMER - lookdown

TABLE 21. FISH SPECIES COLLECTED IN LOW-LEVEL INPINGEMENT SAMPLES

FROM 1974 THROUGH 1978

LUTJANIDAE - snappers
LUTJANUS GRISEUS - gray snapper

SPARIDAE - porgies
LAGODON RHOMBOIDES - pinfish

SCIAENIDAE - drums
BAIRDIELLA CHRYSURA - silver perch
CYNOSCION NEBULOSUS - spotted seatrout
CYNOSCION REGALIS - weakfish
LEIOSTOMUS XANTHURUS - spot
MICROPOGON UNDULATUS - Atlantic croaker

EPHIPPIDAE - spadefishes
CHAETODIPTERUS FABER - Atlantic spadefish

MUGILIDAE - mullets
MUGIL CEPHALUS - striped mullet

AMMODYTIDAE - sand lances
AMMODYTES AMERICANUS - American sand lance

GOBIIDAE - gobies
GOBIOSOMA BOSCI - naked goby
GOBIOSOMA GINSBURGI - seaboard goby

TRICHIURIDAE - cutlassfishes
TRICHIURUS LEPTURUS - Atlantic cutlassfish

SCOMBRIDAE - mackerels and tunas
SCOMBEROMORUS MACULATUS - Spanish mackerel

STROMATEIDAE - butterfishes
PEPRILUS ALEPIDOTUS - harvestfish
PEPRILUS TRIACANTHUS - butterfish

TABLE 21. FISH SPECIES COLLECTED IN LOW-LEVEL IMPINGEMENT SAMPLES
FROM 1974 THROUGH 1978

TRIGLIDAE - searobins
PRIONOTUS CAROLINUS - northern searobin

BOTHIDAE - lefteye flounders
PARALICHTHYS DENTATUS - summer flounder

SOLEIDAE - soles
TRINECTES MACULATUS - hogchoker

CYNOGLOSSIDAE - tonguefishes
SYMPHURUS PLAGIUSA - blackcheek tonguefish

BALISTIDAE - triggerfishes and filefishes
ALUTERUS SCHOEPFI - orange filefish

TABLE 22. ESTIMATED TOTALS PER YEAR AND PER SPECIES OF FISHES IMPINGED UPON THE RISTROPH TRAVELLING FISH SCREENS

FROM 1974 THROUGH 1978

ALL FISHES NOT IDENTIFIED TO SPECIES HAVE BEEN ELIMINATED FROM THIS TABLE

SPECIES	_74	_75	_76	_77	_78	TOTAL	PERCENT
ALOSA AESTIVALIS	163488	609864	608064	149904	686912	2218232	11.2
ALOSA HEDIOCRIS	4608	288	0	288	0	5184	0.0
ALOSA PSEUDOHARENGUS	25200	277956	111600	8064	62280	485100	2.4
ALOSA SAPIDISSIMA	10440	46272	8784	144	2088	67728	0.3
ALUTERUS SCHOEPPFI	0	0	0	432	0	432	0.0
ANHA CALVA	0	2736	0	0	0	2736	0.0
ANNODYTES AMERICANUS	0	0	0	0	288	288	0.0
ANCHOA MITCHILLI	204936	273384	566432	129248	274840	1448840	7.3
ANGUILLA ROSTRATA	27216	43896	14544	10656	20016	116328	0.6
BAIRDIELLA CHRYSURA	672	0	432	144	576	1824	0.0
BREVOORTIA TYRANNUS	251592	947912	974560	925952	571812	3671828	18.5
CARANX HIPPOS	288	1728	144	432	288	2880	0.0
CENTRARCHUS MACROPTERUS	0	144	0	0	0	144	0.0
CHAETODIPTERUS FABER	0	0	0	144	0	144	0.0
CYNOSCIION NEBULOSUS	480	0	288	144	0	912	0.0
CYNOSCIION REGALIS	2304	1584	3744	16268	6336	30236	0.2
CYPRINODON VARIEGATUS	576	2448	432	576	288	4320	0.0
CYPRINUS CARPIO	4608	1728	2304	4320	2736	15696	0.1
DOROSOMA CEPEDIANUM	31344	186048	404496	140688	204848	967424	4.9
DOROSOMA PETENENSE	114504	1651032	199168	191376	8496	2164576	10.9
ELOPS SAURUS	360	0	1008	0	0	1368	0.0
ENNEACANTHUS GLORIOSUS	864	1008	0	0	0	1872	0.0
ESOX NIGER	0	0	0	432	0	432	0.0
ETHEOSTOMA OLMSTEDI	0	144	432	0	0	576	0.0
FUNDULUS CONFLUENTUS	0	144	0	0	0	144	0.0
FUNDULUS DIAPHANUS	864	3168	4176	288	0	8496	0.0
FUNDULUS HETEROCLITUS	2592	24480	4032	93248	70056	194408	1.0
FUNDULUS MAJALIS	144	0	0	0	0	144	0.0
GASTEROSTEUS ACULEATUS	0	432	0	0	0	432	0.0
GOBIOX STRUMOSUS	0	0	432	0	0	432	0.0
GOBIOSOMA BOSCI	32184	11640	8640	11088	432	63984	0.3
GOBIOSOMA GINSBURGI	1152	0	0	0	0	1152	0.0
HYBOGNATHUS NUCHALIS	432	5616	13104	144	432	19728	0.1
ICTALURUS CATUS	101280	104976	54288	3168	145512	409224	2.1
ICTALURUS NEBULOSUS	24629	39792	12960	3600	127944	208925	1.1
ICTALURUS PUNCTATUS	49920	58320	103392	9936	14976	236544	1.2
LAGODON RHOMBOIDES	0	0	0	288	0	288	0.0
LEIOSTOMUS XANTHURUS	138792	895536	950688	1355584	956520	4297120	21.7
LEPISOSTEUS OSSEUS	0	144	576	0	288	1008	0.0
LEPOMIS AURITUS	288	144	0	0	864	1296	0.0
LEPOMIS GIBBOSUS	19608	42912	22608	3600	38088	126816	0.6
LEPOMIS MACROCHIRUS	816	1296	576	1152	3600	7440	0.0
LUTJANUS GRISEUS	0	1584	0	288	0	1872	0.0
MEMBRAS MARTINICA	22224	3168	3456	16560	4176	49584	0.3
MEHIDIA BERYLLINA	3408	9840	14256	7776	15120	50400	0.3
MEHIDIA MEHIDIA	33936	81888	20019	19152	70560	225555	1.1
MICROPOGON UNDULATUS	62400	229848	258336	15696	12960	579240	2.9
MICROPTERUS SALMOIDES	0	0	0	0	576	576	0.0
MORONE AMERICANA	18576	118080	289440	206720	600136	1232952	6.2
MORONE SAXATILIS	0	288	4032	6624	14904	25848	0.1
MOXOSTOMA MACROLEPIDOTUM	0	0	0	144	0	144	0.0
MUGIL CEPHALUS	288	864	17712	6192	2232	27288	0.1
NOTEMIGONUS CRYSOLEUCAS	12024	17280	10080	144	1008	40536	0.2

TABLE 22. ESTIMATED TOTALS PER YEAR AND PER SPECIES OF FISHES IMPINGED UPON THE RISTROPH TRAVELLING FISH SCREENS

FROM 1974 THROUGH 1978

ALL FISHES NOT IDENTIFIED TO SPECIES HAVE BEEN ELIMINATED FROM THIS TABLE

SPECIES	_74	_75	_76	_77	_78	TOTAL	PERCENT
NOTROPIS ANALOSTANUS	0	0	144	0	0	144	0.0
NOTROPIS HUDSONIUS	44376	201312	32256	0	2016	279960	1.4
PARALICHTHYS DENTATUS	3744	1296	576	7200	2592	15408	0.1
PEPRILUS ALEPIDOTUS	432	0	22464	44181	20880	87957	0.4
PEPRILUS TRIACANTHUS	0	0	0	288	0	288	0.0
PERCA FLAVESCENS	0	144	576	0	288	1008	0.0
PETROMYZON MARINUS	0	1152	288	0	72	1512	0.0
POMATOMUS SALTATRIX	5280	5184	18000	18864	6768	54096	0.3
POMOXIS NIGROMACULATUS	0	288	0	0	144	432	0.0
PRIONOTUS CAROLINUS	0	0	0	720	0	720	0.0
RHINOPTERA BONASUS	0	0	0	0	288	288	0.0
SALMO GAIRODNERI	144	0	0	0	0	144	0.0
SCOMBEROMORUS MACULATUS	432	2016	432	0	0	2880	0.0
SELENE VONER	0	0	432	288	0	720	0.0
SEMOTILUS ATROHACULATUS	192	0	0	0	0	192	0.0
STRONGYLURA MARINA	0	0	1152	2304	576	4032	0.0
SYMPHURUS PLAGIUSA	0	432	144	144	720	1440	0.0
SYNGNATHUS FUSCUS	0	0	0	576	0	576	0.0
TRICHIURUS LEPTURUS	0	288	0	0	0	288	0.0
TRINECTES MACULATUS	24480	20163	18144	111456	176954	351197	1.8
TOTAL	1448117	5931887	4783843	3526625	4133486	19823958	.

TABLE 23. FREQUENCY OF OCCURRENCE OF FISHES IN LOW-LEVEL IMPINGEMENT SAMPLES

FROM 1974 THROUGH 1978

FISHES NOT IDENTIFIED TO SPECIES ARE NOT SHOWN

SPECIES	OCC	PERCENT
ALOSA AESTIVALIS	174	63.3
ALOSA MEDIOCRIS	11	4.0
ALOSA PSEUDOHARENGUS	158	57.5
ALOSA SAPIDISSIMA	73	26.5
ALUTERUS SCHOEFFI	1	0.4
AMIA CALVA	6	2.2
ANNODYTES AMERICANUS	1	0.4
ANCHOA MITCHILLI	214	77.8
ANGUILLA ROSTRATA	174	63.3
BAIRDIELLA CHRYSURA	9	3.3
BREVOORTIA TYRANNUS	239	86.9
CARANX HIPPOS	12	4.4
CENTRARCHUS MACROPTERUS	1	0.4
CHAETODIPTERUS FABER	1	0.4
CYNOSCION NEBULOSUS	5	1.8
CYNOSCION REGALIS	56	20.4
CYPRINODON VARIEGATUS	16	5.8
CYPRINUS CARPIO	40	14.5
DOROSOMA CEPEDIANUM	214	77.8
DOROSOMA PETENENSE	154	56.0
ELOPS SAURUS	5	1.8
ENNEACANTHUS GLORIOSUS	7	2.5
ESOX NIGER	2	0.7
ETHEOSTOMA OLMSTEDI	5	1.8
FUNDULUS CONFLUENTUS	1	0.4
FUNDULUS DIAPHANUS	23	8.4
FUNDULUS HETEROCLITUS	78	28.4
FUNDULUS MAJALIS	1	0.4
GASTEROSTEUS ACULEATUS	2	0.7
GOBIESOX STRIMOSUS	2	0.7
GOBIOSOMA BOSCI	77	28.0
GOBIOSOMA GINSBURGI	1	0.4
HYBOGNIATHUS NUHALIS	30	10.9
ICTALURUS CATUS	186	67.6
ICTALURUS NEBULOSUS	136	49.5
ICTALURUS PUNCTATUS	174	63.3
LAGODON RHOMBOIDES	1	0.4
LEIOSTOMUS XANTHURUS	223	81.1
LEPISOSTEUS OSSEUS	5	1.8
LEPOMIS AURITUS	4	1.5
LEPOMIS GIBBOSUS	136	49.5
LEPOMIS GULOSUS	1	0.4
LEPOMIS MACROCHIRUS	22	8.0
LUTJANUS GRISEUS	6	2.2
MEMBRAS MARTINICA	64	23.3
MENIDIA BERYLLINA	95	34.5
MENIDIA MENIDIA	127	46.2
MICROPOGON UNDULATUS	186	67.6
MICROPTERUS SALMOIDES	2	0.7
MORONE AMERICANA	208	75.6
MORONE SAXATILIS	59	21.5
MOXOSTOMA MACROLEPIDOTUM	1	0.4

TABLE 23. FREQUENCY OF OCCURRENCE OF FISHES IN LOW-LEVEL IMPINGEMENT SAMPLES

FROM 1974 THROUGH 1978

FISHES NOT IDENTIFIED TO SPECIES ARE NOT SHOWN

SPECIES	OCC	PERCENT
MUGIL CEPHALUS	34	12.4
NOTEMIGONUS CRYSOLEUCAS	73	26.5
NOTROPIS ANALOSTANUS	1	0.4
NOTROPIS HUDSONIUS	127	46.2
PARALICHTHYS DENTATUS	52	18.9
PEPRILUS ALEPIDOTUS	33	12.0
PEPRILUS TRIACANTHUS	2	0.7
PERCA FLAVESCENS	9	3.3
PETROMYZON MARINUS	10	3.6
POHATOHUS SALTATRIX	72	26.2
POMOXIS NIGROMACULATUS	3	1.1
PRIONOTUS CAROLINUS	4	1.5
RHINOPTERA BONASUS	1	0.4
SALMO GAIRDNERI	1	0.4
SCOMBEROMORUS MACULATUS	7	2.5
SELENE VOMER	3	1.1
SENOTILUS ATROMACULATUS	1	0.4
STRONGYLURA MARINA	14	5.1
SYMPHURUS PLAGIUSA	6	2.2
SYNGNIATHUS FUSCUS	3	1.1
TRICHIURUS LEPTURUS	1	0.4
TRINECTES MACULATUS	164	59.6

TABLE 24 RELATIVE ABUNDANCE RANKINGS OF THE MOST NUMEROUS SPECIES OF FISHES COLLECTED IN IMPINGEMENT
SAMPLES AT THE SURRY POWER STATION FROM 1974 THROUGH 1978

<u>RANK</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
1	Atlantic menhaden	threadfin shad	Atlantic menhaden	spot	spot
2	bay anchovy	Atlantic menhaden	spot	Atlantic menhaden	blueback herring
3	blueback herring	spot	blueback herring	white perch	white perch
4	spot	blueback herring	bay anchovy	threadfin shad	Atlantic menhaden
5	threadfin shad	alewife	gizzard shad	blueback herring	bay anchovy

TABLE 25. ESTIMATES OF SURVIVAL AND MORTALITY AND PERCENT TOTAL SURVIVAL OF FISHES IMPINGED AT THE SURRY POWER STATION FROM 1974 THROUGH 1978

SPECIES	ALIVE	DEAD	TFISH	PERCENT
ALOSA AESTIVALIS	1993400	224832	2218232	89.9
ALOSA MEDIOCRIS	4032	1152	5184	77.8
ALOSA PSEUDOHARENGUS	452556	32544	485100	93.3
ALOSA SAPIDISSIMA	63624	4104	67728	94.0
ALUTERUS SCHOEPPF	432	0	432	100.0
AMIA CALVA	2736	0	2736	100.0
AMMODYTES AMERICANUS	288	0	288	100.0
ANCHOA MITCHILLI	1210376	238464	1448840	83.6
ANGUILLA ROSTRATA	114744	1584	116328	98.7
BAIRDIELLA CHRYSURA	1824	0	1824	100.0
BREVOORTIA TYRANNUS	3490712	181116	3671828	95.1
CARANX HIPPOS	2592	288	2880	90.0
CENTRARCHUS MACROPTERUS	144	0	144	100.0
CHAETODIPTERUS FABER	144	0	144	100.0
CYNOSCIION NEBULOSUS	720	192	912	79.0
CYNOSCIION REGALIS	26492	3744	30236	87.7
CYPRINODON VARIEGATUS	4320	0	4320	100.0
CYPRINUS CARPIO	14976	720	15696	95.5
DOROSOMA CEPEDIANUM	939080	28344	967424	97.1
DOROSOMA PETENENSE	2017432	147144	2164576	93.3
ELOPS SAURUS	1368	0	1368	100.0
ENNEACANTHUS GLORIOSUS	1872	0	1872	100.0
ESOX NIGER	432	0	432	100.0
ETHEOSTOMA OLMSTEDI	576	0	576	100.0
FUNDULUS CONFLUENTUS	144	0	144	100.0
FUNDULUS DIAPHANUS	8064	432	8496	95.0
FUNDULUS HETEROCLITUS	193400	1008	194408	99.5
FUNDULUS MAJALIS	144	0	144	100.0
GASTEROSTEUS ACULEATUS	432	0	432	100.0
GOBIESOX STRUMOSUS	432	0	432	100.0
GOBIOSOMA BOSCI	63840	144	63984	99.8
GOBIOSOMA GINSBURGI	1152	0	1152	100.0
HYBOGNATHUS NUCHALIS	19440	288	19728	98.6
ICTALURUS CATUS	405408	3816	409224	99.1
ICTALURUS NEBULOSUS	204317	4608	208925	97.8
ICTALURUS PUNCTATUS	233088	3456	236544	98.6
LAGODON RHOMBOIDES	288	0	288	100.0
LEIOSTOMUS XANTHURUS	4204576	92544	4297120	97.9
LEPISOSTEUS OSSEUS	1008	0	1008	100.0
LEPOMIS AURITUS	1296	0	1296	100.0
LEPOMIS GIBBOSUS	125088	1728	126816	98.7
LEPOMIS MACROCHIRUS	7440	0	7440	100.0
LEPOMIS SP.	288	0	288	100.0
LUTJANUS GRISEUS	1872	0	1872	100.0
MEMBRAS MARTINICA	41592	7992	49584	83.9
MENIDIA BERYLLINA	44496	5904	50400	88.3
MENIDIA MENIDIA	212019	13536	225555	94.0
MICROPOGON UNDULATUS	519552	59688	579240	89.7
MICROPTERUS SALMOIDES	576	0	576	100.0
MORONE AMERICANA	1196712	36240	1232952	97.1
MORONE SAXATILIS	25272	576	25848	97.8
MOXOSTOMA MACROLEPIDOTUM	144	0	144	100.0
MUGIL CEPHALUS	27144	144	27288	99.5
NOTEMIGONUS CRYSOLEUCAS	40536	0	40536	100.0
NOTROPIS ANALOSTANUS	144	0	144	100.0

TABLE 25. ESTIMATES OF SURVIVAL AND MORTALITY AND PERCENT TOTAL SURVIVAL OF FISHES IMPINGED AT THE SURRY POWER STATION FROM 1974 THROUGH 1978

SPECIES	ALIVE	DEAD	TFISH	PERCENT
NOTROPIS HUDSONIUS	271176	8784	279960	96.9
PARALICHTHYS DENTATUS	14976	432	15408	97.2
PEPRILUS ALEPIDOTUS	86517	1440	87957	98.4
PEPRILUS TRIACANTHUS	288	0	288	100.0
PERCA FLAVESCENS	1008	0	1008	100.0
PETROMYZON MARINUS	1512	0	1512	100.0
POMATOMUS SALTATRIX	50352	3744	54096	93.1
POMOXIS NIGROMACULATUS	432	0	432	100.0
PRIONOTUS CAROLINUS	720	0	720	100.0
PRIONOTUS SP.	288	0	288	100.0
RHINOPTERA BONASUS	288	0	288	100.0
SALMO GAIRDNERI	144	0	144	100.0
SCOMBEROMORUS MACULATUS	2016	864	2880	70.0
SELENE VOMER	720	0	720	100.0
SEMOTILUS ATROMACULATUS	192	0	192	100.0
STRONGYLURA MARINA	3600	432	4032	89.3
SYMPHURUS PLAGIUSA	1008	432	1440	70.0
SYNGNATHUS FUSCUS	576	0	576	100.0
TRICHIURUS LEPTURUS	0	288	288	0.0
TRINECTES MACULATUS	342989	8208	351197	97.7
TOTAL	18703578	1120956	19824534	94.4

TABLE 26: LIST OF IDENTIFIED FISH EGG AND LARVAE SPECIES COLLECTED DURING
ENTRAINMENT SAMPLING AT THE SURRY POWER STATION FROM 1976 THROUGH
1978

Osteichthyes

Anguillidae - freshwater eels

Anguilla rostrata - American eel

Albulidae - bonefishes

Elops saurus - bonefish

Clupeidae - herrings

Alosa aestivalis - blueback herring

Alosa pseudoharengus - alewife

Alosa sapidissima - American shad

Alosa species

Brevoortia tyrannus - Atlantic menhaden

Dorosoma cepedianum - gizzard shad

Dorosoma petenense - threadfin shad

Engraulidae - anchovies

Anchoa hepsetus - striped anchovy

Anchoa mitchilli - bay anchovy

Cyprinidae - minnows and carps

Cyprinus carpio - carp

Notropis hudsonius - spottail shiner

Ictaluridae - freshwater catfishes

Ictalurus punctatus - channel catfish

Cyprinodontidae - killifishes

Cyprinodon variegatus - sheepshead minnow

Fundulus diaphanus - banded killifish

Fundulus heteroclitus - mummichog

Lucania parva - rainwater killifish

Atherinidae - silversides

Menidia beryllina - tidewater silverside

Membras martinica - rough silverside

Menidia menidia - Atlantic silverside

Syngnathidae - pipefishes and seahorses

Syngnathus fuscus - northern pipefish

Percichthyidae - temperate basses

Morone americana - white perch

Morone saxatilis - striped bass

Centrarchidae - sunfishes

Pomoxis nigromaculatus - black crappie

Percidae - perches

Etheostoma olmstedii - tessellated darter

Perca flavescens - yellow perch

Sciaenidae - drums

Cynoscion nebulosus - spotted seatrout

Cynoscion regalis - weakfish

Leiostomus xanthurus - spot

Micropogon undulatus - Atlantic croaker

Blennidae - combtooth blennies

Chasmodes bosquianus - striped blenny

Hypsoblennius hentzi - feather blenny

Gobiidae - gobies

Gobiosoma boscii - naked goby

Microgobius thalassinus - green goby

Stromateidae - butterfishes

Peprilus alepidotus - harvestfish

Bothidae - lefteye flounders

Paralichthys dentatus - summer flounder

Soleidae - soles

Trinectes maculatus - hogchoker

Cynoglossidae - tonguefishes

Symphurus plagiatus - blackcheek tonguefish

TABLE 27: KINDS OF ICHTHYOPLANKTON PER TAXON OF FISHES COLLECTED DURING
ENTRAINMENT SAMPLING AT THE SURRY POWER STATION FROM 1976
THROUGH 1978

<u>TAXON</u>	<u>EGGS</u>	<u>LARVAE</u>
<u>Anguilla rostrata</u>		X
<u>Elops saurus</u>		X
<u>Alosa aestivalis</u>		X
<u>Alosa pseudoharengus</u>		X
<u>Alosa sapidissima</u>	X	X
<u>Alosa species</u>	X	X
<u>Brevoortia tyrannus</u>		X
<u>Dorosoma cepedianum</u>	X	X
<u>Dorosoma petenense</u>	X	X
<u>Dorosoma species</u>	X	X
<u>Anchoa mitchilli</u>	X	X
<u>Anchoa hepsetus</u>	X	
<u>Cyprinus carpio</u>	X	X
<u>Notropis hudsonius</u>		X
<u>Cyprinidae species</u>		X
<u>Ictalurus punctatus</u>		X
<u>Cyprinodon variegatus</u>	X	X
<u>Fundulus diaphanus</u>	X	
<u>Fundulus heteroclitus</u>	X	X
<u>Lucania parva</u>		X
<u>Membras martinica</u>	X	X
<u>Menidia beryllina</u>	X	X
<u>Menidia menidia</u>	X	X
<u>Atherinidae species</u>		X
<u>Syngnathus fuscus</u>		X
<u>Morone americana</u>	X	X
<u>Morone saxatilis</u>	X	X
<u>Pomoxis nigromaculatus</u>		X
<u>Etheostoma olmstedii</u>		X
<u>Perca flavescens</u>		X
<u>Cynoscion nebulosus</u>		X
<u>Cynoscion regalis</u>		X
<u>Leiostomus xanthurus</u>		X
<u>Micropogon undulatus</u>		X
<u>Chasmodes bosquianus</u>		X

TABLE 27: (Cont'd)

<u>TAXON</u>	EGGS	<u>LARVAE</u>
<u>Hypsoblennius hentzi</u>		X
<u>Gobiosoma boscii</u>	X	X
<u>Microgobius thalassinus</u>		X
<u>Peprilus alepidotus</u>		X
<u>Paralichthys dentatus</u>		X
<u>Trinectes maculatus</u>		X
<u>Symphurus plagiusa</u>		X
Unknown	X	X
Total Taxon	18	40
Species diversity	15	35
Generic diversity	2	2
Family diversity	-	2
Unknown	1	1

TABLE 28: PERCENT TOTAL CALCULATED CATCH PER CALENDAR YEAR OF BAY ANCHOVY AND NAKED GOBY EGGS AND LARVAE AT THE SURRY POWER STATION FROM 1976 THROUGH 1978

<u>YEAR</u>	<u>% BAY ANCHOVY</u>	<u>% NAKED GOBY</u>	<u>% TOTAL OF ALL SPECIES</u>
1976	59	33	92
1977	68.5	23.2	91.7
1978	66.0	23.6	89.6
\bar{x}	64.5	26.6	91.1

TABLE 29: MAXIMUM NUMBER/M³ OF BAY ANCHOVY AND NAKED GOBY EGGS AND LARVAE COLLECTED PER CALENDAR YEAR AND DATE OF OCCURRENCE AT THE SURRY POWER STATION

<u>YEAR</u>	<u>BAY ANCHOVY</u>		<u>NAKED GOBY</u>	
	<u>EGGS (DATE)</u>	<u>LARVAE (DATE)</u>	<u>EGGS (DATE)</u>	<u>LARVAE (DATE)</u>
1976	51 (May 18)	14 (July 26)	-	27 (July 26)
1977	42 (July 21)	2 (July 21)	-	37 (July 21)
1978	95 (June 22)	5 (August 17)	-	15 (August 17)
\bar{x}	62.6	7.0	-	25.7

TABLE 30. SCIENTIFIC AND COMMON NAMES OF FISHES COLLECTED
IN ALL SAMPLING PROGRAMS AT THE SURRY POWER STATION
1970 THROUGH 1978

GADIDAE	- codfishes
UROPHYCIS REGIUS	- spotted hake
BELONIDAE	- needlefishes
STRONGYLURA MARINA	- Atlantic needlefish
CYPRINODONTIDAE	- killifishes
CYPRINODON VARIEGATUS	- sheepshead minnow
FUNDULUS CONFLUENTUS	- marsh killifish
FUNDULUS DIAPHANUS	- banded killifish
FUNDULUS HETEROCLITUS	- mummichog
FUNDULUS LUCIAE	- spotfin killifish
FUNDULUS MAJALIS	- striped killifish
LUCANIA PARVA	- rainwater killifish
POECILIIDAE	- livebearers
GAMBUSIA AFFINIS	- mosquitofish
ATHERINIDAE	- silversides
MEMBRAS MARTINICA	- rough silverside
MENIDIA BERYLLINA	- tidewater silverside
MENIDIA MENIDIA	- Atlantic silverside
GASTEROSTEIDAE	- sticklebacks
GASTEROSTEUS ACULEATUS	- threespine stickleback
SYNGNATHIDAE	- pipefishes and seahorses
SYNGNATHUS FUSCUS	- northern pipefish
PERCICHTHYIDAE	- temperate basses
MORONE AMERICANA	- white perch
MORONE SAXATILIS	- striped bass
CENTRARCHIDAE	- sunfishes
CENTRARCHUS MACROPTERUS	- flier
ENNEACANTHUS GLORIOSUS	- bluespotted sunfish
LEPOMIS AURITUS	- redbreast sunfish
LEPOMIS GIBBOSUS	- pumpkinseed
LEPOMIS GULOSUS	- warmouth
LEPOMIS MACROCHIRUS	- bluegill
MICROPTERUS DOLOMIEUI	- smallmouth bass
MICROPTERUS SALMOIDES	- largemouth bass
POMOXIS NIGROMACULATUS	- black crappie

TABLE 30. SCIENTIFIC AND COMMON NAMES OF FISHES COLLECTED
IN ALL SAMPLING PROGRAMS AT THE SURRY POWER STATION
1970 THROUGH 1978

PERCIDAE - perches
ETHEOSTOMA NIGRUM - johnny darter
ETHEOSTOMA OLMSTEDI - tessellated darter
PERCA FLAVESCENS - yellow perch

POMOTOMIDAE - bluefishes
POMATOMUS SALTATRIX - bluefish

CARANGIDAE - jacks and pompanos
CARANX HIPPOS - crevalle jack
SELENE VOMER - lookdown

LUTJANIDAE - snappers
LUTJANUS GRISEUS - gray snapper

GERRIDAE - mojarras
EUCINOSTOMUS ARGENTEUS - spotfin mojarra

SPARIDAE - porgies
LAGODON RHOMBOIDES - pinfish

SCIAENIDAE - drums
BAIRDIELLA CHRYSURA - silver perch
CYNOSCIION NEBULOSUS - spotted seatrout
CYNOSCIION REGALIS - weakfish
LEIOSTOMUS XANTHURUS - spot
MICROPOGON UNDULATUS - Atlantic croaker

EPHIPPIDAE - spadefishes
CHAETODIPTERUS FABER - Atlantic spadefish

MUGILIDAE - mullets
MUGIL CEPHALUS - striped mullet
MUGIL CUREMA - white mullet

TABLE 30. SCIENTIFIC AND COMMON NAMES OF FISHES COLLECTED
IN ALL SAMPLING PROGRAMS AT THE SURRY POWER STATION
1970 THROUGH 1978

AGNATHA

PETROMYZONTIDAE - lampreys
PETROMYZON MARINUS - sea lamprey

CHONDRICHTHYES

MYLIOBATIDAE - eagle rays
RHINOPTERA BONASUS - cownose ray

OSTEICHTHYES

ACIPENSERIDAE - sturgeons
ACIPENSER OXYRHYNCHUS - Atlantic sturgeon

LEPISOSTEIDAE - gar
LEPISOSTEUS OSSEUS - longnose gar

AMIIDAE - bowfins
AMIA CALVA - bowfin

ELOPIDAE - tarpons
ELOPS SAURUS - ladyfish

ALBULIDAE - bonefishes
ALBULA VULPES - bonefish

ANGUILLIDAE - freshwater eels
ANGUILLA ROSTRATA - American eel

CLUPEIDAE - herrings
ALOSA AESTIVALIS - blueback herring
ALOSA MEDIOCRIS - hickory shad
ALOSA PSEUDOHARENGUS - alewife
ALOSA SAPIDISSIMA - American shad
BREVOORTIA TYRANNUS - Atlantic menhaden
DOROSOMA CEPEDIANUM - gizzard shad
DOROSOMA PETENENSE - threadfin shad

TABLE 30. SCIENTIFIC AND COMMON NAMES OF FISHES COLLECTED
IN ALL SAMPLING PROGRAMS AT THE SURRY POWER STATION
1970 THROUGH 1978

ENGRAULIDAE - anchovies
 ANCHOA HEPSETUS - striped anchovy
 ANCHOA MITCHILLI - bay anchovy

SALMONIDAE - trouts
 SALMO GAIARDNERI - rainbow trout

UMBRIDAE - mudminnows
 UMBRA PYGMAEA - eastern mudminnow

ESOCIDAE - pikes
 ESOX AMERICANUS - redfin, grass pickerel
 ESOX NIGER - chain pickerel

CYPRINIDAE - minnows and carps
 CYPRINUS CARPIO - carp
 HYBOGNATHUS NUCHALIS - silvery minnow
 NOTEMIGONUS CRYSOLEUCAS - golden shiner
 NOTROPIS ANALOSTANUS - satinfish shiner
 NOTROPIS BIFRENATUS - bridle shiner
 NOTROPIS CHALYBAEUS - ironcolor shiner
 NOTROPIS CORNUTUS - common shiner
 NOTROPIS HUDSONIUS - spottail shiner
 NOTROPIS PROCNE - swallowtail shiner
 SEMOTILUS ATROMACULATUS - creek chub

CATOSTOMIDAE - suckers
 MOXOSTOMA MACROLEPIDOTUM - shorthead redhorse

ICTALURIDAE - freshwater catfishes
 ICTALURUS CATUS - white catfish
 ICTALURUS NEBULOSUS - brown bullhead
 ICTALURUS PUNCTATUS - channel catfish

GOBIESOCIDAE - clingfishes
 GOBIESOX STRUMOSUS - skilletfish

TABLE 30. SCIENTIFIC AND COMMON NAMES OF FISHES COLLECTED
IN ALL SAMPLING PROGRAMS AT THE SURRY POWER STATION
1970 THROUGH 1978

BLENNIIDAE - combtooth blennies
 CHASMODES BOSQUIANUS - striped blenny
 HYPSOBLENNIUS HENTZI - feather blenny

 AMMODYTIDAE - sand lances
 AMMODYTES AMERICANUS - American sand lance

 GOBIIDAE - gobies
 GOBIOSOMA BOSCI - naked goby
 GOBIOSOMA GINSBURGI - seaboard goby
 MICROGOBIUS THALASSI - green goby

 TRICHIURIDAE - cutlassfishes
 TRICHIURUS LEPTURUS - Atlantic cutlassfish

 SCOMBRIDAE - mackerels and tunas
 SCOMBEROMORUS MACULATUS - Spanish mackerel

 STROMATEIDAE - butterfishes
 PEPRILUS ALEPIDOTUS - harvestfish
 PEPRILUS TRIACANTHUS - butterfish

 TRIGLIDAE - searobins
 PRIONOTUS CAROLINUS - northern searobin
 PRIONOTUS TRIBULUS - bighead searobin

 BOTHIDAE - lefteye flounders
 CITHARICHTHYS SPILOPTERUS - bay whiff
 PARALICHTHYS DENTATUS - summer flounder

 SOLEIDAE - soles
 TRINECTES MACULATUS - hogchoker

 CYNOGLOSSIDAE - tonguefishes
 SYMPHURUS PLAGIUSA - blackcheek tonguefish

TABLE 30. SCIENTIFIC AND COMMON NAMES OF FISHES COLLECTED
IN ALL SAMPLING PROGRAMS AT THE SURRY POWER STATION
1970 THROUGH 1978

BALISTIDAE - triggerfishes and filefishes
ALUTERUS SCHOEPFI - orange filefish

TABLE 31: RELATIVE ABUNDANCE RANKINGS OF MOST NUMEROUS SPECIES OF FISHES
COLLECTED WITH EACH GEAR TYPE FROM THE JAMES RIVER NEAR SURRY
POWER STATION

<u>RANK</u>	<u>MONTHLY HAUL SEINES</u>	<u>MONTHLY OTTER TRAWLS</u>	<u>SPECIAL HAUL SEINES</u>	<u>LOW-LEVEL SCREENS</u>
1	Atlantic menhaden	hogchoker	Atlantic menhaden	spot
2	blueback herring	spot	Atlantic silverside	Atlantic menhaden
3	bay anchovy	channel catfish	bay anchovy	blueback herring
4	tidewater silverside	Atlantic croaker	spot	threadfin shad
5	spottail shiner	bay anchovy	spottail shiner	bay anchovy

TABLE 32. RELATIVE CATCH OF FISH SPECIES BY GEAR TYPE

(NOTE 1)

1970-1978

NOT ALL METHODS WERE USED IN ALL YEARS

SPECIES	LOW-LEVEL SCREENS	SPECIAL SEINE	HAUL SEINE	TRAWL
ACIPENSER OXYRHYNCHUS	.	.	LT 0.1	LT 0.1
ALBULA VULPES	.	.	LT 0.1	.
ALOSA AESTIVALIS	11.2	2.7	14.1	0.3
ALOSA MEDIOCRIS	LT 0.1	LT 0.1	0.1	LT 0.1
ALOSA PSEUDOHARENGUS	2.4	0.1	2.6	0.6
ALOSA SAPIDISSIMA	0.3	0.1	1.8	0.3
ALUTERUS SCHOEPPF	LT 0.1	.	.	.
AMIA CALVA	LT 0.1	.	.	.
AMMODYTES AMERICANUS	LT 0.1	.	.	.
ANCHOA HEPSETUS	.	LT 0.1	LT 0.1	LT 0.1
ANCHOA MITCHILLI	7.3	7.8	13.2	9.5
ANGUILLA ROSTRATA	0.6	LT 0.1	LT 0.1	0.7
BAIRDIELLA CHRYSURA	LT 0.1	.	LT 0.1	0.1
BREVOORTIA TYRANNUS	18.5	49.6	26.6	0.2
CARANX HIPPOS	LT 0.1	LT 0.1	LT 0.1	0.1
CENTRARCHUS MACROPTERUS	LT 0.1	.	.	.
CHAETODIPTERUS FABER	LT 0.1	.	.	.
CITHARICHTHYS SPILOPTERUS	.	LT 0.1	.	.
CYNOSCION NEBULOSUS	LT 0.1	.	.	.
CYNOSCION REGALIS	0.2	LT 0.1	LT 0.1	0.3
CYPRINODON VARIEGATUS	LT 0.1	LT 0.1	LT 0.1	.
CYPRINUS CARPIO	0.1	0.1	LT 0.1	0.3
DOROSOMA CEPEDIANUM	4.9	0.8	0.3	0.6
DOROSOMA PETENENSE	10.9	0.2	0.1	2.2
ELOPS SAURUS	LT 0.1	LT 0.1	LT 0.1	LT 0.1
ENNEACANTHUS GLORIOSUS	LT 0.1	.	LT 0.1	LT 0.1
ESOX AMERICANUS	.	.	LT 0.1	.
ESOX NIGER	LT 0.1	.	LT 0.1	.
ETHEOSTOMA NIGRUM	.	LT 0.1	LT 0.1	.
ETHEOSTOMA OLMSTEDI	LT 0.1	LT 0.1	LT 0.1	0.1
EUCINOSTOMUS ARGENTEUS	.	.	.	LT 0.1
FUNDULUS CONFLUENTUS	LT 0.1	.	.	.
FUNDULUS DIAPHANUS	LT 0.1	0.4	1.5	LT 0.1
FUNDULUS HETEROCLITUS	1.0	1.6	0.9	.
FUNDULUS LUCIAE	.	.	LT 0.1	.
FUNDULUS MAJALIS	LT 0.1	LT 0.1	LT 0.1	.
GAMBUSIA AFFINIS	.	.	LT 0.1	.
GASTEROSTEUS ACULEATUS	LT 0.1	.	.	.
GOBIESOX STRUMOSUS	LT 0.1	.	.	.
GOBIOSOMA BOSCI	0.3	LT 0.1	LT 0.1	LT 0.1
GOBIOSOMA GINSBURGI	LT 0.1	.	.	LT 0.1
HYBOGNATHUS NUCHALIS	0.1	0.3	0.1	LT 0.1
ICTALURUS CATUS	2.1	LT 0.1	LT 0.1	4.0
ICTALURUS NEBULOSUS	1.1	0.1	0.1	0.3
ICTALURUS PUNCTATUS	1.2	0.2	0.3	12.9
LAGODON RHOMBOIDES	LT 0.1	.	.	.
LEIOSTOMUS XANTHURUS	21.7	6.7	5.6	22.1
LEPISOSTEUS OSSEUS	LT 0.1	.	LT 0.1	LT 0.1

NOTE 1. FISH NOT IDENTIFIED TO SPECIES WERE NOT SHOWN IN LIST BUT WERE INCLUDED IN CALCULATING PERCENTAGES.

TABLE 32. RELATIVE CATCH OF FISH SPECIES BY GEAR TYPE

(NOTE 1)

1970-1978

NOT ALL METHODS WERE USED IN ALL YEARS

SPECIES	LOW-LEVEL SCREENS	SPECIAL SEINE	HAUL SEINE	TRAWL
LEPOMIS AURITUS	LT 0.1	.	LT 0.1	LT 0.1
LEPOMIS GIBBOSUS	0.6	0.1	0.1	0.1
LEPOMIS MACROCHIRUS	LT 0.1	LT 0.1	LT 0.1	.
LUTJANUS GRISEUS	LT 0.1	LT 0.1	.	.
MEMBRAS MARTINICA	0.3	0.2	0.1	.
MENIDIA BERYLLINA	0.3	5.0	11.4	0.1
MENIDIA MENIDIA	1.1	10.8	5.0	LT 0.1
MICROPOGON UNDULATUS	2.9	0.9	0.4	9.4
MICROPTERUS DOLOMIEUI	.	.	LT 0.1	.
MICROPTERUS SALMOIDES	LT 0.1	LT 0.1	LT 0.1	.
MORONE AMERICANA	6.2	0.5	1.8	5.1
MORONE SAXATILIS	0.1	0.1	0.7	0.3
MOXOSTOMA MACROLEPIDOTUM	LT 0.1	.	LT 0.1	.
MUGIL CEPHALUS	0.1	0.5	0.1	.
MUGIL CUREMA	.	LT 0.1	LT 0.1	.
NOTEMIGONUS CRYSOLEUCAS	0.2	2.2	1.0	.
NOTROPIS ANALOSTANUS	LT 0.1	LT 0.1	0.1	.
NOTROPIS BIFRENATUS	.	LT 0.1	LT 0.1	.
NOTROPIS CHALYBAEUS	.	.	LT 0.1	.
NOTROPIS CORNUTUS	.	LT 0.1	0.1	.
NOTROPIS HUDSONIUS	1.4	5.3	8.4	2.4
NOTROPIS PROCNE	.	LT 0.1	.	.
PARALICHTHYS DENTATUS	0.1	LT 0.1	LT 0.1	0.1
PEPRILUS ALEPIDOTUS	0.4	.	LT 0.1	LT 0.1
PEPRILUS TRIACANTHUS	LT 0.1	.	.	LT 0.1
PERCA FLAVESCENS	LT 0.1	LT 0.1	LT 0.1	LT 0.1
PETROMYZON MARINUS	LT 0.1	.	.	.
POMATOMUS SALTATRIX	0.3	LT 0.1	LT 0.1	LT 0.1
POMOXIS NIGROMACULATUS	LT 0.1	.	LT 0.1	.
PRIONOTUS CAROLINUS	LT 0.1	.	.	.
RHINOPTERA BONASUS	LT 0.1	.	.	.
SALMO GAIRDNERI	LT 0.1	.	.	.
SCOMBEROMORUS MACULATUS	LT 0.1	.	.	.
SELENE VOMER	LT 0.1	.	.	.
SEMOTILUS ATROMACULATUS	LT 0.1	.	.	.
STRONGYLURA MARINA	LT 0.1	LT 0.1	0.2	.
SYMPHURUS PLAGIUSA	LT 0.1	.	LT 0.1	LT 0.1
SYNGNATHUS FUSCUS	LT 0.1	.	.	.
TRICHIURUS LEPTURUS	LT 0.1	.	.	.
TRINECTES MACULATUS	1.8	LT 0.1	0.1	27.6
UMBRA PYGMAEA	.	.	LT 0.1	.
UROPHYCIS REGIUS	.	.	.	LT 0.1

NOTE 1. FISH NOT IDENTIFIED TO SPECIES WERE NOT SHOWN IN LIST BUT WERE INCLUDED IN CALCULATING PERCENTAGES.

FIGURES

<u>NUMBER</u>	<u>TITLE</u>
1	General location of the Surry Power Station with 10, 20, 30, 40, and 50 mi (16.1, 32.2, 48.3, 64.4, and 80.5 km) radii superimposed
2	Environs of the Surry Power Station with 1, 2, 3, 4, 5, and 10 mi (1.6, 3.2, 4.8, 6.4, 8.0, and 16.1 km) radii superimposed
3	Topography of Gravel Neck including the Surry Power Station
4	Geologic features of Gravel Neck including the Surry Power Station
5	Temperature-salinity hydroclimographs showing average conditions for seven monthly haul seine stations by month by year, 1970-1978 (averages recorded during other monitoring programs were similar and are not presented)
6	Bathymetric features of the James River in the vicinity of the Surry Power Station
7	Site plan of the Surry Power Station
8	Simplified flow diagram of the steam-electric system of a generating unit at the Surry Power Station
9	Simplified flow diagram of the heat dissipation system at the Surry Power Station
10	Schematic of the cooling water intake system at the Surry Power Station prior to the installation of the Ristroph traveling fish screen (not to scale)
11	Schematic of the cooling water discharge system at the Surry Power Station (not to scale)
12	Diagram of the river intake channel of the Surry Power Station
13	Plot plan of the low-level intake structure of the Surry Power Station
14	Side-view schematic of a low-level intake bay at the Surry Power Station
15	Side-view diagram of the Ristroph traveling fish screen with selected features labeled
16	Location of the sampling stations (0001-0007) for the monthly haul seine program
17	Location of the sampling stations (0009-0014) for the monthly otter trawl program
18	Location of the sampling stations (HPE, HPN, and HPW) for the special haul seine program

FIGURES (CONT'D)

<u>NUMBER</u>	<u>TITLE</u>
19	Diagram illustrating shore seining technique used in the special haul seine program
20	Total length size frequencies of fishes collected by various gear types
21	Estimated seasonal abundance of spot impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978
22	Estimated seasonal abundance of Atlantic menhaden impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978
23	Estimated seasonal abundance of blueback herring impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978
24	Estimated seasonal abundance of threadfin shad impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978
25	Estimated seasonal abundance of bay anchovy impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978
26	Estimated seasonal abundance of all fishes impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978
27	Seasonal composites of diversity (H'), evenness (J), and richness (D) variables and the number of species for all stations sampled in the monthly haul seine and otter trawl programs at the Surry Power Station from 1970 through 1978

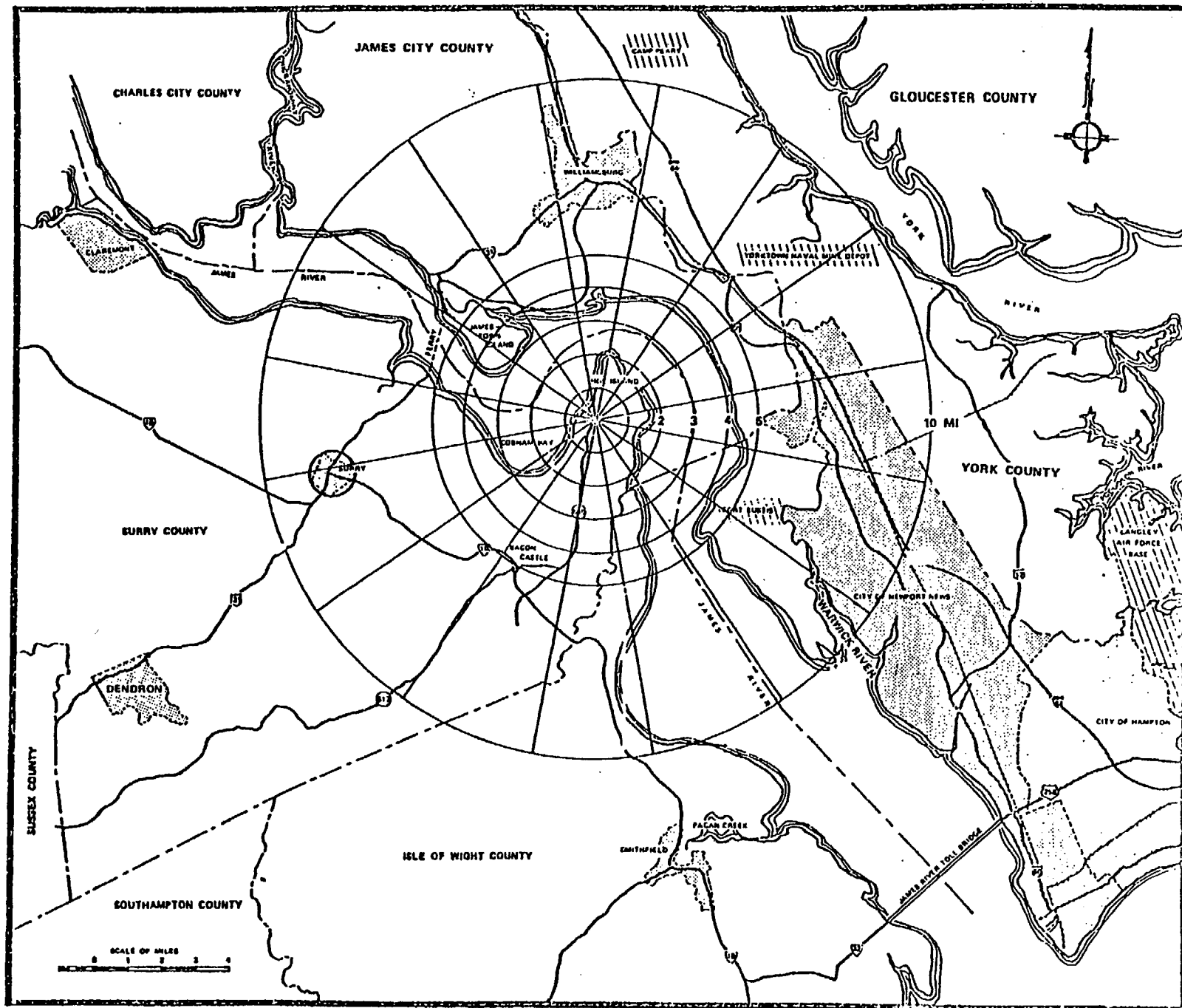


FIGURE 2: Environs of the Surry Power Station with 1, 2, 3, 4, 5, and 10 mi (1.6, 3.2, 4.8, 6.4, 8.0, and 16.1 km) radii superimposed.

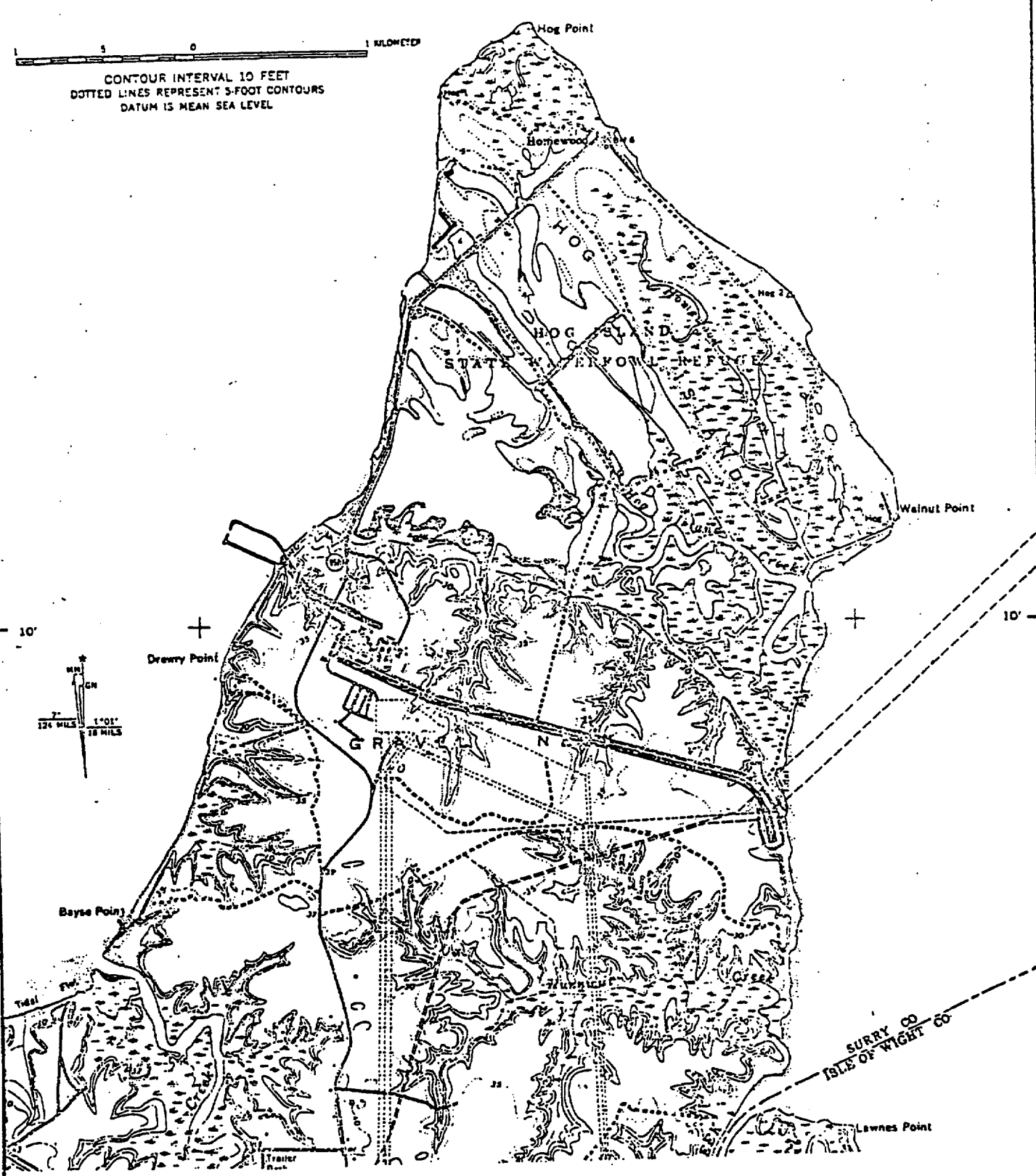


FIGURE 3: Topography of Gravel Neck including the Surry Power Station

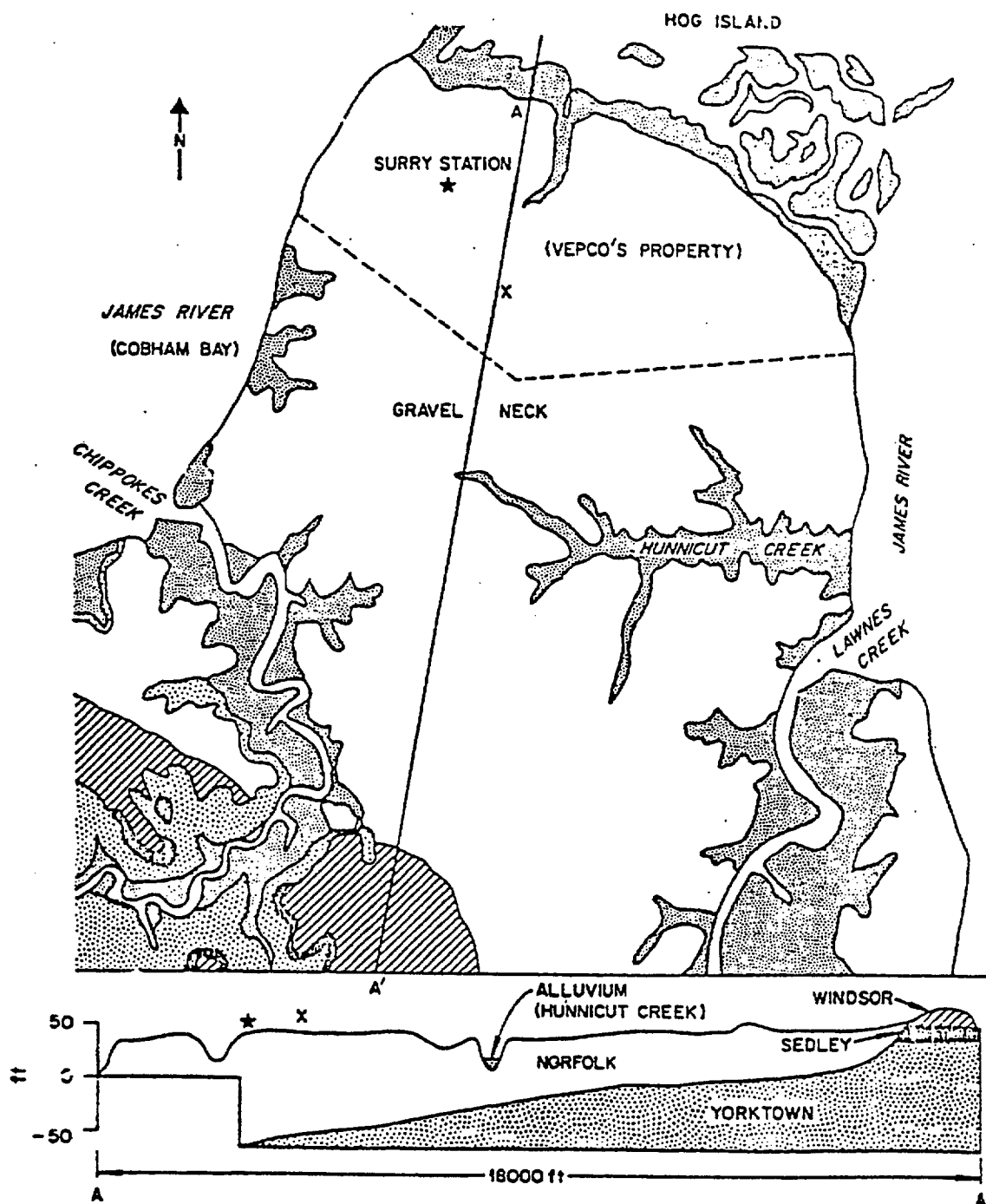


FIGURE 4: Geologic features of Gravel Neck including the Surrey Power Station

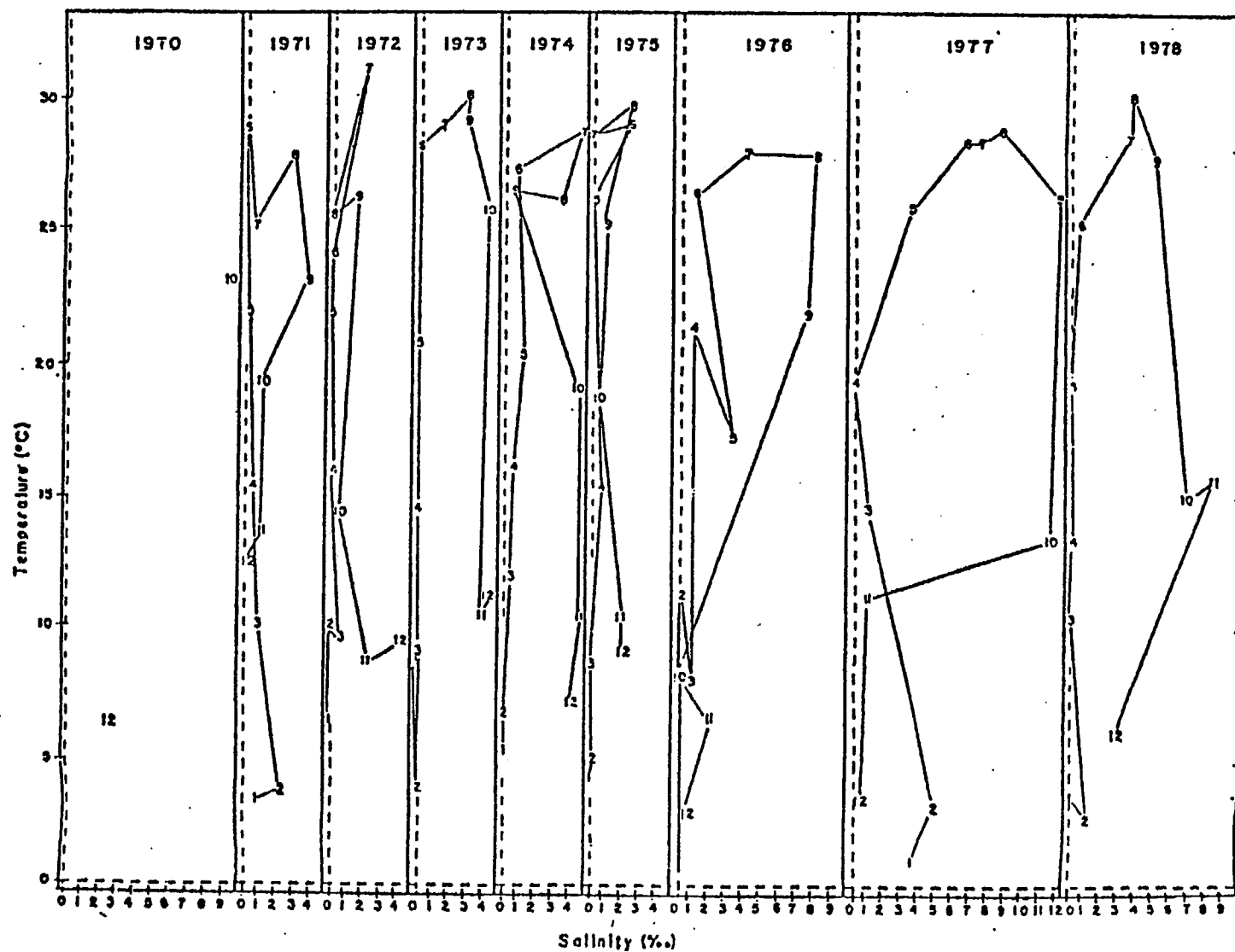


FIGURE 5: Temperature - salinity hydroclimographs showing average conditions for seven monthly haul seine stations by month by year, 1970-1978 (averages recorded during other monitoring programs were similar and are not presented).

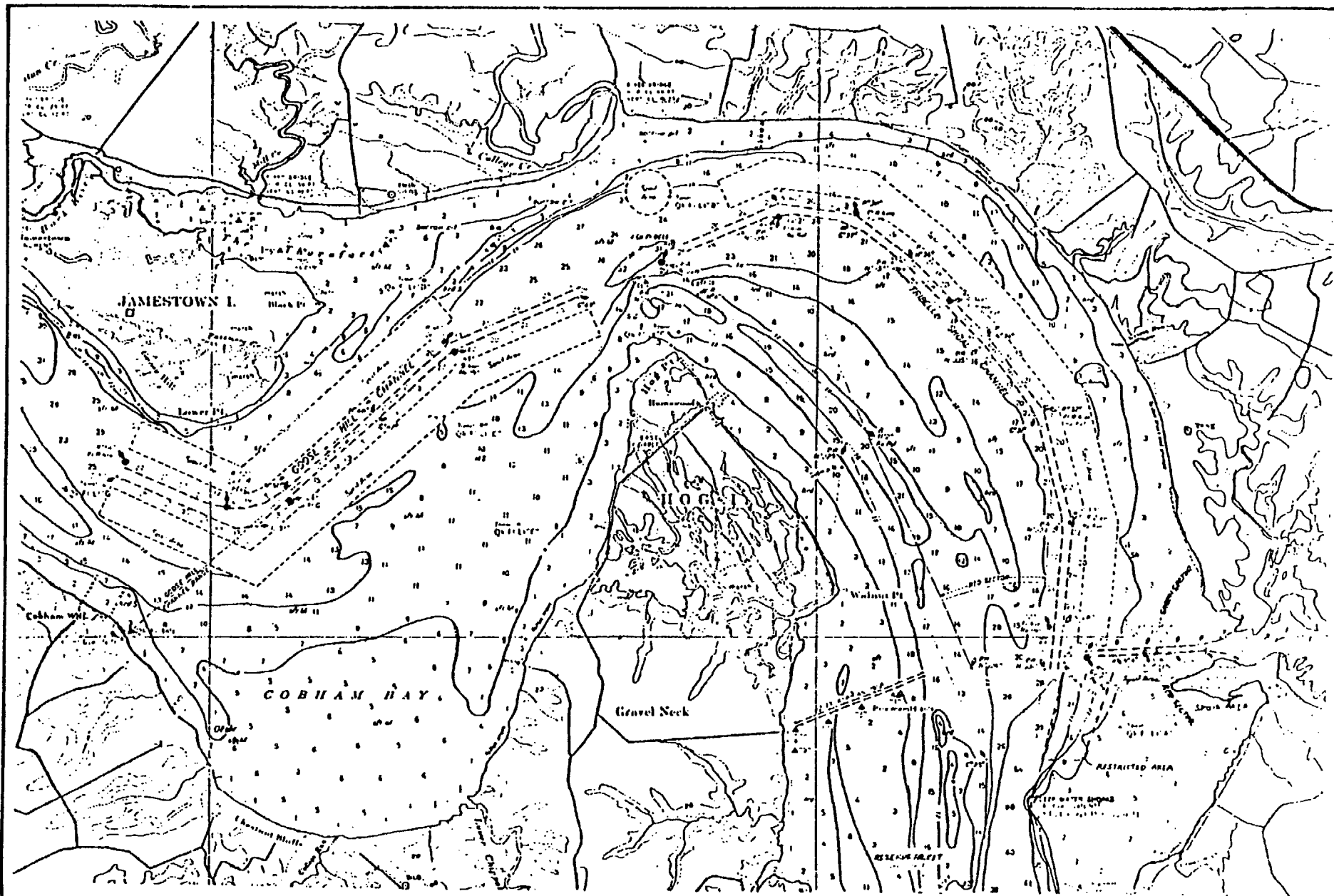
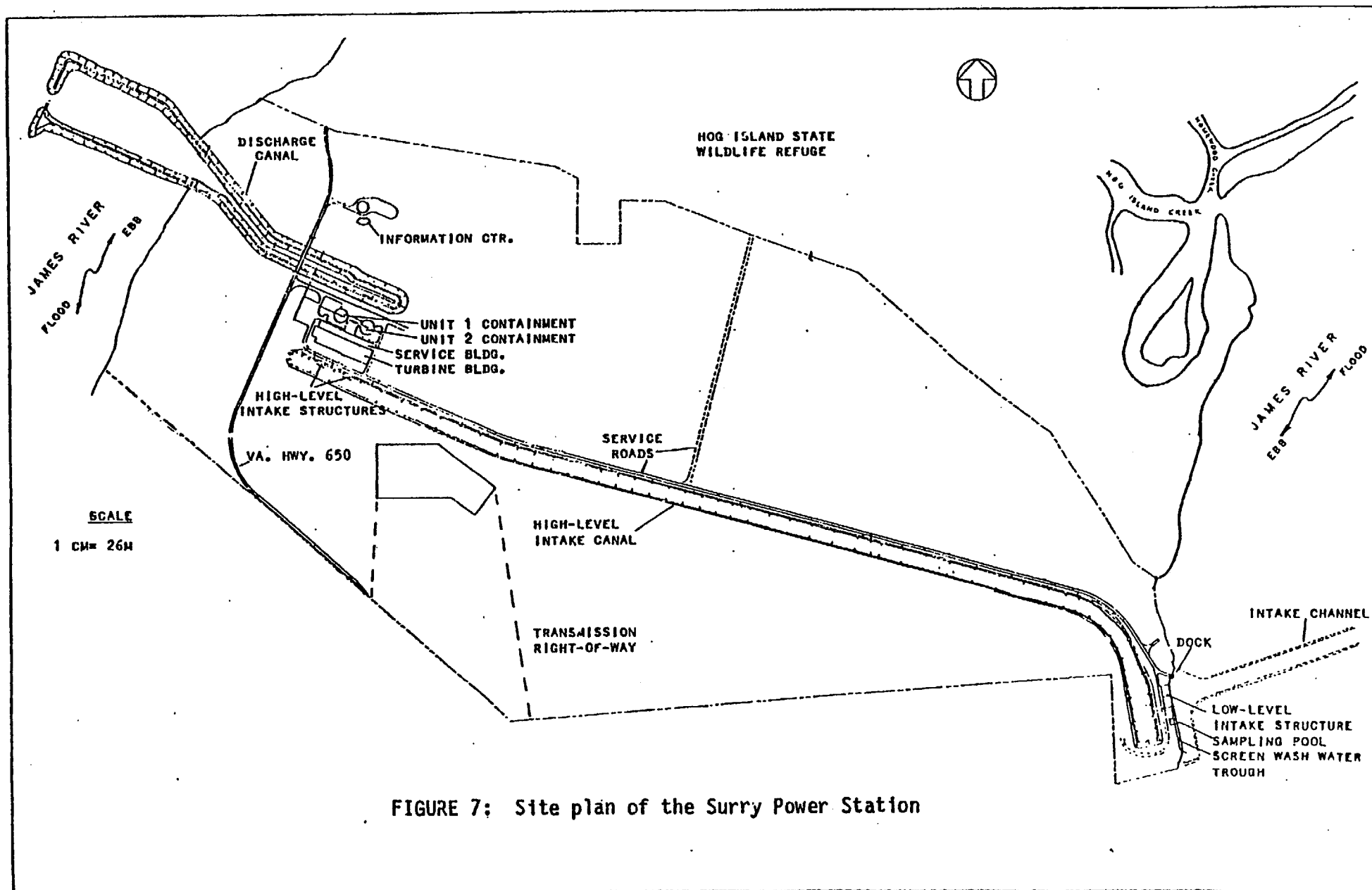


FIGURE 6: Bathymetric features of the James River in the vicinity of the Surry Power Station



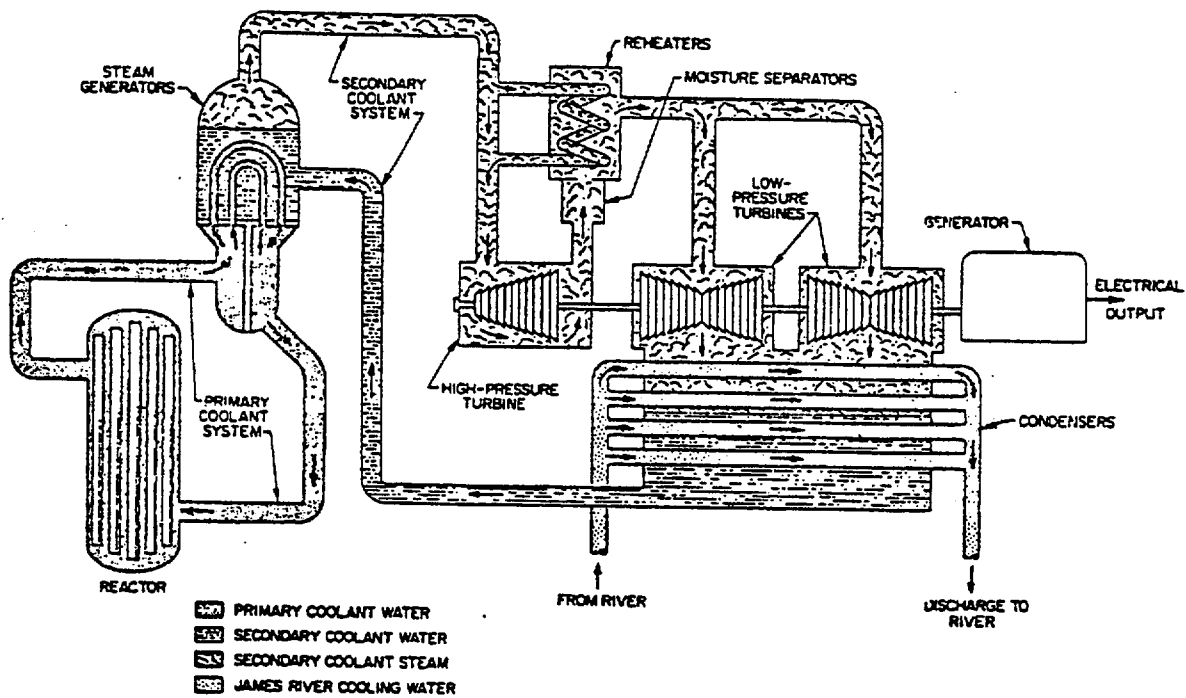
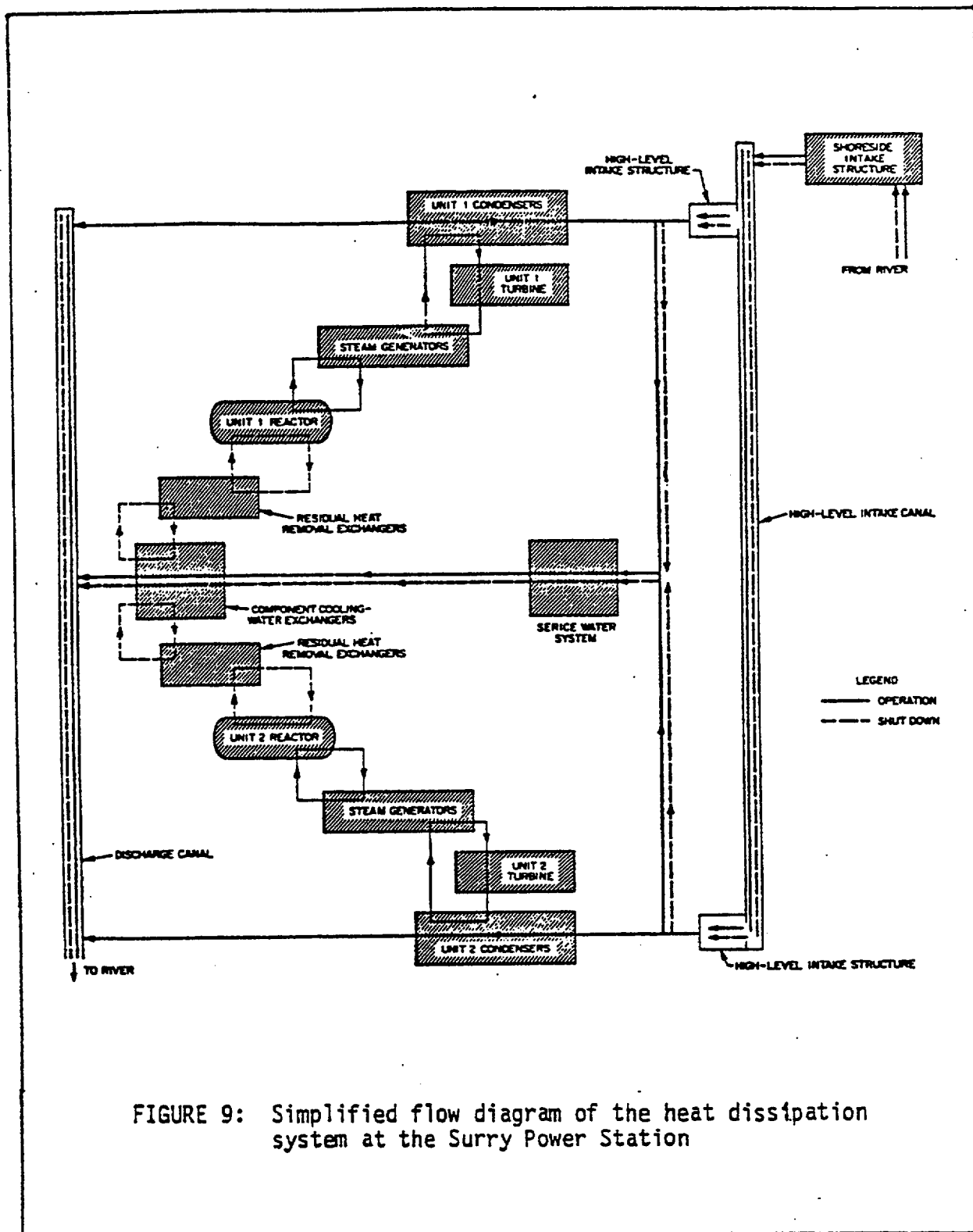


FIGURE 8: Simplified flow diagram of the steam-electric system of a generating unit at the Surry Power Station.



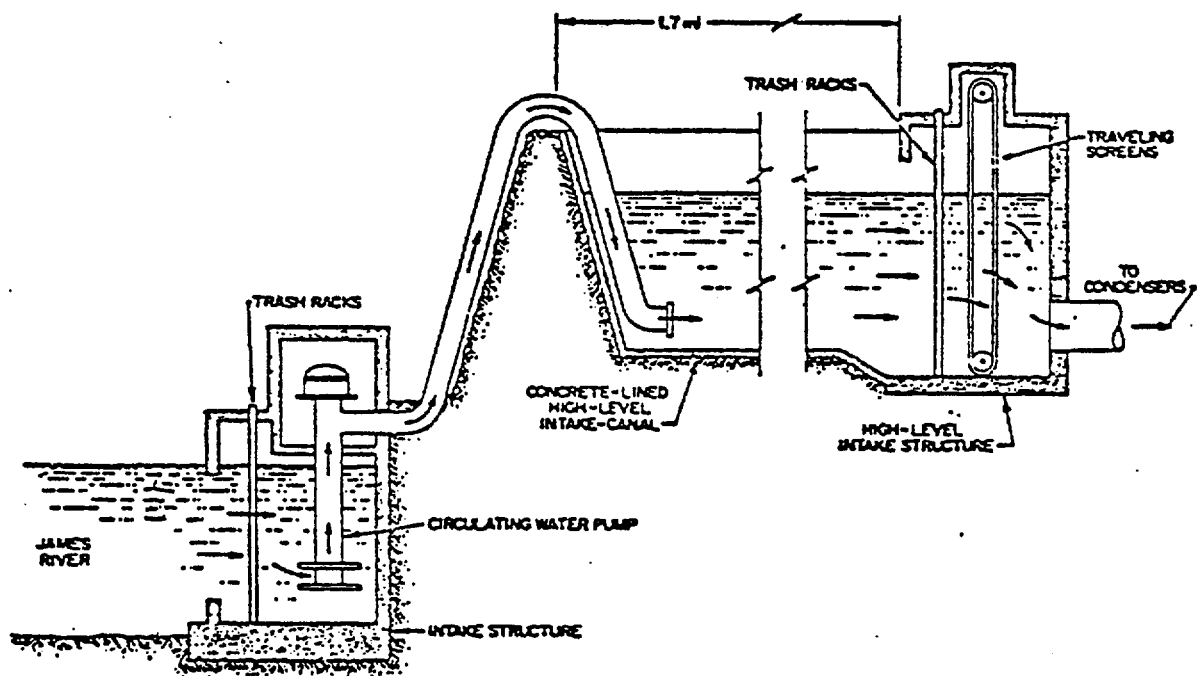


FIGURE 10: Schematic of the cooling water intake system at the Surry Power Station prior to the installation of the Ristroph traveling fish screen (not to scale)

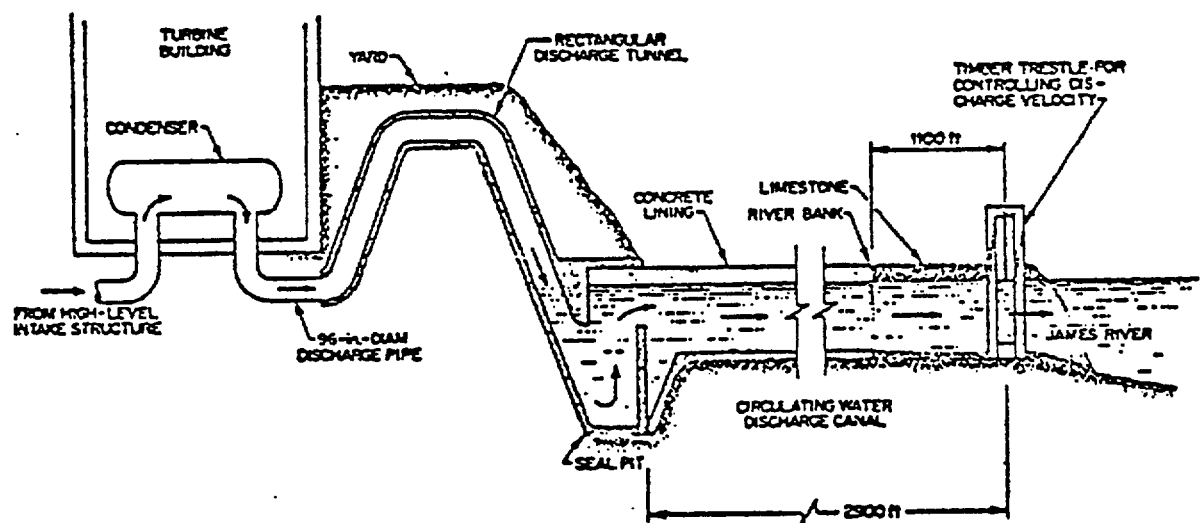


FIGURE 11: Schematic of the cooling water discharge system at the Surry Power Station (not to scale)

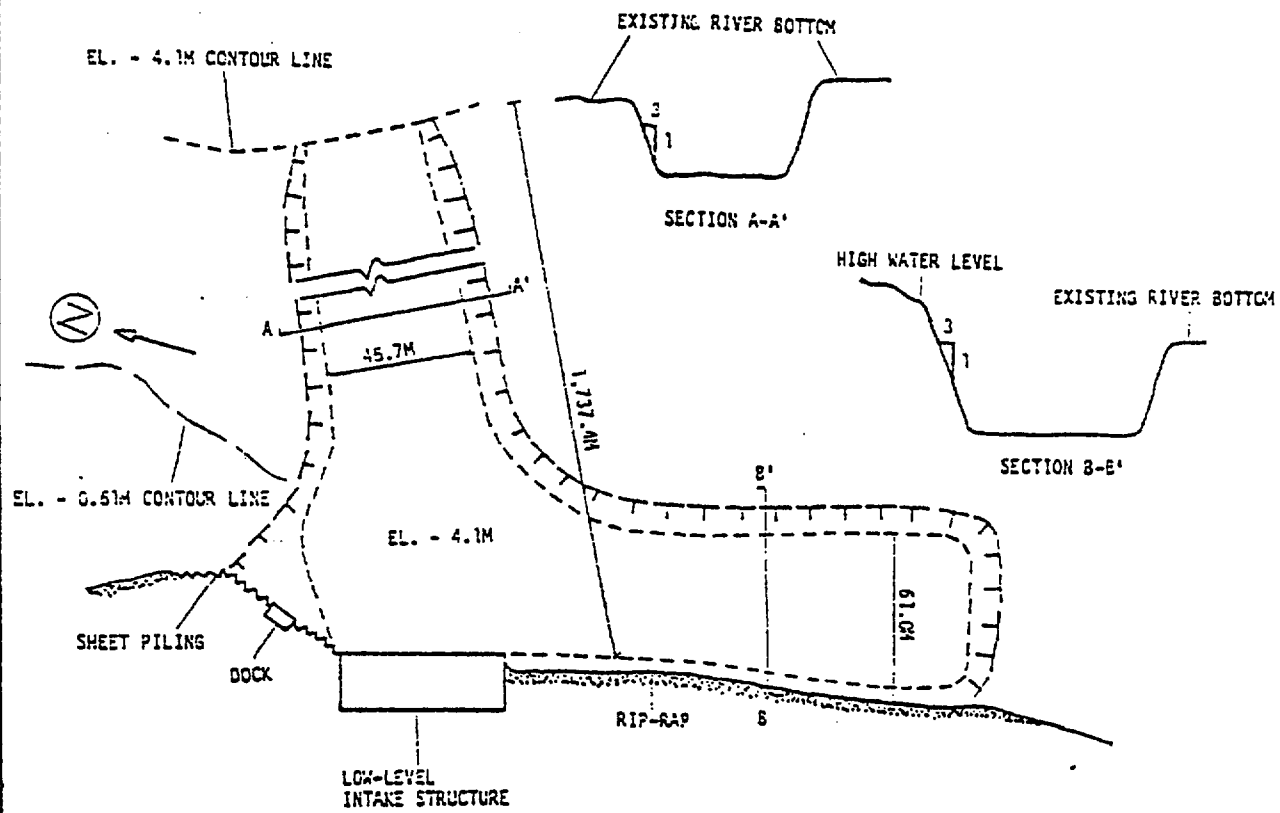


FIGURE 12: Diagram of the river intake channel of the Surry Power Station.

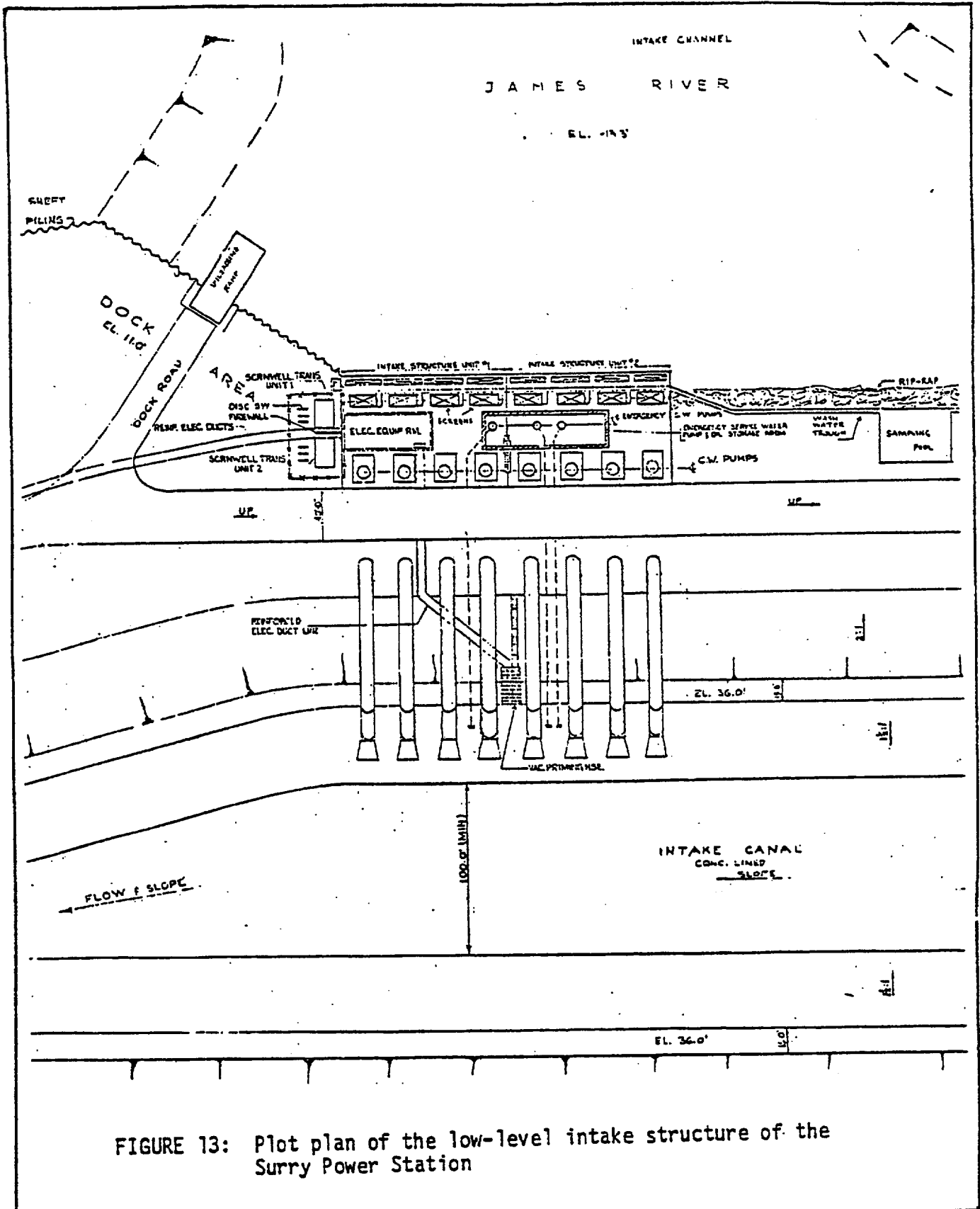


FIGURE 13: Plot plan of the low-level intake structure of the Surry Power Station

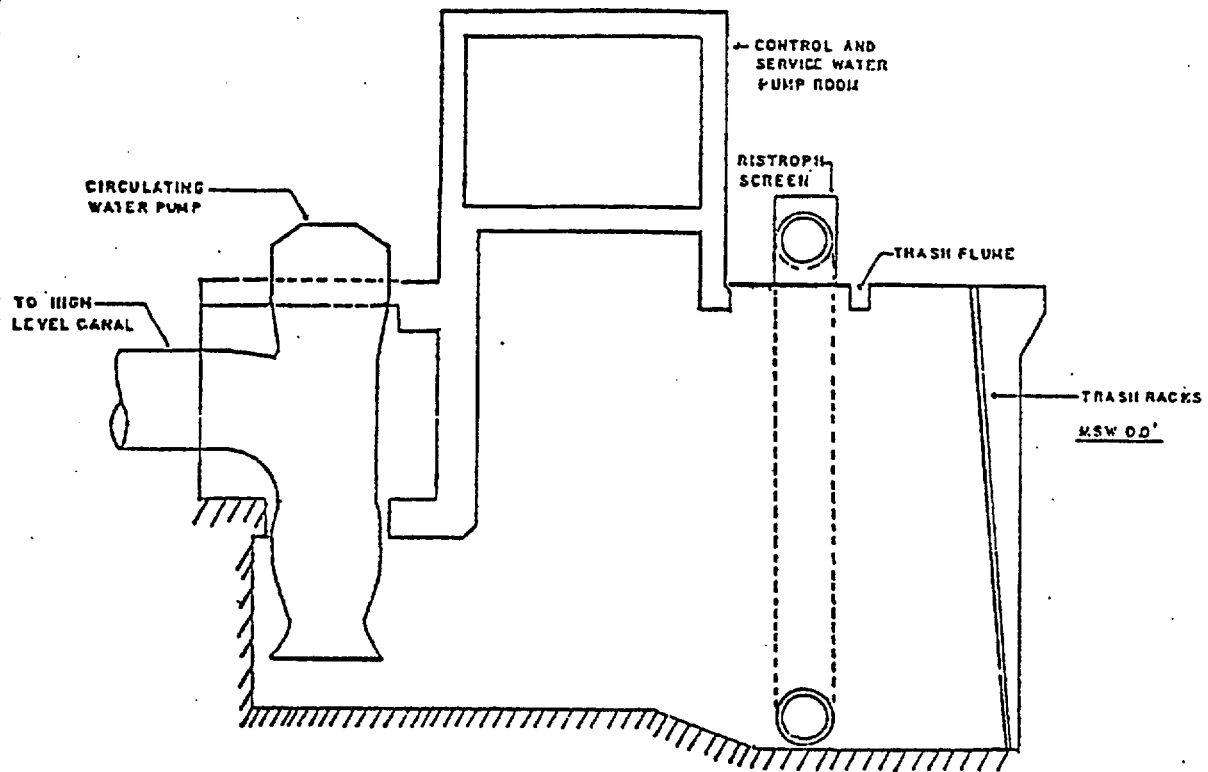


FIGURE 14: Side-view schematic of a low-level intake bay at the Surry Power Station

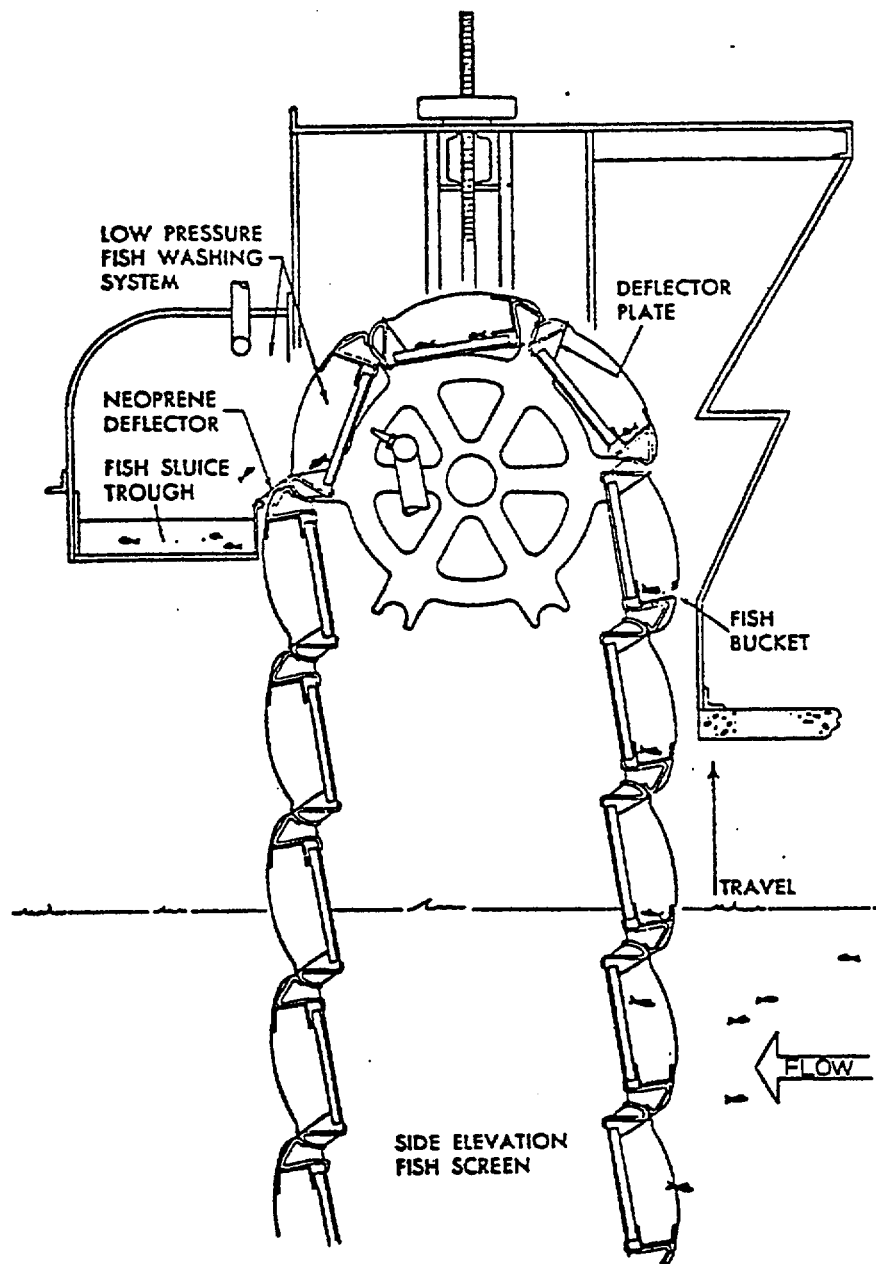
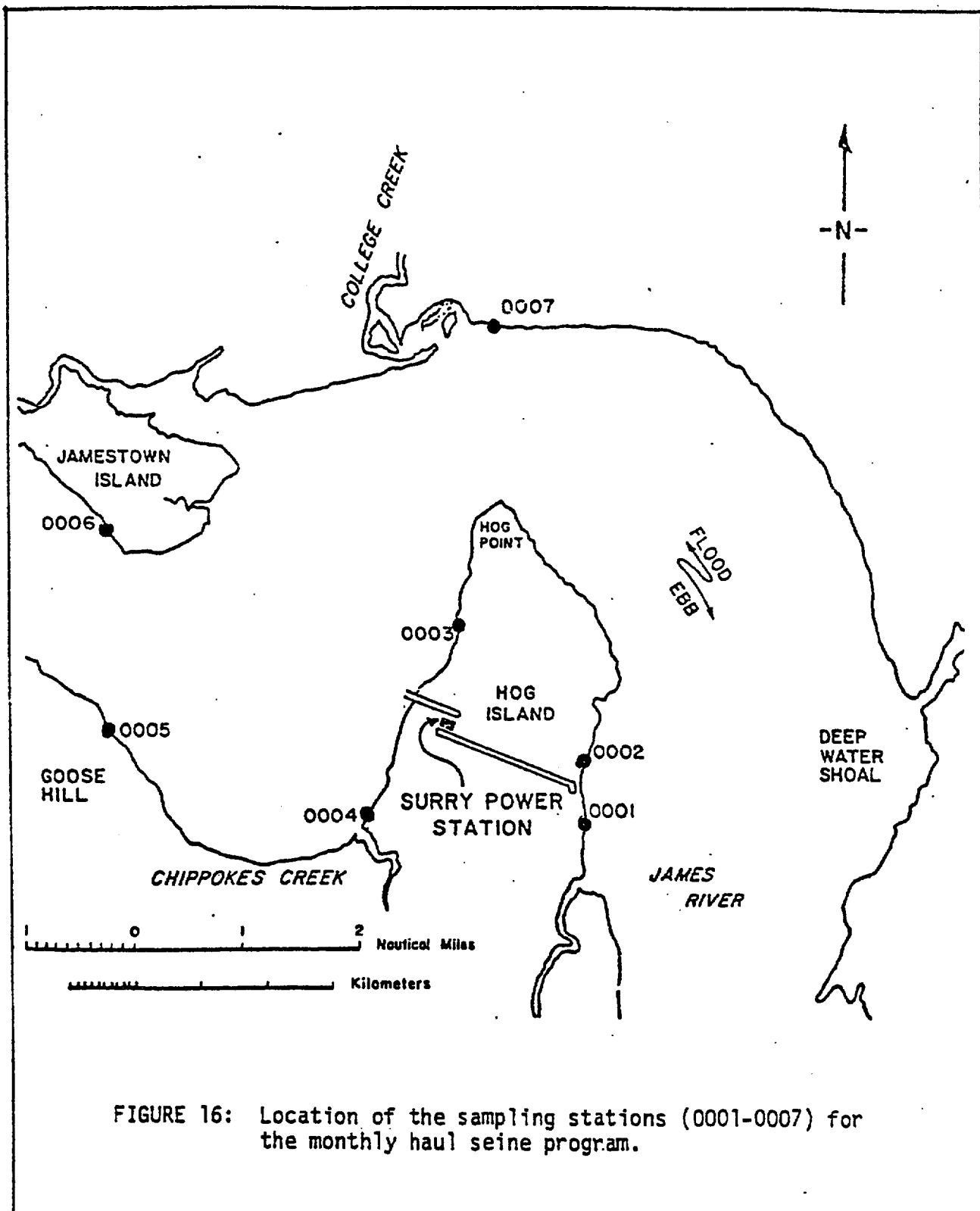
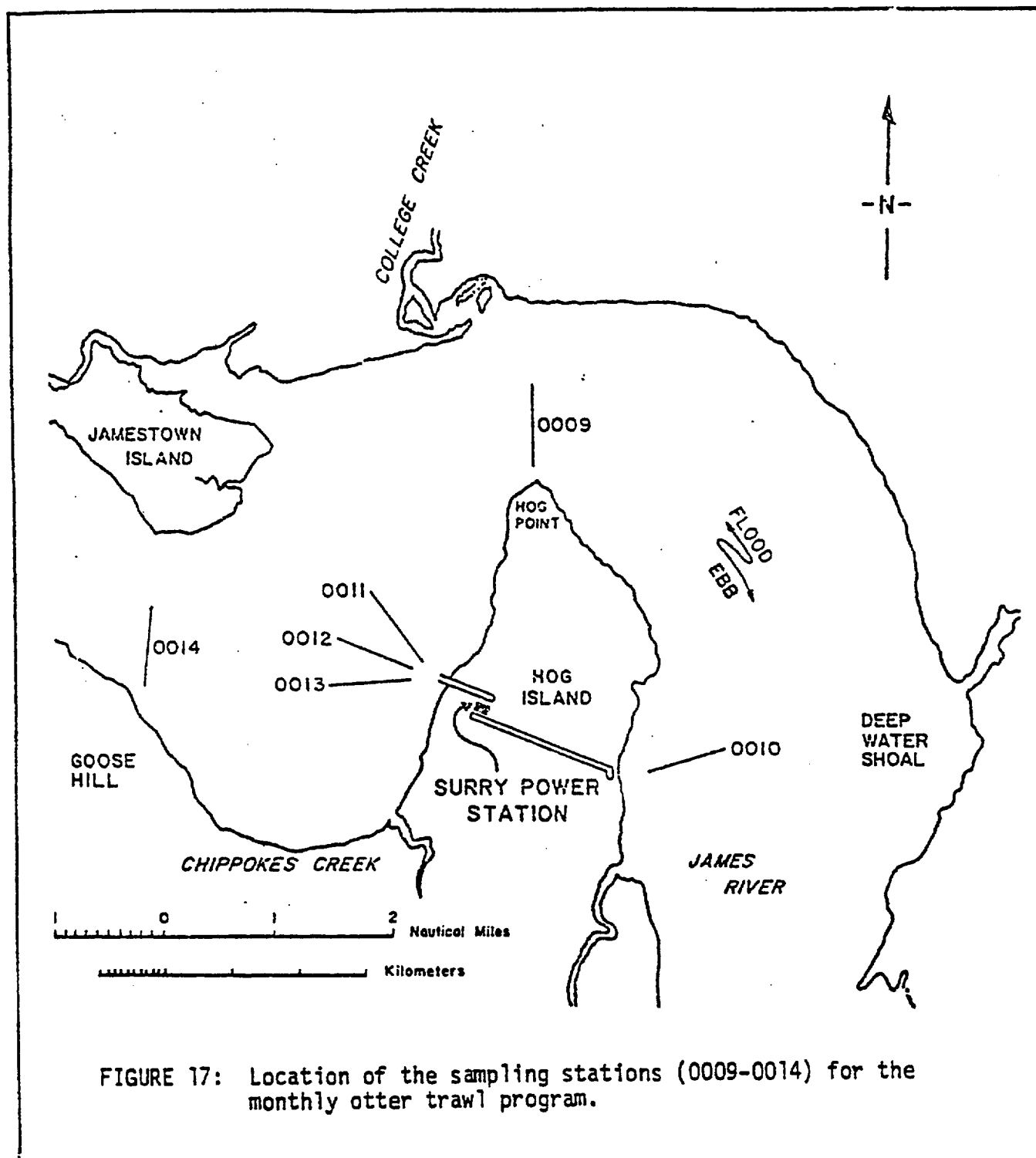
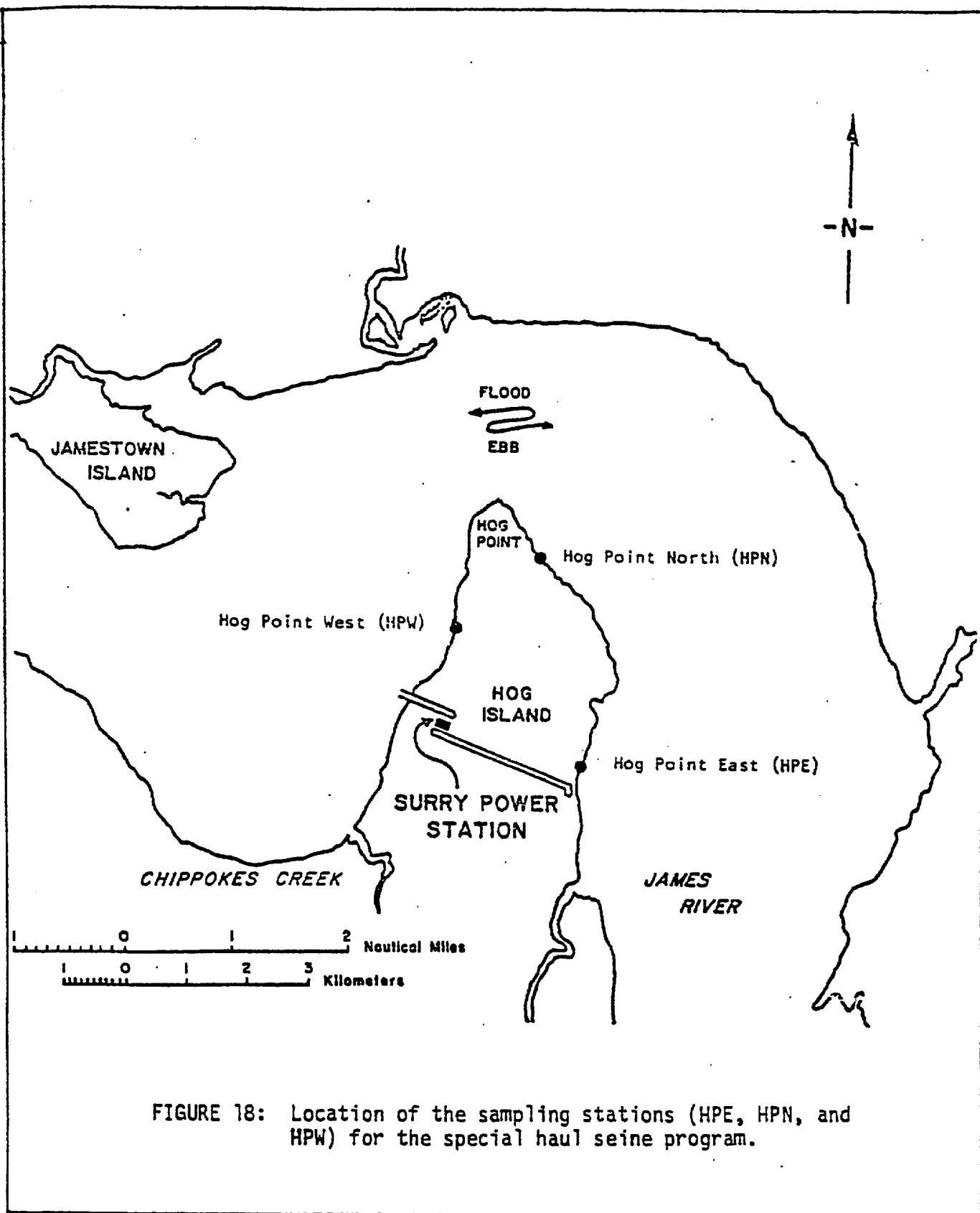


FIGURE 15: Side-view diagram of the Ristroph traveling fish screen with selected features labeled







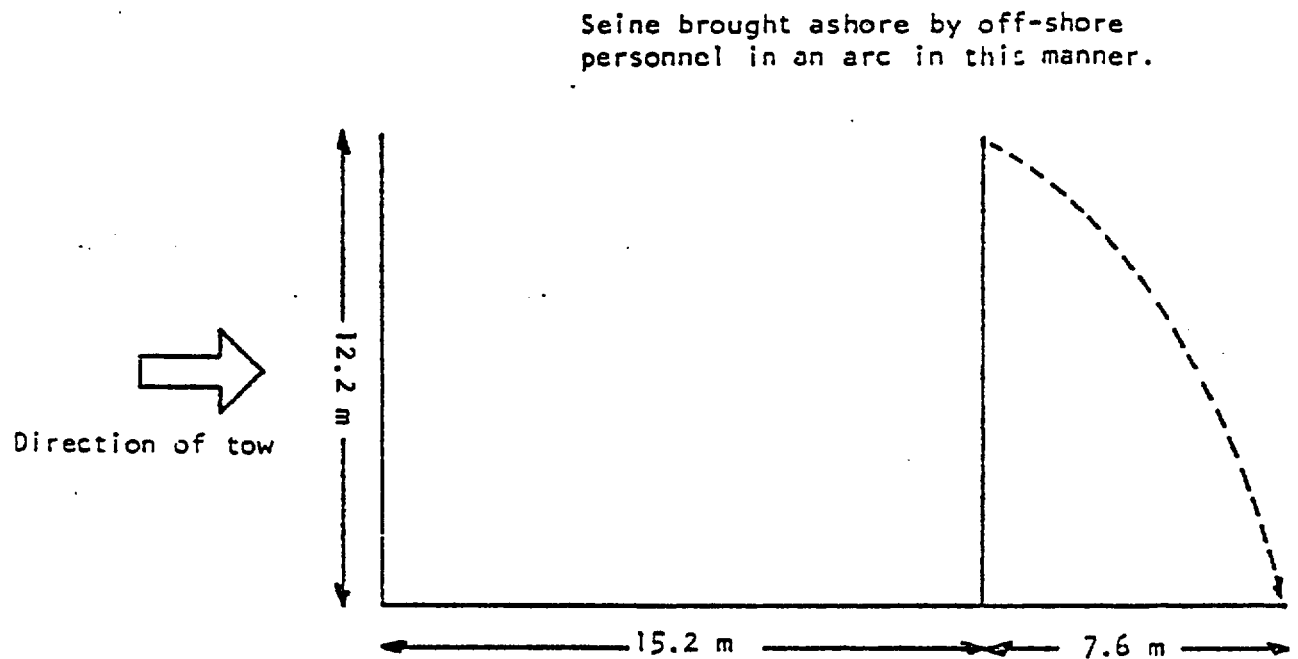


FIGURE 19: Diagram illustrating shore seining technique used in the special haul seine program.

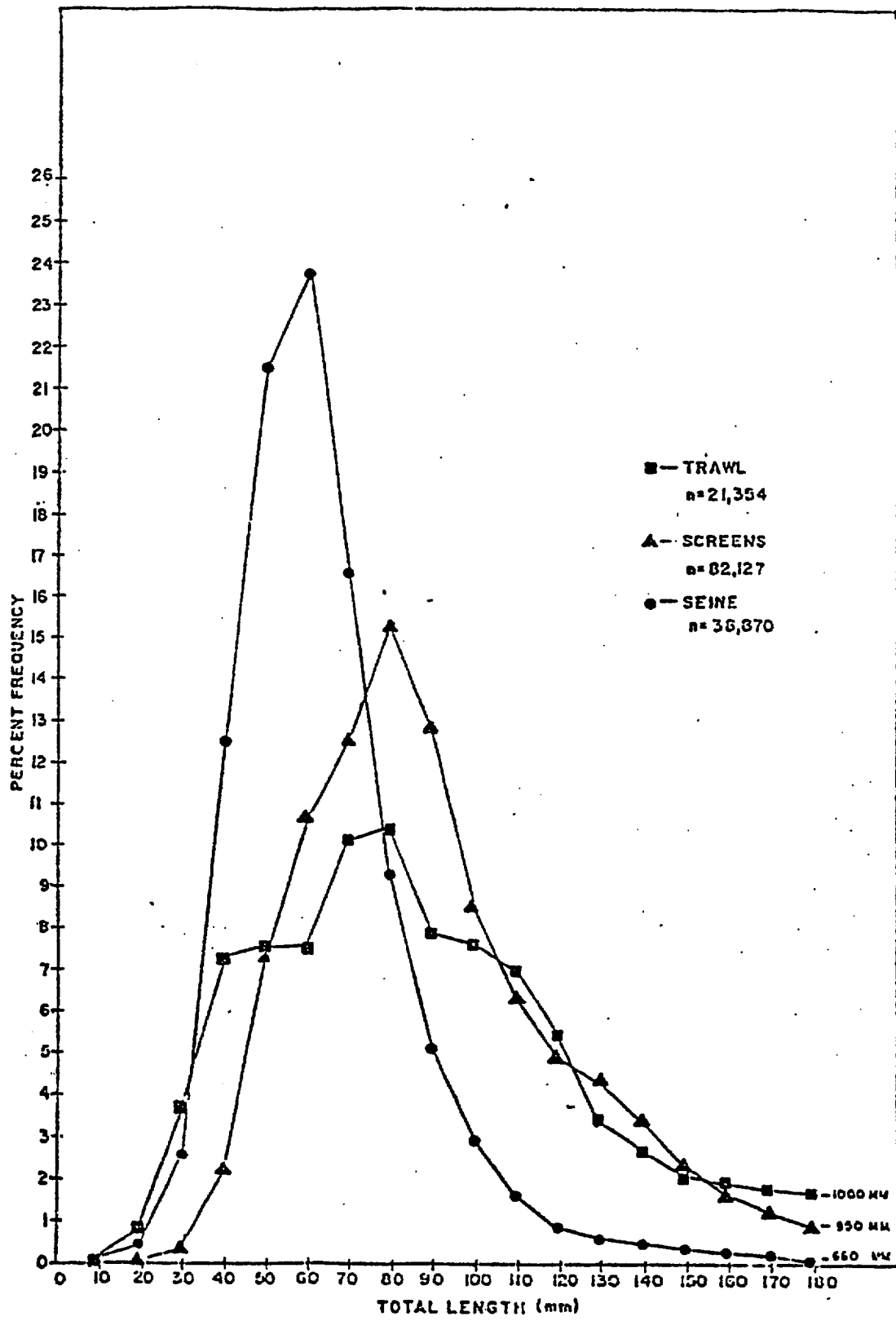


FIGURE 20: Total length size frequencies of fishes collected by various gear type

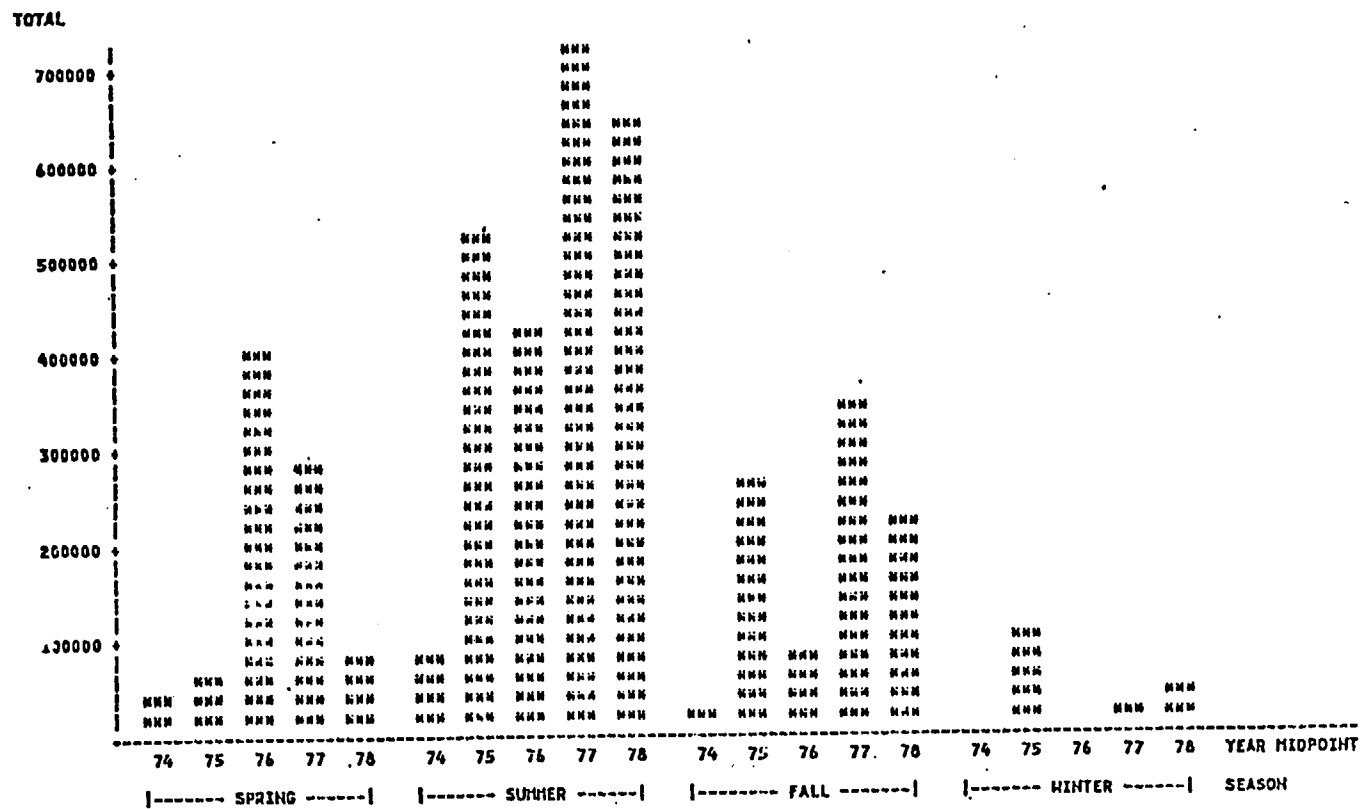


FIGURE 21: Estimated seasonal abundance of spot impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978.

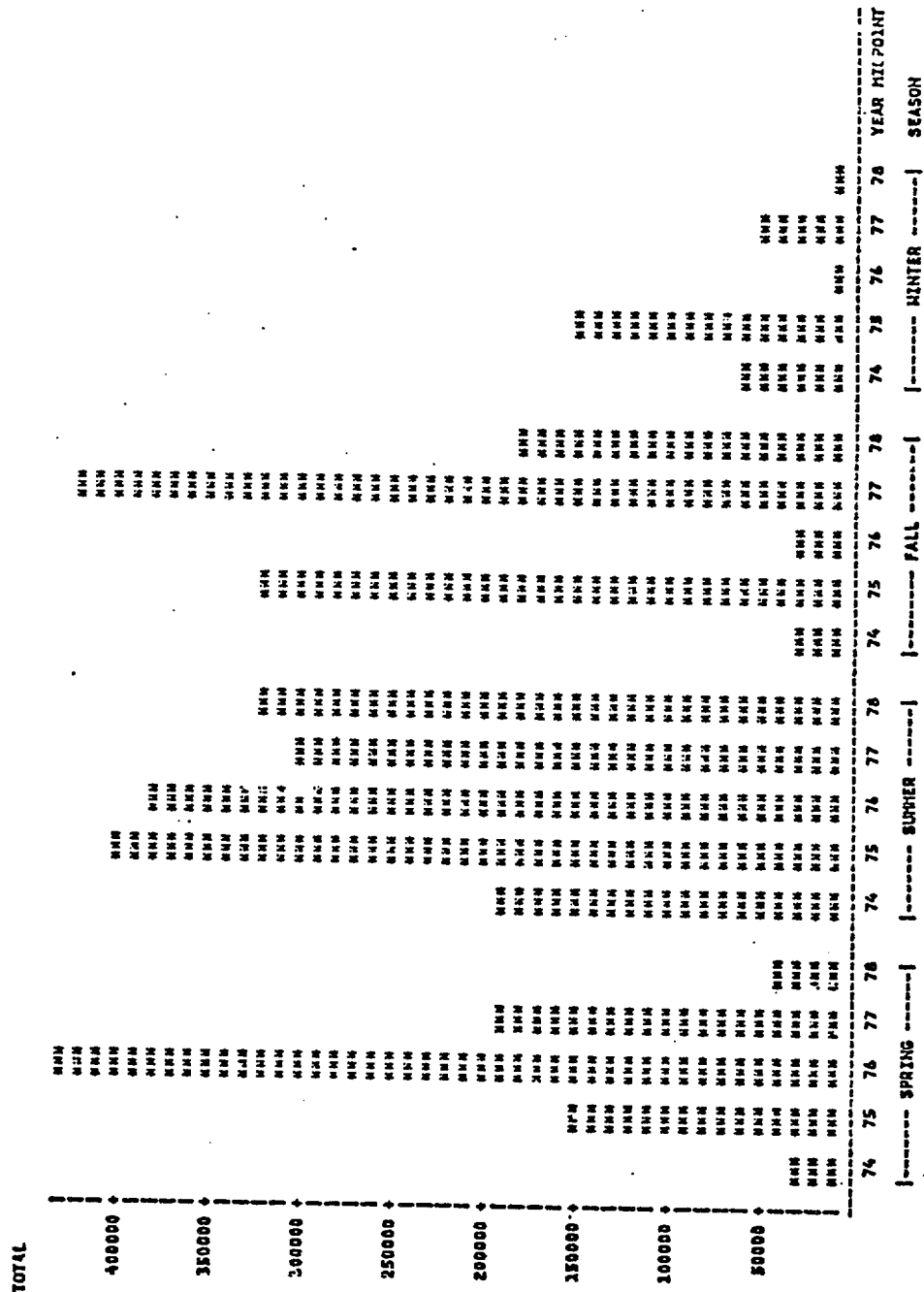


FIGURE 22: Estimated seasonal abundance of Atlantic menhaden impinged upon the Ristroph traveling fish screens from 1974 through 1978.

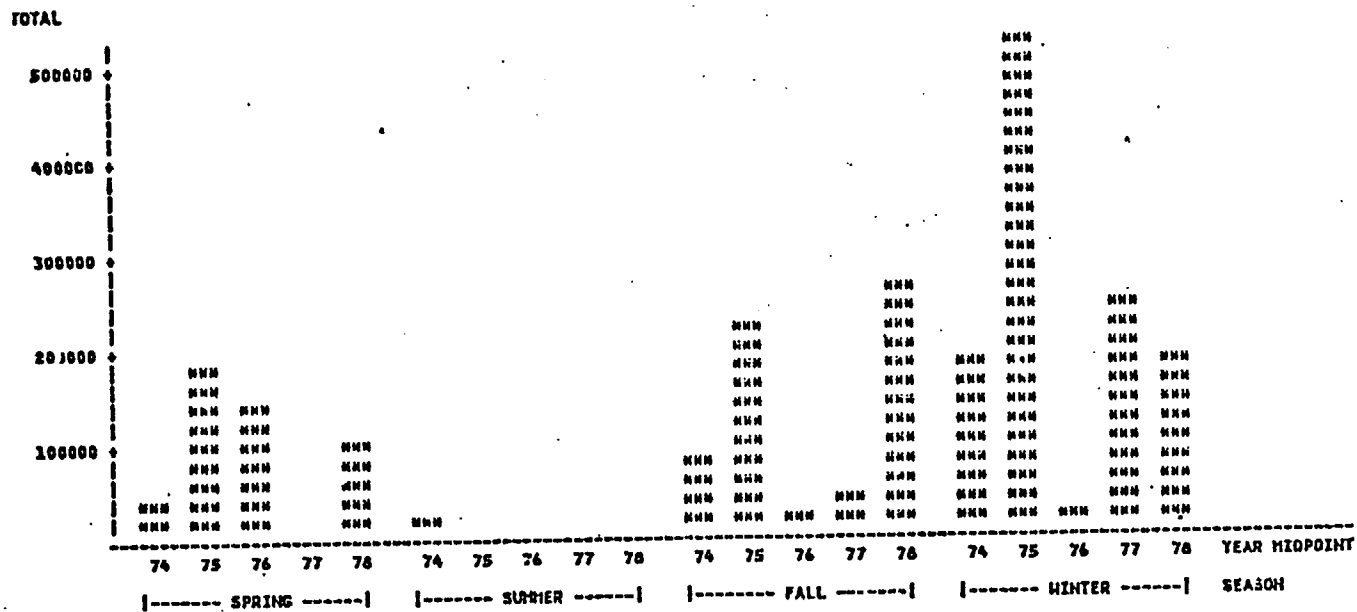


FIGURE 23: Estimated seasonal abundance of blueback herring impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978.

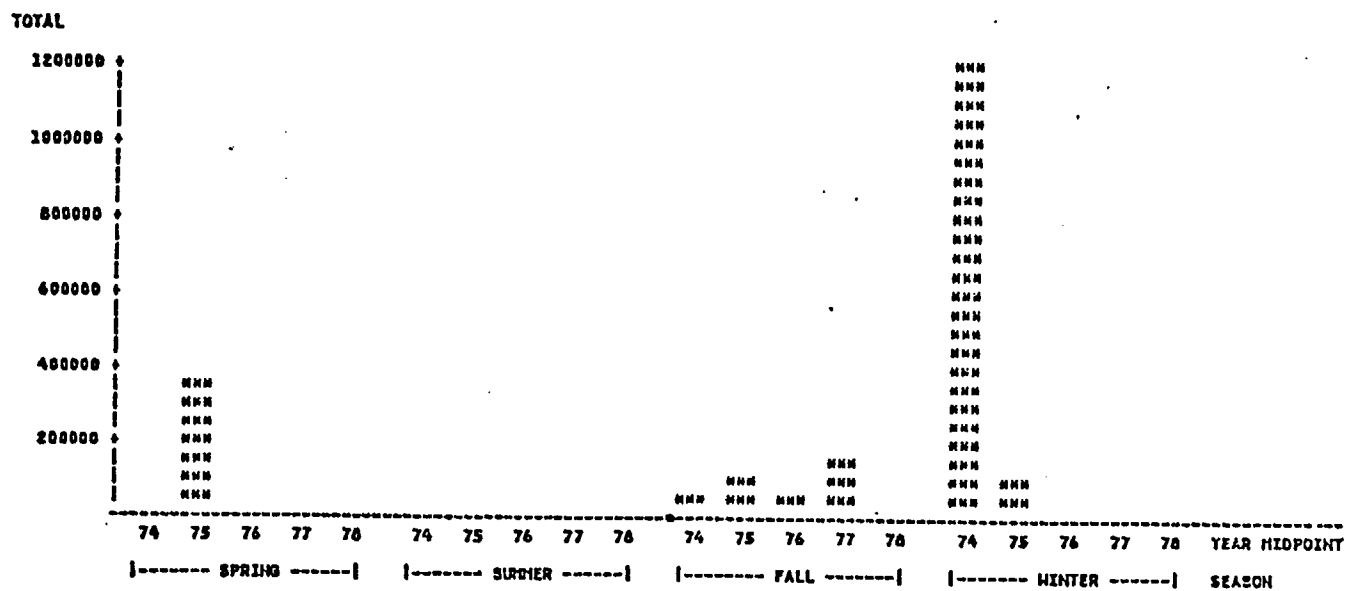


FIGURE 24: Estimated seasonal abundance of threadfin shad impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978

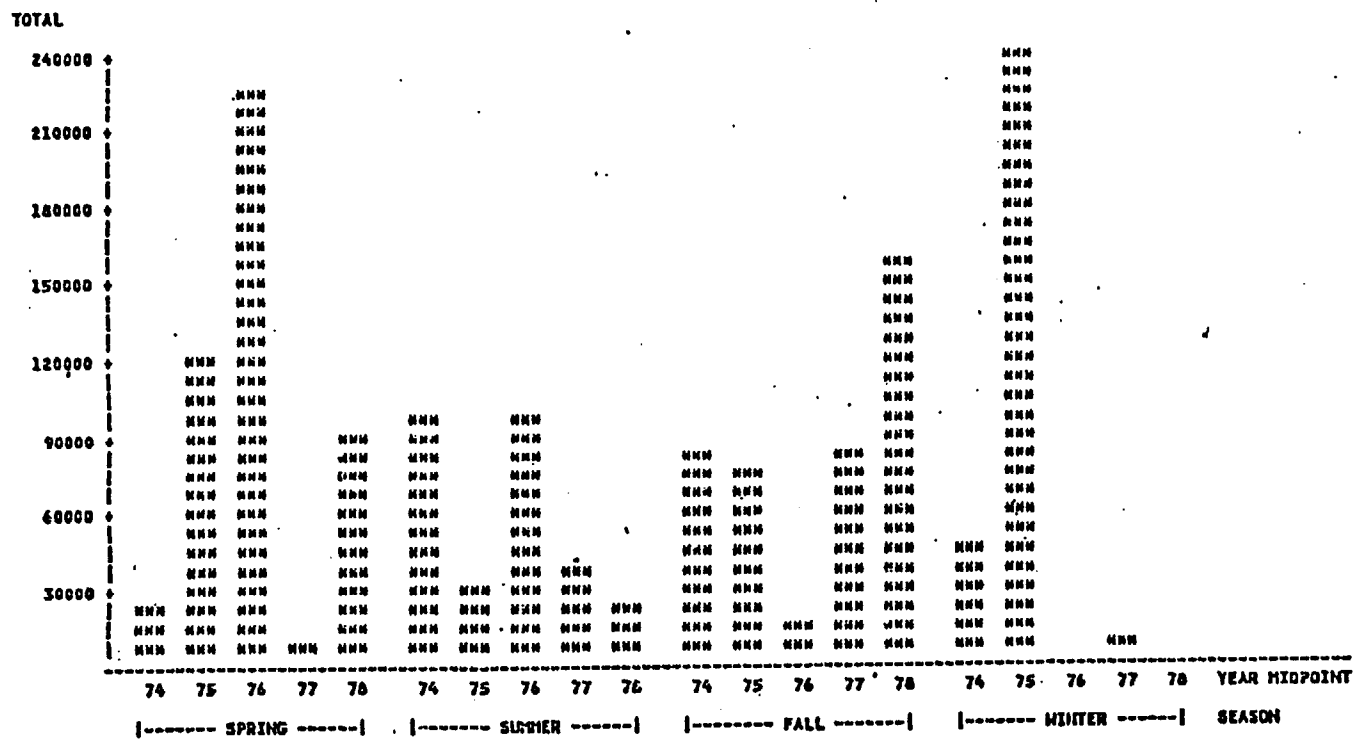


FIGURE 25: Estimated seasonal abundance of bay anchovy impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978

Estimated seasonal abundance of all fishes impinged upon the Ristroph traveling fish screens at the Surry Power Station from 1974 through 1978

[illegible]