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Ichthyoplankton off Washington, Oregon and Northern California October-November 1981

June 1984

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Ichthyoplankton off Washington, Oregon, and Northern California

October-November 1981

By

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INTRODUCTION

This report describes the fourth in a series of cooperative U.S.-U.S.S.R. ichthyoplankton surveys conducted off the U.S. west coast from 48°-40°N. Earlier reports dealt with the cruise of the R/V TIKHOOKAENSKIY in April-May 1980 (Kendall and Clark 1982a), the cruise of the R/V POSEYDON in August 1980 (Kendall and Clark 1982b) and the cruise of the R/V POSEYDON in May-June 1981 (Clark, in prep). These surveys are designed to determine seasonal and spatial distributions of ichthyoplankton as background information for more detailed studies on early life history of fishes of the area. It is planned to conduct two such surveys each year, at different times of the year, so that after several years the complete annual cycle of fish eqg and larval occurrence will be documented. These will be the first large-scale ichthyoplankton surveys of the area to sample all seasons. Results from these surveys eventually will be compared to those of the CalCOFI program off California and Baja California to the south, and to several smaller-scale surveys conducted previously off Washington and Oregon. In the meantime, we plan to present a data report such as this for each cruise, as soon as feasible.

METHODS AND MATERIALS

A grid of 125 stations laid out off the Washington, Oregon, and northern California coasts extended from 3 miles (5.6 km) to 200 miles (370 km) from shore (Figure 1). Stations were more closely spaced nearshore than offshore. The Soviet Research vessel MYS DALNYI with Dr. Demidenko serving as chief scientist occupied these stations basically from north to south from 24 October to 19 November 1981. At each station hydrographic casts at standard depths (0, 10, 20, 30, 50, 75, 100, 150, 200, 250, 300, 400, 500, and 600 m) were made as water depth permitted. Temperature, salinity, oxygen, phosphate, and silicate determinations were made aboard ship with these samples. Results of these measurements will be reported elsewhere. Paired neuston tows using 0.3 m high by 0.5 m wide Sameoto samplers (Sameoto and Jaroszynski 1969) with 0.505 mm mesh nets were made at 2.0 knots (1.03 m/sec) for 10 min at each station. A standard MARMAP bongo tow (Smith and Richardson 1977) with 60 cm, 0.505 mm mesh nets was made with a maximum of 300 m of wire out at each station. Flowmeters in the mouths of the nets were used to determine the volume of water filtered by each net. The Soviets retained one of the paired neuston and bongo samples, while the Americans retained the other. The American samples were processed by the Polish Plankton Sorting Center in Szczecin, Poland, where displacement plankton volumes were determined (for bongo samples) and all fish eggs and larvae removed. The fish eggs were counted; the larvae were identified, counted and measured. Fish eggs were later identified and counted by Ann C. Matarese at NWAFC. Identifications were made to the lowest taxonomic level possible, and in some cases "types" of

unidentified eggs or larvae were established, in hopes that with further study their identity could be established. Beverly Vinter at NWAFC checked larval identifications. Counts of fish eggs and larvae in the samples were converted to numbers per 10 m² of surface area for the bongo samples and numbers per $1,000 \text{ m}^3$ for the neuston samples. The logarithm of the number of eggs or larvae in the survey area is based on the Sette and Ahlstrom census as used by Richardson (1981).

RESULTS

The station pattern (Figure 1) was occupied as planned (the Soviets added stations south of 40°N which they processed). Data associated with these stations are listed in Table 1. A summary of the catches of fish eggs and larvae are presented in Tables 2 and 3. Totals of 19 taxa of eggs and 46 taxa of larvae were found. Figures 2-5 illustrate the rank abundances of egg and larval catches in bongo and neuston tows for the cruise using several measures of abundance. Figures 6-25 show the geographic distribution, abundance at each station, and length frequencies of larvae of the more abundant taxa.

Relative Abundances

The rank order of abundance among the taxa depends on the measure of abundance examined. Four measures of abundance for each net were used: total numbers caught, percent occurrence, logarithm of number in survey area, and mean number per $1,000 \text{ m}^3$ (for neuston) and mean number per 10 m^2 (for

bongo). Average lengths of larvae are calculated and expressed as the mean plus or minus one standard deviation.

In the neuston net, eggs of Bothidae dominated catches with <u>Icichthys</u> <u>lockingtoni</u>, <u>Trachipterus</u> altivelis, <u>Citharichthys</u> spp. and Pleuronectidae of secondary abundance, depending on which measurement was used (Figure 2). In the bongo net, eggs of Bothidae, Bathylagidae, and Pleuronectidae dominated, with <u>Citharichthys</u> spp., <u>Icichthys</u> lockingtoni, <u>Trachipterus</u> altivelis, Parophrys vetulus, and Chauliodus macouni also in abundance (Figure 3).

Larval catches in the neuston net were dominated by <u>Cololabis saira</u> and <u>Engraulis mordax</u>, with <u>Hexagrammos decagrammus</u>, <u>Scorpaenichthys marmoratus</u> and <u>Tarletonbeania crenularis</u> of somewhat lesser importance (Figure 4). In the bongo net, <u>Citharichthys</u> spp. and <u>Sebastes</u> spp. larvae dominated, with <u>Tarletonbeania crenularis</u> and <u>Protomyctophum crockeri</u> also in abundance (Figure 5).

Distributions

While this is not intended to be a definitive report on these data, certain outstanding features of distribution of the more abundant taxa will be mentioned.

Engraulis mordax (Figure 6) - Larvae of the northern anchovy, representing the spawning products of the northern subpopulation, were collected at 12 neuston stations and 7 bongo stations. Most stations were

located near the Oregon coast south of the Columbia River. Larval lengths were approximately 20 ± 5 mm in both nets. No eggs were collected.

Bathylagidae (Figure 7) - Unidentified eggs of deep-sea smelts were collected in fairly consistent quantities throughout the survey area, occurring at 35% of the stations sampled.

Protomyctophum crockeri (Figure 8) - Larvae of flashlightfish were collected in bongo tows mainly in the southern two-thirds of the survey area. Larval lengths were 9±3 mm. Four juveniles were collected at 3 bongo stations and averaged 23±6 mm in length.

<u>Tarletonbeania crenularis</u> (Figure 9) - Larvae and juveniles of blue lanternfish were collected in moderate numbers throughout the survey area. Larval lengths were about 33±9 mm.

<u>Cololabis saira</u> (Figure 10) - Saury larvae were widely distributed in neuston catches along the Washington coast and throughout the survey area south of the Columbia River. Larval lengths averaged 19±8 mm. Saury juveniles were also very abundant, occurring at 29% of stations. Juvenile lengths ranged from 21 to 143 mm and averaged 55±20 mm. Four eggs were captured at a singled neuston station.

<u>Trachipterus altivelis</u> (Figures 11 and 12) - Eggs of king-of-the-salmon were taken in neuston and bongo catches throughout the survey area. One larva was collected in bongo nets but was too damaged to be measured.

Icichthys lockingtoni (Figure 13 and 14) - Eggs of medusa fish were widely distributed throughout the survey area and in moderate abundance in both neuston and bongo catches. Larval lengths averaged 9±3 mm.

Sebastes spp. (Figures 15) - Rockfish larvae were most often taken rather nearshore in bongo catches but also were found to some extent offshore. Fifteen larvae were collected at 10 stations in neuston tows. Lengths averaged 4±2 mm in bongo catches and 16±7 mm in neuston catches.

Hexagrammos decagrammus (Figure 16) - Larvae of the kelp greenling were found at extreme nearshore stations toward the southern end of the survey area in neuston collections. Lengths averaged 9±2 mm.

<u>Scorpaenichthys marmoratus</u> (Figure 17) - Cabezon larvae occurred generally nearshore in neuston catches and with moderate station abundances. Lengths were 8±2 mm.

Bothidae (Figure 18 and 19) - Unidentified eggs of lefteye flounder were collected at nearshore stations north of Cape Blanco in both neuston and bongo nets. A strong gradient in abundance is evident, with extreme nearshore stations having highest abundances. 58% and 44% of nearshore stations north of Cape Blanco were positive for bothid eggs in neuston and bongo collections respectively.

<u>Citharichthys</u> spp. (Figure 20 and 21) - Sanddab eggs were found in neuston and bongo catches all along the coast and in moderate abundance. Larvae were taken in low to moderate abundance but occurred further offshore than did eggs. Larval lengths averaged 5 mm with a coefficient of variation of 1.0 to 1.5 for both nets.

<u>Citharichthys sordidus</u> (Figure 22) - Pacific sanddab larvae were widely distributed along the coast in bongo catches where they occurred in moderate abundance. Positive stations tended to be near the coast. Lengths of larvae averaged 11 ± 5 mm.

<u>Pleuronichthys decurrens</u> (Figures 23 and 24) - Eggs of curlfin sole were found in neuston and bongo catches all along the coast but typically at extreme nearshore stations. One larva was taken at a single neuston station and was 22 m in length.

Teleost type G (Figure 25) - Eggs of this unidentified teleost were taken throughout the survey area in relatively moderate abundances.

Community Structure

Recurrent group analysis at a 0.4 affinity level revealed no affinities in larvae of bongo catches, in eggs and larvae of bongo catches, or in eggs and larvae of neuston catches.

ACKNOWLEDGMENTS

We wish to thank the Soviet scientists, officers, and crew aboard the Soviet research vessel MYS DALNYI for their cooperative help at sea. Also, we wish to thank: Jay Clark and Steve Moulton who served as American scientists aboard the cruise; Jay Clark for data processing; Jim Peacock and his staff for drafting; Darlene Blythe and her staff for word processing; and Ethel Zweifel and her staff for printing and binding.

LITERATURE CITED

- Clark, J. B. in prep. Ichthyoplankton off Washington, Oregon, and Northern California April-May 1981. NWAFC Proc. Rep.
- Kendall, A. W. Jr., and J. B. Clark. 1982a. Ichthyoplankton off Washington, Oregon, and Northern California April-May 1980. NWAFC Proc. Rep. 82-11, 44 p.
- Kendall, A. W. Jr., and J. B. Clark. 1982b. Ichthyoplankton off Washington, Oregon, and Northern California August 1980. NWAFC Proc. Rep. 82-12, 43 p.
- Richardson, S. L. 1981. Spawning biomass and early life of northern anchovy, <u>Engraulis mordax</u>, in the northern subpopulation off Oregon and Washington. Fish. Bull., U.S. 78:855-876.
- Sameoto, D. D., and L. O. Jaroszynski. 1969. Otter surface sampler: a new neuston net. J. Fish. Res. Board Canada. 25:2240-2244.
- Smith, P. E., and S. L. Richardson (editors). 1977. Standard techniques for pelagic fish egg and larvae surveys. FAO Fish. Tech. Rep. 175, 100 p.

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Table 1.--Data associated with bongo and neuston tows during cruise IDA81, October-November 1981.

"A" CONVERTS CATCH TO CATCH PER 10 m^2 , "B" CONVERTS CATCH TO CATCH PER 1000 m^3 (see smith and Richardson 1977).

	P	STTIC	N		DATE			BONGO	STATIONS		NEUSTO	N STATIONS
STATION	1.4	751110 T		NG	VYNNDD	AREA	TIME	STANDARD	PAUL FALIOKS	TIME	STANDARD	HAUL FACTORS
JINIIVA	N.		W.	NO.	THRUU	KM2	GMT	н	в	GMT	н	в
G001A	48	0.2	124	49.0	911024	719.	1900	4.525	13.711	1803	0.020	13.365
6002A	48	1.0	125	8.0	811024	872.	2132	5.953	4.687	2110	0.022	14.657
G003A	49	1.5	125	27.0	611025	1102.	123	3.994	3.195	113	0.031	20.773
GO04A	48	1.0	125	48.0	811025	2345.	429	6.167	2.882	413	0,023	15.616
G005A	48	1.9	126	13.0	811025	2527.	900	4.680	2.854	815	0.024	16.284
G006A	47	42.0	125	13.0	011025	1742.	1509	4.842	2.783	1450	0.018	11.692
G007A	46	35.3	127	50.0	811025	6 5602.	915	5.023	2.838	852	0.016	10.369
GOOBA	46	36.0	128	50.0	B11026	5146.	1525	4.887	3.017	1505	0.017	11.650
6009A	47	16.9	127	41.0	811026	3624.	2330	6.345	3.022	2317	0.021	13.850
GO10A	47	20.3	127	5.0	811027	5068.	330	6.696	3.086	311	0.018	12.268
GUIIA	4/	19.2	126	8.0	811027	5422.	907	6.959	2.864	825	0.023	15.633
GU12A	4/	22.8	125	9.0	811027	2064.	1503	4.592	2.456	1436	0.024	15.725
0013A	4/	20.4	124	45.0	81102/	/8/.	1810	4.436	4.526	1/52	0.021	14.170
0014H	47	75 0	124	70.0	811027	8/2.	2105	3.376	5.540	2048	0.023	15.080
COLLA	47	33.0	124	30.0	81102/	660.	2308	4.362	9.08/	2230	0.022	14.434
G0174	47	20.0	124	1 0	911020	2005	1045	4.780	2 011	1012	0.018	12.005
60184	47	1 7	124	42 0	011020	1007	1750	5.3/3	2.011 (EE/	1770	0.021	13.703
60194	47	0.0	124	14 0	811028	024	1470	7 444	22 541	1425	0.024	11.740
6020A	46	38.5	124	17.0	811028	697.	2020	4.079	9.485	2004	0.017	15 007
G021A	46	38.1	124	32.0	811028	961 .	2216	5.691	5.173	2200	0.023	15.442
G022A	46	38.6	124	57.0	811029	1928.	116	5.507	2.767	102	0.020	12 724
G023A	46	20.5	124	54.0	811029	1943.	500	5.657	2.886	423	0.019	12 340
6024A	46	20.8	124	33.0	811029	970.	755	5.723	4.506	738	0.022	14.879
G025A	46	20.8	124	11.0	811029	755.	1025	3.809	15.869	1010	0.022	14.711
GD26A	46	0.3	124	12.0	811029	677.	1355	5.644	7.525	1340	0.020	13.342
6027A	46	0.1	124	25.0	811029	887.	1556	5.987	4.908	1540	0.016	10,995
G028A	46	0.9	124	49.0	811029	1951.	1902	6.691	3.069	1845	0.018	12.332
G029A	46	0.4	125	48.0	811030	5140.	55	5.546	2.844	35	0.020	13.356
G030A	46	38.3	125	54.0	611030	5443.	613	6.631	3.113	543	0.021	13.713
G031A	46	34.0	126	51.0	811030	5848.	1200	5.396	2.398	1145	0.020	13.076
G032A	45	59.2	126	46.0	911030	5558.	1845	6.513	2.760	1827	0.019	12.430
G033A	45	58.0	127	50.0	011031	5345.	1725	6.722	3.069	1708	0.020	13.065
6034A	46	0.8	128	43.0	811031	5097.	2320	4.269	2.635	2301	0.018	12.205
6035A	40	19.0	128	33.0	8111 1	5482.	545	5.823	3.064	527	0.020	13,327
00304	40	20.0	12/	38.0	8111 1	5287.	1047	1.609	3.280	1032	0.022	14.541
603PA	40	20.1	120	40.0	0111 1	5213.	101/	0.040	3.100	1601	0.015	10.212
C079A	45	70.7	174	51 0	0111 1	2740	2132	6.007	3.320	2113	0.020	13.070
60404	25	40 2	124	24 0	P111 2	1104	440	5 9/5	5.075	231	0.017	11.640
6041A	45	40.0	124	5.0	8111 2	774.	845	6.270	9.646	925	0.017	10 770
6042A	45	21.5	124	6.0	8111 2	855.	1200	5.913	6.720	1115	0.017	12.3/0
6043A	45	21.1	124	28.0	8111 2	1044.	540	7.651	3.526	1455	0.014	10 942
G044A	45	20.0	124	49.0	8111 2	1893.	240	6.474	3.221	2221	0.018	11 978
G045A	44	59.0	124	49.0	9111 3	2001.	208	9.023	3.683	147	0.021	13.673
G046A	45	0.3	124	27.0	8111 3	1000.	630	5.732	2.525	450	0.023	15.050
G047A	44	59.5	124	7.0	8111 3	767.	900	4.798	7.496	831	0.024	16.121
G048A	44	40.7	124	14.0	8111 3	919.	1214	4.708	9.416	1152	0.021	14.132
G049A	44	40.0	124	32.0	8111 3	979.	1505	5.254	4.073	1439	0.019	12.704
GUSUA	44	41.0	124	53.0	8111 3	2031.	2320	5.418	2.617	2257	0.019	12.980
G051A	44	41.3	125	49.0	B111 4	5524.	540	6.187	2.678	505	0.017	11.373
G052A	44	39.5	126	45.0	8111 4	5376.	1105	5.962	2.592	104/	0.022	14.572
00534	44	41./	127	38.0	8111 4	5485.	1616	5.35/	2.588	1601	0.018	11.706
COSEA	44	40.0	128	33.0	8111 4	5495.	2100	0./8/	2.000	2130	0.021	13.706
00334	44	1.0	1/27	62 0	8111 5	5387.	310	5.004	2.43/	251	0.019	12.497
60574	64	1 4	124	43 0	8111 D	54/5	1440	4 000	2.740	1625	0.021	14.2/5
60584	44	0.0	125	50 0	9111 5	5755	2710	5 707	2 702	2254	0.018	12.003
6059A	44	20.0	124	52.0	8111 4	2128	525	6.018	2.675	445	0.018	10 000
6060A	44	19.5	124	32.0	8111 4	1009	800	6.372	7.002	735	0.016	10.070
G061A	44	20.0	124	12.0	0111 6	768.	1010	4.843	11.006	955	0.019	12 735
G062A	44	0.0	124	15.0	8111 6	832.	1240	4.658	7.637	1225	0.019	12.413
6063A	44	0.0	124	35.0	8111 6	1025.	1515	5.086	4.238	1500	0.017	11 194

×

POSITION N. DATE N. AREA V. TIME V. STATIONARD A HOLL FACTORS [®] B TIME FAT A STANDARD HAUL FACTORS [®] BAT 0044A 43 98.7 124 57.0 8111 6 1943. 1749 5.689 2.978 1734 0.016 10.850 0045A 43 37.7 124 18.0 8111 7 1998. 25.670 2.775 233 0.016 11.850 0046A 43 37.7 124 18.0 8111 7 1999. 2500 4.582 3.951 448 0.017 11.075 0046A 43 19.9 124 48.0 8111 7 1037. 1042 5.4972 2.922 1000 0.017 11.444 007A 43 21.0 127 0.0 8111 8 5789. 24 6.4144 2.944 4 0.017 11.217 007A 43 10.0 127 0.0 8111 8 5789. 24 6.4144 2.9444 10.017 11.217 007A 42 370.0 121 8 5.7615 2.8474 2.9472							BONGO	STATIONS		NEUSTO	N STATIONS
STATION LAT. LONG. YYMNDD KM2 6HT A B DAT A B 00444 43 59.7 124 57.0 8111 6 1943. 1749 5.688 2.978 1734 0.016 10.850 006454 43 0.11 124 57.0 1747 5.681 0.018 12.124 006464 43 0.21 24 29.0 8111 7 767 500 5.691 2.722 1000 0.019 11.718 006464 43 0.21 110.7 1037 1042 5.4492 2.842 131 0.019 12.724 00774 43 19.0 128 5.970 2.843 2.842 0.019 12.083 0.019 12.724 00744 43 19.0 108 5.970 2.844 1215 0.016 11.272 00744 43 19.0 121 5.770 211.3 1.7130		POSITIO	N	DATE	AREA	TIME	STANDARD	HAUL FACTORS	TIME S	TANDARD	HAUL FACTORS
N. υ. 00444 43 58.7 124 57.0 8111 6 1943. 1747 5.670 2.779 2231 0.016 10.850 00464 43 40.3 124 35.0 8111 7 1038. 222 5.517 3.475 233 0.019 11.744 00464 43 0.0 124 48.0 8111 7 1037. 1042 5.499 2.722 1000 0.019 11.744 00404 43 19.9 124 48.0 8111 7 1037.5 1642 5.499 2.722 1000 0.017 11.444 00714 43 19.0 122 4.0 8111 7 1337.5 1645 2.8642 1837.0 0.016 11.977 12.274 00734 43 19.0 128 33.0 8111 8 5797.1258 2.844 1213 0.011 13.710 00734 43 19.0 128 33.0 8111 8 5797.1258 2.913 2.4614 10.801 0.016 11.9757 00744 42 39.0 127 58.0 8111 8 5784.2 2.913	STATION	LAT.	LONG.	YYMMDD	KM2	GMT	A	8	GMT	A	8
00444 43 59.7 124 57.0 8111 6 1045. 2347 5.688 2.978 1734 0.016 10.850 00574 43 0.11 124 55.0 1777 233 0.016 11.244 00574 33.7 124 180 8111 7 779 233 0.019 11.744 00594 43 21.2 124 27.0 111 757 5.671 2.722 1000 0.019 11.744 00744 43 21.0 127 10.0 8111 7 1037 104 5.4695 2.842 131 0.019 11.274 00744 43 19.0 128 5.971 2.844 0.019 12.083 0.019 12.724 00744 41.00 128 5.400 11.0 5.975 2.844 0.019 12.083 00744 43 19.0 0.018 11.9 5.975 2.796 13.7 0.016 10.927 00774 42.0.0 128 5.0124 5.0		Ν.	W.								
00068 1.3 0.1 1.2 0.1 </td <td>60444</td> <td>17 50 7</td> <td>10/ 57 0</td> <td>0111 (</td> <td>10/7</td> <td></td> <td>F /00</td> <td>0.070</td> <td>1 77/</td> <td>0.047</td> <td>10 050</td>	60444	17 50 7	10/ 57 0	0111 (10/7		F /00	0.070	1 77/	0.047	10 050
UULAGA 13 40.3 124 55.0 111 7 103 125 5.51 1.475 123 1.011 11.744 060474 33 124 <	60454	43 40.1	124 57.0	8111 6	1943.	2347	5 470	2.978	2771	0.010	10.800
00048 43 39,7 124 16,0 111,7 740,7 500 4.592 5.451 4.64 735 0.019 11.719 00048 43 19,7 124 48,0 111,7 1730,142 5.499 2.722 100 0.017 11.474 00704 43 19,0 124 48,0 111,7 533,1 1959 6.645 2.842 1317 0.017 11.724 00734 43 19,0 128 53,0 111,8 5790,7 2.6 6.164,2,744 64 0.017 1.213 1756 0.012 1.213 176 00744 43 19,0 128 5,40 2.614 125 0.021 1.3,710 00744 42 0.23 0.27 0.23 0.22 430 0.014 10,840 0074 42 0.53 7.462 2.664 16410 0.014 10,824 00774 24 0.54 0.014	GUAAA	43 40 3	124 37.0	8111 7	1038	2047	5 717	3 475	2331	0.018	11.744
00000 43 20.2 124 29.0 0111 7 760 4.598 4.644 725 1.015 11.716 000494 43 21.2 10.0 0.017 11.474 0.017 11.474 00714 43 21.0 0.011 11.744 0.017 11.474 00744 43 21.0 0.011 0.177 11.474 00744 43 21.0 0.011 0.177 11.474 00744 43 10.0 128 5.012 2.444 4215 0.011 11.237 00744 43 127 0.0 0.011 5.700 2.711 1756 0.0118 11.227 00744 43 0.0 128 5.014 5.927 2.002 430 0.014 10.840 10.926 11.927 10.0 0.014 10.240 10.443 10.445 5.947 2.402 430 0.014 10.357 10.453 10.326 11.421 <	6067A	43 39.7	124 18.0	8111 7	679.	500	4 582	5 951	449	0 017	11.075
$ \begin{array}{c} 00094 & 43 & 19, p & 124 & 40, 0 & 111 & 7 & 1037 & 1042 & 5.499 & 2.722 & 1000 & 0.017 & 11.494 \\ 00704 & 43 & 19, 0 & 126 & 4.0 & 0111 & 7 & 2218 & 1035 & 5.469 & 2.422 & 1317 & 0.019 & 12.724 \\ 00714 & 43 & 19, 0 & 126 & 4.0 & 0111 & 0 & 5793 & 24 & 6.144 & 2.949 & 6 & 0.017 & 11.217 \\ 00724 & 43 & 19, 0 & 127 & 57, 0 & 0111 & 0 & 5642 & 706 & 6.429 & 2.962 & 6.55 & 0.019 & 12.083 \\ 00754 & 42 & 0.0 & 127 & 57, 0 & 0111 & 0 & 5642 & 706 & 6.429 & 2.962 & 6.55 & 0.019 & 12.083 \\ 00754 & 42 & 0.0 & 127 & 57, 0 & 0111 & 0 & 5642 & 706 & 6.429 & 2.962 & 430 & 0.016 & 10.57 \\ 00754 & 42 & 0.0 & 127 & 57, 0 & 0111 & 0 & 5643 & 510 & 6.529 & 2.602 & 430 & 0.016 & 10.57 \\ 00774 & 42 & 0.0 & 128 & 50, 0 & 0111 & 9 & 5844 & 510 & 6.529 & 2.602 & 430 & 0.016 & 10.524 \\ 00778 & 42 & 40, 5 & 126 & 6.0 & 0111 & 9 & 5845 & 106 & 6.598 & 2.914 & 1000 & 0.016 & 10.524 \\ 00778 & 42 & 40, 5 & 124 & 52.0 & 0111 & 9 & 1035 & 1184 & 5.742 & 2.686 & 16410 & 0.017 & 11.310 \\ 00004 & 43 & 0.0 & 124 & 52.0 & 0111 & 9 & 716 & 1348 & 5.742 & 2.716 & 1000 & 0.016 & 10.657 \\ 00084 & 42 & 39, 0 & 124 & 52.0 & 01110 & 731 & 730 & 6.762 & 2.770 & 710 & 0.023 & 15.169 \\ 00084 & 42 & 39, 0 & 124 & 52.0 & 01111 & 1939 & 1030 & 6.645 & 2.769 & 1000 & 0.019 & 12.697 \\ 00084 & 42 & 39, 0 & 124 & 52.0 & 011110 & 701 & .750 & 5.762 & 2.770 & 710 & 0.023 & 15.169 \\ 00084 & 42 & 16, 0 & 125 & 10.0 & 011110 & 1032 & 2035 & 5.659 & 7.164 & 2357 & 0.021 & 13.794 \\ 00864 & 42 & 16, 0 & 125 & 10.0 & 01111 & 1097 & 224 & 5.706 & 7.164 & 2357 & 0.021 & 13.794 \\ 00864 & 42 & 16, 0 & 125 & 10.0 & 01111 & 1097 & 224 & 5.706 & 7.164 & 2357 & 10.0 & 0.017 & 1.260 \\ 00864 & 42 & 16, 0 & 125 & 10.0 & 01111 & 1097 & 224 & 5.706 & 7.164 & 2357 & 0.0221 & 13.794 \\ 00974 & 41 & 59, 5 & 124 & 31.0 & 01111 & 1097 & 224 & 5.706 & 7.164 & 2357 & 1000 & 0.017 & 1.260 \\ 00784 & 42 & 59, 0 & 124 & 31.0 & 01111 & 1097 & 224 & 5.706 & 7.164 & 2357 & 100 & 0.021 & 13.794 \\ 00794 & 41 & 59, 5 & 124 & 30.0 & 011112 & 5924 & .630 & 5.74 & 2.774 & 400 & 0.017 & 1.395 \\ 0077$	GOGBA	43 20.2	124 29.0	8111 7	760.	750	4.598	6.664	735	0.019	11.718
0070.4 43 20.2 125 10.0 9111 7 2218. 1335 5.065 2.842 1817 0.019 12.724 00724 43 21.0 127 0.0 9111 93790. 24 4.164 2.749 4 0.016 10.359 00724 43 10.0 127 0.0 9111 9770. 128 5.915 2.844 1213 0.021 13.717 00744 43 10.2 0.53.0 9111 9 5844. 5100 4.052 2.717 214 0.016 10.6016 16.855 60774 42 3.0 127 0.0 9111 9 5844. 510 4.922 802 430 0.0114 10.840 60774 42 59.0 124 54.0 1111 702.5 5.862 914 1000 0.0164 10.839 60774 42 59.0 124 54.0 511.0 10110 731.5 55.663 6.534 38 0.0124 12.370 600824 </td <td>G069A</td> <td>43 19.9</td> <td>124 48.0</td> <td>8111 7</td> <td>1037.</td> <td>1042</td> <td>5.499</td> <td>2.722</td> <td>1000</td> <td>0.017</td> <td>11.494</td>	G069A	43 19.9	124 48.0	8111 7	1037.	1042	5.499	2.722	1000	0.017	11.494
	6070A	43 20.2	125 10.0	8111 7	2218.	1335	5.685	2.842	1317	0.019	12.724
00724 43 21.0 127 0.0 111 18 5682. 705 4.164 2.949 6 0.017 11.217 00734 43 19.0 12.257.0 8111 8 5097.1 1258 5.915 2.844 1215 0.021 13.716 00744 42 40.0 128 5.40.0 8111 5432. 2330 5.332 2.777 214 0.015 9.655 00774 42 40.0 128 6.0 8111 9 5641. 104.0 5.732 2.002 430 0.014 10.753 10.664 1000 0.0154 10.753 10.644 10.014 10.753 10.000 10.164 10.753 10.000 10.164 10.753 10.000 11.167 10.751 56612 2.914 1000 0.018 11.374 00024 42 9.0 124 34.0 B1110 703 56 5.043 38 0.0124 12.809 00024 42 9.0 124 52.0 B11110 1030 6	G071A	43 19.0	126 4.0	8111 7	5335.	1858	6.655	2.856	1843	0.016	10.359
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	G072A	43 21.0	127 0.0	9111 9	5798.	24	6.164	2.949	6	0.017	11.217
0074 43 18.0 128 5.915 2.844 1215 0.021 13.710 0075 42.40.0 126 54.0 Bill 5400 1810 6.003 2.913 1766 0.015 9.853 0076 42.40.0 127 58.0 Bill 9.785 2.330 5.332 2.777 2314 0.015 9.853 0076 42.40.5 126 6.0 Bill 9.785 2.330 5.332 2.778 1000 0.014 10.524 0078 42.40.5 126 6.0 Bill 9.755 6.6 6.634 190 0.0114 10.524 10.0 0.0114 10.524 10.0 0.0114 10.352 13.0 14.1 10.352 10.0 0.0111 10.375 6.6 6.634 1000 0.012 14.128 0.018 11.437 0.002 12.3 0.012 14.141 0.012 12.142 0.018 12.3 0.014 12.017 0.020 13.107 0.020 13.107 0.020 13.107 0.020 13.107 0.020 </td <td>G073A</td> <td>43 19.0</td> <td>127 57.0</td> <td>8111 8</td> <td>5682.</td> <td>705</td> <td>6.428</td> <td>2.962</td> <td>654</td> <td>0.018</td> <td>12.083</td>	G073A	43 19.0	127 57.0	8111 8	5682.	705	6.428	2.962	654	0.018	12.083
6075A 42 40.0 126 54.0 8111 6 5640. 1810 6.003 2.913 1756 0.016 11.927 6077A 42 37.0 127 0.0 8111 9 5644. 510 6.529 2.602 430 0.016 10.840 6077A 42 37.0 125 14.0 8111 9 544. 510 6.529 2.706 1000 0.016 10.840 60004 42 39.0 124 34.0 1111 1033. 55 5.603 6.334 19 114.128 60084 42 39.0 124 34.0 811110 703. 55 5.603 6.334 1000 0.012 15.169 60084 42 39.0 124 34.0 811110 1037.1 1300 4.445 2.416 145 0.012 12.169 12.007 60084 42 10.0 121.0 811110 1007.1 1004 5.109 2.313 1747 0.011 1.2097 6008	G074A	43 18.0	128 53.0	8111 8	5907.	1258	5.915	2.844	1215	0.021	13.710
00764 42 40.3 127 58.0 6111 8 795 2330 5.332 2.777 2314 0.015 9.655 00774 42 40.5 126 6.00 8111 9 5841. 1045 5.937 2.786 1000 0.016 10.524 00784 42 59.7 125 14.0 8111 9 1073. 1915 6.898 2.914 1900 0.016 10.0524 00814 42 59.0 124 34.0 811110 731. 455 6.0638 6.510 410 0.021 14.129 00844 42 39.0 124 34.0 811110 731. 455 6.054 6.510 0.011 12.129 12.14 109 0.011 12.129 12.14 109 12.14 12.007 10.01 12.14 12.007 10.01 10.01 12.010 10.01 12.010 10.01 12.011 10.01 12.011 12.01 12.011 12.01 12.011 12.011 12.011 12.011 12.011	G075A	42 40.0	128 54.0	8111 8	5640.	1810	6.903	2.913	1756	0.018	11.927
B077A 42 37.0 127 0.0 B11 9 5844. 510 6.529 2.602 430 0.016 10.624 B077A 42 57.9 125 14.0 B11 9 2185. 1634 5.739 2.788 1000 0.16 10.524 B0040 42 59.0 124 34.0 111 9 1110 703. 55 5.003 6.534 30 0.0121 14.622 B0040 42 39.0 124.2 0.0111 710 0.522 5.770 710 0.0123 15.146 B0040 42 19.0 11110 1007. 1004 5.120 2.614 1150 0.018 12.307 B0840 42 10.1 12.42 0.0 11110 1077. 1004 5.122 2.616 12.02 0.118 12.307 B0847 42 10.1 12.42 0.0 11111 1079 2.313 1749<	G076A	42 40.3	127 58.0	8111 8	5785.	2330	5.332	2.777	2314	0.015	9.855
B07BA 42 40.5 124 6.0 B111 9 5451. 1045 5.736 2.788 1000 0.016 10.524 B07PA 42 59.9 123 110 1073. 1915 6.5864 2.914 1900 0.016 10.521 B081A 42 59.0 124 34.0 011110 703. 56 5.244 36.054 410 0.016 10.952 B081A 42 39.0 124 34.0 011110 703 56 5.247 1000 0.017 11.413 B084A 42 10.1 10.2 1004 1005 6.437 2.700 1000 0.019 12.809 B084A 42 10.1 12.1 1005 6.437 2.707 1000 0.019 12.809 B084A 42 20.1 12.4 1010 1007 2345 5.706 11.1 1927 1010 1077 12.4111 1017 <t< td=""><td>G077A</td><td>42 39.0</td><td>127 0.0</td><td>8111 9</td><td>5844.</td><td>510</td><td>6.529</td><td>2.802</td><td>430</td><td>0.016</td><td>10.840</td></t<>	G077A	42 39.0	127 0.0	8111 9	5844.	510	6.529	2.802	430	0.016	10.840
B0 //A 42 97.4 125 14.14 9 12185 16.34 5.746 2.685 16.18 0.017 11.310 B0B0A 42 97.0 124 34.0 B1110 703. 54 5.863 6.534 38 0.018 11.837 B0B1A 42 97.0 124 34.0 B1110 703. 54 5.803 6.534 38 0.018 11.837 B0B3A 42 39.0 124 34.0 B1110 703. 5.762 2.770 710 0.023 15.167 B084A 42 39.0 12.4 90.0 11110 1037 1036 6.433 2.769 1005 0.11 1.740 B084A 42 10.1 12.4 90.0 1111 1007 233 5.367 7.144 2313 2019 0.021 13.895 B091A 41 59.0 11111 1007.2 1030 0.021 13.895 <t< td=""><td>G078A</td><td>42 40.5</td><td>126 6.0</td><td>8111 9</td><td>5451.</td><td>1045</td><td>5.939</td><td>2.789</td><td>1000</td><td>0.016</td><td>10.524</td></t<>	G078A	42 40.5	126 6.0	8111 9	5451.	1045	5.939	2.789	1000	0.016	10.524
00000 43 0.0 124 0.0 <th0.0< th=""> <th0.0< th=""></th0.0<></th0.0<>	60/9A	42 59.9	125 14.0	8111 9	2105.	1634	5.746	2,605	1618	0.017	11.310
Buble 42 50 124 43.0 B11110 702. 56 5.803 8.534 38 0.014 11.057 0002A 42 33.0 124 43.0 B1110 703 5.762 2.770 710 0.023 15.169 0004A 42 33.0 124 52.0 81110 793 5.762 2.770 710 0.023 15.169 0004A 42 33.0 124 10.0 81110 1737 1504 6.210 2.411 1415 0.019 12.307 0004A 42 0.1 124 20.0 81111 197.2 342 5.712 2.408 220 0.1021 13.895 0014A 157.7 125 5.0 811112 5792.1 2.469 540 0.021 13.895 0014A 157.7 124 3.0 8.534 5.74 2.744 600 1.17.260 0014A 157.5 1274.10	00004	43 0.0	124 52.0	8111 9	10/3.	1915	6.586	2.914	1900	0.018	10.932
D0024 42 33.0 124 34.0 911110 731. 455 6.154 6.154 6.154 6.154 6.154 6.154 6.154 6.154 6.154 770 710 0.023 11.169 00444 42 33.6 125 11.0 81110 1937. 1030 6.445 2.770 710 0.021 15.169 00464 42 216.1 124 10.0 1110 1937. 1030 6.445 2.770 710 0.019 12.169 00464 42 16.1 124 20.1 11007. 1104 5.12 2.600 2307 0.019 11.964 00904 41 55.7 125 5.0 81111 1977. 2.360 2.333 *** 0.021 13.746 00904 41 55.7 125 5.0 811112 5724. 633 6.774 2.776 600 0.0121 13.746 00974 11.6.7 <td>6081A</td> <td>42 59.0</td> <td>124 34.0</td> <td>811110</td> <td>/03.</td> <td>56</td> <td>5.803</td> <td>8.534</td> <td>30</td> <td>0.016</td> <td>11.03/</td>	6081A	42 59.0	124 34.0	811110	/03.	56	5.803	8.534	30	0.016	11.03/
$ \begin{array}{c} 0044A & 42 & 37.6 & 124 & 32.0 & 0.1110 & 701. & 730 & 3.762 & 2.770 & 110 & 0.023 & 12.169 \\ 0065A & 42 & 16.0 & 125 & 10.0 & 0.01110 & 2004. & 1505 & 6.120 & 2.616 & 11415 & 0.017 & 12.914 \\ 0068A & 42 & 20.5 & 124 & 47.0 & 0.01110 & 1007. & 100A & 5.069 & 2.313 & 1749 & 0.018 & 12.309 \\ 0067A & 42 & 20.5 & 124 & 47.0 & 0.01110 & 0.07. & 100A & 5.069 & 7.164 & 2017 & 0.020 & 13.109 \\ 0067A & 42 & 20.5 & 124 & 47.0 & 0.01110 & 0.77 & 2035 & 5.659 & 7.164 & 2017 & 0.020 & 13.109 \\ 0068A & 41 & 59.7 & 124 & 22.0 & 0.011111 & 1077. & 236 & 5.712 & 2.608 & 220 & 0.022 & 14.666 \\ 0070A & 41 & 59.7 & 125 & 5.0 & 0.011112 & 5072. & 11 & 5.374 & 2.664 & 0.021 & 13.495 \\ 0071A & 41 & 59.3 & 125 & 50.0 & 0.011112 & 5072. & 11 & 5.374 & 2.664 & 0.021 & 13.495 \\ 0071A & 41 & 59.3 & 126 & 46.0 & 0.011112 & 5072. & 11 & 5.374 & 2.664 & 0.021 & 13.2746 \\ 0073A & 41 & 59.3 & 127 & 41.0 & 0.01112 & 5072. & 11 & 5.374 & 2.657 & 141 & 0.020 & 13.234 \\ 0074A & 42 & 0.0 & 128 & 39.0 & 0.01112 & 5437. & 745 & 7.144 & 2.969 & 7.13 & 0.020 & 13.234 \\ 0075A & 41 & 19.5 & 122 & 22.0 & 0.011113 & 5633. & 157 & 6.132 & 2.655 & 141 & 0.021 & 13.494 \\ 0075A & 41 & 19.5 & 126 & 42.0 & 0.011113 & 5341. & 1245 & 6.871 & 2.975 & 1230 & 0.020 & 13.148 \\ 0079A & 41 & 19.0 & 125 & 44.0 & 0.011113 & 5341. & 1245 & 6.871 & 2.975 & 1230 & 0.020 & 13.118 \\ 0079A & 41 & 19.0 & 125 & 44.0 & 0.011113 & 573. & 5.343 & 2.473 & 1014 & 0.021 & 13.746 \\ 0079A & 41 & 19.0 & 124 & 54.0 & 0.011114 & 1697. & 1535 & 5.246 & 11.658 & 728 & 0.018 & 12.011 \\ 0103A & 41 & 39.0 & 124 & 51.0 & 0.01115 & 1930. & 155 & 5.241 & 2.643 & 1014 & 0.021 & 13.746 \\ 0079A & 41 & 10.0 & 124 & 51.0 & 0.01115 & 1733. & 740 & 5.246 & 11.658 & 728 & 0.035 & 23.543 \\ 0104A & 41 & 0.0 & 24 & 45.0 & 0.01115 & 733. & 740 & 5.246 & 11.658 & 728 & 0.019 & 12.476 \\ 0103A & 41 & 97.0 & 124 & 52.0 & 0.01115 & 972. & 0.052 & 4.537 & 0.019 & 12.425 \\ 0107A & 40 & 0.0 & 124 & 45.0 & 0.011115 & 913. & 1250 & 6.045 & 2.017 & 1330 & 0.024 & 15.794 \\ 0103A & 41 & 97.0 & 124 & 52.0 & 0.011115$	6002A	42 37.0	124 34.0	811110	/51.	455	6.054	6.510	710	0.021	14.120
Bobs 42 11.0 0.1110 173. 1030 0.43 2.477 1030 0.413 1.100 1.011 1.020 1.011 1.010 1.011 <th1.011< th=""> <th1.011< th=""> <th1.011< th=""></th1.011<></th1.011<></th1.011<>	60944	42 37.0	124 32.0	011110	1070	1070	3./62	2.770	1000	0.023	12 809
000000 000000 0000000 000000000000000000000000000000000000	60854	42 37.0	125 10.0	011110	1737.	1030	0.040	2./07	1415	0.019	12.007
GODPA 12 212 310 611110 6091 12095 5.609 7.144 2019 6.020 13.109 GOBB6A 42 0.1 124 22.0 811110 857. 2342 5.706 9.671 2307 0.018 11.946 GOBB6A 42 0.1 124 32.0 811111 1097. 235 5.712 2.608 220 0.021 13.895 GOBPA 14 57.0 811111 1097. 235 5.712 2.608 233 ** 0.021 13.746 GOP2A 15.7.3 126 46.0 811112 5726. 630 6.574 2.774 600 0.011 13.266 GOP3A 11.95.3 126 36.0 811112 6129 1245 5.808 141 0.020 13.148 GOP3A 11.9.5 128.30 0.11113 5431. 142 5.655 1614 0.017 11.325 GOP3A 11.9.126	60866	42 20.5	124 49 0	911110	1007	1904	5 000	2.010	1749	0.018	12.307
00080 1/2 0.11 0.21 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.02 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 0.01 1.01 <th< td=""><td>60874</td><td>42 20.2</td><td>124 31 0</td><td>811110</td><td>693</td><td>2035</td><td>5 450</td><td>7 144</td><td>2019</td><td>0.020</td><td>13,109</td></th<>	60874	42 20.2	124 31 0	811110	693	2035	5 450	7 144	2019	0.020	13,109
60694 1 124 13.0 811111 1069 123.2 5.712 2.200 0.022 14.664 6090A 41 59.7 125 5.0 811111 1827. 610 4.975 2.369 540 0.021 13.746 6092A 41 59.3 126 46.0 811112 5726. 630 6.574 2.774 600 0.017 11.240 6092A 41 59.3 126 46.0 811112 5726. 630 6.574 2.774 600 0.017 11.240 6097A 41 59.3 126 42.0 811113 5724.1 2.579 1912 0.0120 13.346 6097A 41 19.5 122 2.635 141 0.020 13.148 6097A 41 19.5 126 36.0 811113 5437. 745 7.144 2.987 1330 0.020 13.148 6097A 41 19.5 126 36.0 811115 1037.6 557 2.6455 1814 0.021	60886	42 0.1	124 22.0	811110	857.	2342	5 704	9 471	2327	0.018	11.966
0000A 41 55.7 125 5.0 01111 1027. 10 4.975 2.169 540 0.021 13.945 0091A 41 55.8 125 50.0 011112 5092. 11 5.394 2.2694 2353 ** 0.021 13.746 0097A 41 59.3 127 41.0 011112 5794. 1245 5.806 2.745 1230 0.020 13.236 0097A 41 19.5 122 0.011113 5433. 157 6.132 2.655 141 0.021 13.148 0097A 41 19.5 126 40.0 0.011113 5437. 745 7.144 2.967 1230 0.020 13.148 0097A 41 19.5 126 40.0 0.011113 5341. 1245 6.871 2.975 1230 0.020 13.148 0097A 41 19.5 126 40.0 0.011114 1493. 2.007 7.233 2.665 1041 0.0121 11.325 01044 120.44	G089A	41 59.0	124 43.0	811111	1099.	236	5.712	2.608	220	0.022	14.866
6091A 41 56.8 125 50.0 811112 5092. 11 5.394 2.884 2353 ** 0.021 13.746 6092A 41 59.3 126 41.0 811112 5786. 630 6.574 2.774 600 0.017 11.260 6094A 41 59.5 127 41.0 811112 5786. 630 6.574 2.775 1230 0.021 13.236 8094A 42 0.0 128 39.0 811113 5437. 745 7.144 2.655 141 0.021 13.148 6097A 41 19.5 127.0 811113 5437. 745 7.144 2.987 713 0.018 11.932 6097A 41 1.0 125 64.0 811114 1493. 2200 7.233 2.687 1230 0.021 13.148 6097A 41 1.0 124 51.0 811115 1007. 515 5.343 2.467 137 0.018 12.011 61004 139.5 124 <td>6090A</td> <td>41 59.7</td> <td>125 5.0</td> <td>811111</td> <td>1827.</td> <td>610</td> <td>4.975</td> <td>2.369</td> <td>540</td> <td>0.021</td> <td>13.895</td>	6090A	41 59.7	125 5.0	811111	1827.	610	4.975	2.369	540	0.021	13.895
$\begin{array}{c} 6092A & 41 \ 59, \ 3 \ 126 \ 46.0 \ 811112 \ 5726. \ 630 \ 6.574 \ 2.774 \ 600 \ 0.017 \ 11.260 \ 6093A \ 41 \ 59, \ 51 \ 127 \ 41.0 \ 911112 \ 5984. \ 1245 \ 5.806 \ 2.765 \ 1230 \ 0.020 \ 13.236 \ 6093A \ 42 \ 0.0 \ 128 \ 39.0 \ 811112 \ 5984. \ 1245 \ 5.806 \ 2.765 \ 1230 \ 0.020 \ 13.236 \ 6093A \ 41 \ 19.5 \ 128 \ 39.0 \ 811113 \ 5653. \ 157 \ 6.132 \ 2.559 \ 1912 \ 0.018 \ 12.093 \ 6095A \ 41 \ 19.5 \ 128 \ 22.0 \ 811113 \ 5653. \ 157 \ 6.132 \ 2.559 \ 141 \ 0.020 \ 13.148 \ 6097A \ 41 \ 19.5 \ 128 \ 40.0 \ 811113 \ 5437. \ 745 \ 7.144 \ 2.989 \ 713 \ 0.018 \ 11.932 \ 6097A \ 41 \ 19.5 \ 126 \ 40.0 \ 811113 \ 5437. \ 745 \ 7.144 \ 2.989 \ 713 \ 0.018 \ 11.932 \ 6097A \ 41 \ 19.5 \ 126 \ 41 \ 9.5 \ 125 \ 4.0 \ 811113 \ 5437. \ 745 \ 7.144 \ 2.987 \ 1230 \ 0.020 \ 13.118 \ 6097A \ 41 \ 19.5 \ 126 \ 41 \ 40.0 \ 811113 \ 5437. \ 745 \ 7.144 \ 2.987 \ 1230 \ 0.020 \ 13.118 \ 6097A \ 41 \ 19.5 \ 126 \ 41 \ 40.0 \ 11114 \ 1493. \ 2200 \ 7.233 \ 2.662 \ 2145 \ 0.018 \ 12.011 \ 13.746 \ 6097A \ 41 \ 10.0 \ 126 \ 41 \ 39.5 \ 124 \ 50.0 \ 811115 \ 1007. \ 515 \ 5.241 \ 2.544 \ 445 \ 0.019 \ 12.432 \ 6103A \ 41 \ 39.5 \ 124 \ 50.0 \ 811115 \ 1007. \ 515 \ 5.241 \ 2.544 \ 445 \ 0.019 \ 12.510 \ 10133 \ 6104A \ 41 \ 39.5 \ 124 \ 50.0 \ 811115 \ 1007. \ 515 \ 5.241 \ 2.544 \ 445 \ 0.019 \ 12.510 \ 10.24 \ 12.510 \ 10024 \ 11.2510 \ 10024 \ 11.59 \ 733 \ 740 \ 5.246 \ 11.658 \ 7220 \ 0.021 \ 14.297 \ 1230 \ 0.021 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 1230 \ 0.024 \ 14.297 \ 13.800 \ 1115 \ 967. \ 1233 \ 5.719 \ 7.332 \ 2020 \ 0.021 \ 14.297 \ 13.800 \ 1117 \ 724 \ 37.0 \ 811115 \ 967. \ 1235 \ 4.629 \ 7.233 \ 235 \ 0.019 \ 14.297 \ 13.800 \ 1117 \ 1243 \ 10.017 \ 12.455 \ 1006A \ 40 \ 40.0 \ 124 \ 40.0 \ 124 \ 40.0 \ 1117 \ 5200 \ 1116 \ 5200 \ 205 \ 1160 \ 1116 \ 1033 \ 16.533 \ 2.653 \ 2.653 \ 2.653 \ 2020 \ 0.021 \ 14.297 \ 1$	G091A	41 56.8	125 50.0	811112	5092.	11	5.394	2.684	2353 **	0.021	13.746
6093A 41 59.5 127 41.0 811112 5984. 1245 5.806 2.765 1230 0.020 13.236 6095A 41 19.5 128 39.0 611112 6125.0 1574 6.132 2.655 141 0.020 13.148 6096A 41 19.5 126 32.0 811113 5437. 745 7.144 2.9655 141 0.020 13.148 6096A 41 19.5 126 36.0 811113 5437. 745 7.142 2.9675 1230 0.020 13.148 6097A 41 19.5 126 36.0 811114 1493. 2200 7.233 2.6675 1245 0.018 12.011 6097A 41 39.0 124 35.0 811115 1907. 515 5.247 2.545 1814 0.017 12.432 61004 41 39.0 124 35.0 811115 1907. 515 5.214 2.655 1020 0.021 14.297 6104A 4	G092A	41 59.3	126 46.0	811112	5726.	630	6.574	2.774	600	0.017	11.260
$\begin{array}{c} 0094A & 42 & 0.0 & 128 & 39.0 & 611112 & 6129. & 1944 & 6.237 & 2.599 & 1912 & 0.018 & 12.093 \\ 0095A & 41 & 19.5 & 128 & 22.0 & 611113 & 5437. & 745 & 7.144 & 2.969 & 713 & 0.018 & 11.932 \\ 0097A & 41 & 19.5 & 126 & 36.0 & 811113 & 5437. & 745 & 7.144 & 2.969 & 713 & 0.018 & 11.932 \\ 0097A & 41 & 19.5 & 126 & 36.0 & 811113 & 5437. & 745 & 7.144 & 2.969 & 713 & 0.018 & 11.932 \\ 0097A & 41 & 19.5 & 126 & 54.0 & 811113 & 4918. & 1831 & 6.713 & 2.643 & 1814 & 0.021 & 13.746 \\ 0099A & 41 & 1.0 & 124 & 54.0 & 811113 & 4918. & 1831 & 6.575 & 2.655 & 1814 & 0.017 & 11.325 \\ 0107A & 41 & 20.4 & 124 & 51.0 & 811114 & 1497. & 1837 & 6.557 & 2.655 & 1814 & 0.017 & 11.325 \\ 0107A & 41 & 20.5 & 124 & 56.0 & 811115 & 1930. & 155 & 5.343 & 2.473 & 137 & 0.019 & 12.432 \\ 0103A & 41 & 39.5 & 124 & 56.0 & 811115 & 733. & 740 & 5.246 & 11.658 & 728 & 0.035 & 23.563 \\ 0104A & 41 & 39.5 & 124 & 16.0 & 811115 & 733. & 740 & 5.246 & 11.658 & 728 & 0.035 & 23.563 \\ 0105A & 41 & 97.5 & 124 & 37.0 & 811115 & 913. & 1250 & 6.045 & 2.617 & 1230 & 0.022 & 15.794 \\ 0105A & 41 & 97.6 & 124 & 37.0 & 811115 & 917. & 2043 & 6.344 & 2.685 & 2028 & 0.021 & 13.600 \\ 0107A & 41 & 0.124 & 16.0 & 811115 & 861. & 2333 & 4.629 & 7.233 & 2319 & 0.019 & 12.445 \\ 0107A & 40 & 40.0 & 124 & 32.0 & 811116 & 983. & 253 & 6.543 & 2.833 & 235 & 0.018 & 11.786 \\ 0109A & 40 & 40.0 & 124 & 32.0 & 811116 & 5240. & 2157 & 8.636 & 3.222 & 2213 & 0.017 & 11.654 \\ 0110A & 40 & 41.0 & 125 & 11.0 & 81116 & 5243. & 1649 & 3.018 & 5.12 & 0.019 & 12.376 \\ 0110A & 40 & 41.0 & 125 & 11.0 & 811116 & 5243. & 1419 & 3.501 & 2.344 & 1603 & 0.019 & 12.426 \\ 0111A & 40 & 39.8 & 127 & 40.0 & 811117 & 5301. & 530 & 7.564 & 3.038 & 512 & 0.018 & 11.786 \\ 0117A & 40 & 39.8 & 127 & 40.0 & 811117 & 5301. & 530 & 7.564 & 3.038 & 512 & 0.019 & 12.435 \\ 0117A & 40 & 39.8 & 127 & 40.0 & 811117 & 5301. & 530 & 7.564 & 3.038 & 512 & 0.019 & 12.426 \\ 0117A & 40 & 39.8 & 127 & 40.0 & 811117 & 5301. & 530 & 7.564 & 3.038 & 512 & 0.019 & 11.765 \\ 0117A & 40 & 39.8 & 127 & 40.0 & 811118 & 52$	G093A	41 59.5	127 41.0	911112	5984.	1245	5.806	2.765	1230	0.020	13.236
6095A 41 19.5 122 22.0 811113 5437. 745 7.144 2.965 141 0.020 13.148 6096A 41 19.5 126 36.0 811113 5437. 745 7.144 2.9675 1230 0.020 13.148 6096A 41 19.5 126 36.0 811113 5431. 1245 6.871 2.9675 1230 0.020 13.148 6099A 41 19.5 126 44.0 811114 1467. 1837 6.557 2.655 1814 0.017 11.325 6100A 41 20.4 124 51.0 811115 1907. 515 5.2471 2.433 137 0.019 12.432 6102A 41 39.5 124 16.0 811115 1907. 515 5.291 2.544 445 0.019 12.510 6104A 41 20.7 123 1020 0.024 15.794 61064 0.59.6 124 37.0 811115 930. 125 2.617 1230	8094A	42 0.0	128 39.0	611112	6129.	1944	6.237	2.599	1912	0.018	12.093
6096A 41 18.5 127 27.0 811113 5437. 745 7.144 2.989 713 0.018 11.932 6097A 41 19.5 126 64.0 811113 5431. 124.5 6.871 2.8655 11814 0.020 13.746 6099A 41 1.0 124.54.0 811114 1493. 2200 7.233 2.6655 1814 0.017 11.325 6100A 41 21.4 54.0 811115 1930. 155 5.343 2.473 137 0.019 12.432 6102A 41 39.5 124 16.0 811115 1930. 155 5.241 2.544 445 0.019 12.432 6102A 41 39.5 124 16.0 811115 913. 1250 6.045 2.617 1230 0.024 15.794 6105A 41 19.7 124 37.0 811115 913. 1250 6.045 2.617 1230 0.021 13.800 6105A 41 19.7	G095A	41 19.5	128 22.0	011113	5653.	157	6.132	2.655	141	0.020	13.148
6097A 41 19.5 126 36.0 811113 5341. 1245 6.871 2.875 1230 0.020 13.118 6098A 41 1.0 125 44.0 811114 1687. 1837 6.557 2.655 1814 0.021 13.744 6099A 41 1.0 124 51.0 811114 1497. 1237 6.557 2.655 1814 0.017 11.325 6100A 41 20.4 124 51.0 811115 1930. 155 5.343 2.473 137 0.019 12.432 6102A 41 39.0 124 16.0 811115 1930. 155 5.343 2.473 137 0.019 12.432 6102A 41 39.0 124 16.0 811115 730. 1250 6.0457 2.280 0.035 2.563 6104A 41 29.7 124 37.0 811115 913.1250 6.045 2.028 0.021 14.297 6104A 41 9.124 12.0 8111	G096A	41 18.5	127 27.0	811113	5437.	745	7.144	2.989	713	0.018	11.932
6098A 41 19.0 125 44.0 811113 4918. 1831 6.713 2.643 1814 0.021 13.746 6099A 41 10.124 54.0 811114 1497. 2200 7.233 2.682 2145 0.018 12.011 8101A 41 39.5 124 55.0 811115 1930. 155 5.247 137 0.019 12.432 8103A 41 39.5 124 16.0 811115 707.515 5.246 11.658 728 0.035 23.543 6104A 41 20.2 124 46.0 811115 913.1 1250 6.045 2.647 1230 0.024 14.297 6105A 41 19.7 124 37.0 811115 913.1 1250 6.045 2.647 1230 0.021 14.297 6105A 41 19.7 124 37.0 811115 913.1 1250 6.045 2.617 1230 0.021 13.800 6107A 40.0.0 124 32.0	G097A	41 19.5	126 36.0	011113	5341.	1245	6.871	2.975	1230	0.020	13.118
60094A 41 1.0 124 54.0 81114 1607. 1837 6.557 2.655 1614 0.017 11.225 6100A 41 20.4 124 51.0 611114 1493. 2200 7.233 2.662 2145 0.019 12.432 6102A 41 39.0 124 35.0 811115 1930. 155 5.343 2.473 137 0.019 12.432 6102A 41 39.0 124 35.0 811115 1930. 155 5.291 2.544 445 0.019 12.432 6102A 41 19.7 124 35.0 811115 973.7 740 5.244 11.658 728 0.035 23.553 6.1044 41 0.0 124 15.0 81115 973.7 740 5.461 1.658 728 0.022 11.4297 0.012 14.297 0.021 14.297 0.021 14.297 0.021 14.297 0.021 15.0 0.012 15.0 0.0121 12.432 0.014 12.432 0.014	GOYBA	41 19.0	125 44.0	811113	4918.	1831	6.713	2.643	1814	0.021	13.746
6100A 41 20.4 124 51.0 81114 1449. 2200 7.233 2.862 2145 0.018 12.011 6101A 41 39.5 124 56.0 811115 1007. 515 5.243 2.473 137 0.019 12.432 6102A 41 39.5 124 16.0 811115 1007. 515 5.244 145 0.019 12.432 6103A 41 20.2 124 16.0 811115 733. 740 5.246 11.659 728 0.021 14.297 6105A 41 19.7 124 37.0 811115 967. 2043 6.344 2.665 2028 0.021 13.600 6107A 41 0.0 124 12.0 811115 967. 2043 6.344 2.683 235 0.019 12.4455 6108A 40 40.0 124 32.0 811116 1033. 645 8.732 3.235 0.019 12.445 6108A 40 39.5 125	GUYYA	41 1.0	124 54.0	811114	1687.	183/	6.557	2.655	1914	0.017	11.325
61014 41 39.3 124 58.0 811115 1930. 155 5.243 2.473 137 0.019 12.432 6102A 41 39.5 124 16.0 811115 1007. 515 5.246 11.658 728 0.035 23.563 6102A 41 20.2 124 16.0 811115 966. 1035 5.719 7.332 1020 0.024 15.774 6105A 41 9.7 124 37.0 811115 967. 2043 6.364 2.685 2028 0.021 13.600 6107A 41 0.0 124 32.0 811116 983. 253 6.543 2.833 235 0.018 11.786 6109A 40 39.8 124 52.0 811116 1033. 645 8.732 3.258 615 0.019 12.445 6110A 40 41.0 125 1.0 81116 252.1 1002 6.160 2.813 935 0.019 12.426 6110A 40	GIUUA	41 20.4	124 51.0	811114	1493.	2200	7.233	2.082	2145	0.018	12.011
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	6102A	41 39.0	124 36.0	811115	1930.	155	5.343	2.4/5	137	0.019	12.432
6104A 41 20.12 124 16.0 811115 763. 740 3.240 11.030 720 0.021 14.297 6105A 41 19.7 124 37.0 811115 913. 1250 6.045 2.617 1230 0.024 15.794 6105A 40 59.6 124 37.0 811115 987. 2043 6.364 2.685 2028 0.021 13.800 6107A 41 0.1 124 16.0 811115 987. 2043 6.364 2.685 2028 0.021 13.800 6107A 40 0.124 32.0 811116 983. 253 6.543 2.833 235 0.018 11.786 6109A 40 40.1 125 11.0 811116 2203. 1619 3.501 2.244 1603 0.018 11.822 6111A 40 39.5 126 52.0 811116 5240. 2257 8.636 3.222 2213 0.017 11.654 6112A 40 39.5 <td>01024</td> <td>41 39 5</td> <td>124 14 0</td> <td>811115</td> <td>777</td> <td>740</td> <td>5 944</td> <td>2.044</td> <td>440</td> <td>0.019</td> <td>12.510</td>	01024	41 39 5	124 14 0	811115	777	740	5 944	2.044	440	0.019	12.510
61054 41 197 124 37.0 611115 $913.$ 1250 6.045 2.617 1230 0.024 15.794 61064 40 59.6 124 37.0 811115 $967.$ 2043 6.344 2.665 2028 0.021 13.600 61074 41 0.0 124 16.0 811115 $967.$ 2043 6.344 2.665 2028 0.021 13.600 61074 41 0.0 124 12.0 811115 $861.$ 2335 4.629 7.233 2319 0.019 12.445 61094 40.0 124 32.0 811116 $1933.$ 645 8.732 3.258 615 0.019 12.376 $6110A$ 40 41.0 125 11.0 811116 $2252.$ 1002 6.160 2.813 935 0.019 12.376 $6110A$ 40 47.5 126 59.0 811116 $5203.$ 1619 3.501 2.244 1603 0.019 12.426 61124 $40.39.5$ 126 59.0 811116 $5203.$ 1619 3.501 2.244 1603 0.019 12.426 61124 40 39.5 126 59.0 811117 $5301.$ 530 7.564 3.038 512 0.019 11.4270 $6114A$ 40 41.0 128 36.0 81117 5905 2.660 2100 0.020 13.169	61044	41 20.2	124 16.0	811115	966	1035	5 710	7 332	1020	0.033	14 297
61024 40 59.6 124 37.0 811115 $967.$ 2043 6.364 2.685 2028 0.021 13.800 $6107A$ 41 0.0 124 16.0 811115 $861.$ 2335 4.629 7.233 2319 0.019 12.445 81084 40 40.0 124 32.0 811116 $983.$ 253 6.543 2.833 235 0.019 12.445 61094 40 37.8 124 52.0 811116 $1033.$ 645 8.732 3.258 615 0.019 12.376 $6110A$ 40 41.0 125 11.0 811116 $2252.$ 1002 6.160 2.813 935 0.019 12.426 $6111A$ 40 39.5 125 59.0 811116 5220.3 1419 3.501 2.244 1603 0.018 11.822 $6112A$ 40 39.5 125 59.0 811116 5220.3 1419 3.501 2.244 1603 0.019 12.426 $6113A$ 40 39.8 127 40.0 811117 $5301.$ 530 7.564 3.038 512 0.019 12.426 $6114A$ 40 41.0 128 36.0 81117 $5892.$ 1410 4.455 2.332 1320 0.021 14.037 $6114A$ 40 10.9 129 11.0 811121 $5832.$ 1135 4.636 2.427	G105A	41 19.7	124 37.0	811115	913.	1250	6.045	2.617	1020	0.021	15 794
G107A 41 0.0 124 14.0 811115 $841.$ 2335 4.229 7.233 2319 0.019 12.445 $B108A$ 40 40.0 124 32.0 $B11116$ $983.$ 2235 6.543 2.833 235 0.018 11.786 $G109A$ 40 39.8 124 52.0 811116 $1033.$ 645 8.732 3.258 615 0.019 12.376 $G110A$ 40 41.0 125 11.0 811116 $2252.$ 1002 6.160 2.813 935 0.019 12.4426 $G111A$ 40 39.5 126 52.0 811116 $5240.$ 2257 8.636 3.222 2213 0.017 11.654 $G112A$ 40 39.5 126 52.0 811117 $5301.$ 530 7.564 3.038 512 0.019 12.4426 $G113A$ 40 39.8 127 40.0 811117 $5301.$ 530 7.564 3.038 512 0.019 11.720 $G114A$ 40 41.0 128 36.0 811117 $5580.$ 1410 4.455 2.332 1320 0.021 14.037 $G115A$ 39 59.7 129 11.0 811121 $5832.$ 1135 4.636 2.427 1102 0.019 12.9435 $G117A$ 40 0.0 127 24.0 811118 $5260.$ 220 6.718 3.184	G106A	40 59.6	124 37.0	811115	987.	2043	6.364	2.685	2028	0.021	13.600
B108A4040.012432.0B11116983.2536.5432.8332350.01811.786G109A4039.812452.08111161033.6458.7323.2586150.01912.376G110A4041.012511.08111162252.10026.1602.8139350.01912.426G111A4039.512559.08111165203.16193.5012.24416030.01811.822G112A4039.512652.08111165240.22578.6363.22222130.01711.654G113A4039.812740.08111175301.5307.5643.0385120.01912.835G115A3959.712911.08111215832.11354.6362.42711020.02114.037G115A3959.712817.08111175630.21175.9052.66021000.02013.169G117A400.012724.08111185260.2206.7183.1842010.01811.765G117A401.012541.081118574.7306.4603.2147050.01812.263G117A401.012541.08111183974.13306.4133.19012560.01711.409G120A40 <t< td=""><td>G107A</td><td>41 0.0</td><td>124 16.0</td><td>811115</td><td>861.</td><td>2335</td><td>4.629</td><td>7.233</td><td>2319</td><td>0.019</td><td>12.445</td></t<>	G107A	41 0.0	124 16.0	811115	861.	2335	4.629	7.233	2319	0.019	12.445
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0108A	40 40.0	124 32.0	811116	983.	253	6.543	2.833	235	0.018	11.786
6110A 40 41.0 125 11.0 811116 2252. 1002 6.160 2.813 935 0.019 12.426 6111A 40 39.5 125 59.0 811116 5203. 1619 3.501 2.244 1603 0.018 11.822 6112A 40 39.5 125 59.0 811116 5203. 1619 3.501 2.244 1603 0.018 11.822 6113A 40 39.5 125 62.0 811117 5301. 530 7.564 3.038 512 0.017 11.654 6114A 40 41.0 128 36.0 811117 5580. 1410 4.455 2.332 1320 0.021 14.037 6115A 39 59.7 129 11.0 81121 5832. 1135 4.636 2.427 1102 0.019 12.835 6117A 40 0.9 126 17.0 811118 5260. 220 6.718 3.184 201 0.018 11.765 6117A 40 <td>G109A</td> <td>40 39.8</td> <td>124 52.0</td> <td>811116</td> <td>1033.</td> <td>645</td> <td>8.732</td> <td>3.258</td> <td>615</td> <td>0.019</td> <td>12.376</td>	G109A	40 39.8	124 52.0	811116	1033.	645	8.732	3.258	615	0.019	12.376
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6123A 40 0.0 124 51.0 611119 1453. 415 6.503 2.890 337 0.018 11.897 6124A 40 1.0 124 31.0 811119 1040. 735 6.519 2.937 645 0.018 12.218 6125A 39 58.5 124 12.0 811119 848. 1040 5.874 2.732 1105 0.018 11.741	6122A	40 20.B	124 30.0	811118	987.	2330	4 470	2.458	1740	0.020	17 177
6124A 40 1.0 124 31.0 811119 1040. 735 6.519 2.937 645 0.018 12.218 G125A 39 58.5 124 12.0 811119 848. 1040 5.874 2.732 1105 0.018 11.741	6123A	40 0.0	124 51.0	011119	1453.	415	6-503	2.890	117	0.020	11 997
G125A 39 58.5 124 12.0 B11119 848. 1040 5.074 2.732 1105 0.019 11.741	6124A	40 1.0	124 31.0	811119	1040.	735	6.519	2.937	645	0.018	12.218
	0125A	39 58.5	124 12.0	811119	848.	1040	5.874	2.732	1105	0.019	11.741

* "A" CONVERTS CATCH TO CATCH PER 10M², "B" CONVERTS CATCH TO CATCH PER 1000M³ (SEE SMITH AND RICHARDSON 1977).

** DATE FOR NEUSTON TOW 1 DAY PREVIOUS TO THAT SHOWN.

Table 1 (Continued)

STAGE: EGG					
	GEAR: 1	NEUSTON	GEAR: 2	BONGO	
	OCCUR.	LOG NO.	LOG NO.	MEAN NO.	
	7.	IN AREA	IN AREA	PER 10M2	
SPECIES					
UNIDENTIFIED	5.60	7.9520	10.4960	9.21	
TELEOST TYPE E			9.9044	7.24	
TELEOST TYPE F	1,60	8.2195			
TELEOST TYPE G			11.5931	14.77	
DISINTEGRATED	4.00	7.6737	10.4065	7.90	
ARGENTINIDAE			9.8360	5.74	
BATHYLAGIDAE			11.7036	18.09	
BATHYLAGUS SP.			11.1525	11.42	
BATHYLABUS OCHOTENSIS	0.80	6.9694	10.4390	7.47	
CHAULIODUS MACOUNI	22.40	8.4982	11.3403	12.59	
THERAGRA CHALCOGRAMMA			9.5587	9.16	
COLOLABIS SAIRA	0.00	7.5799			
TRACHIPTERIDAE	3.20	7.1913			
TRACHIPTERUS ALTIVELIS	47.60	9.3489	11.3491	9.69	
TCOSTENS AENTGMATICUS	0.80	6.7148			
ICICHTHYS LOCKINGTONI	43.20	9.4739	11.2853	10.04	
TETRAGONURUS CUVIERI	0.80	6.2171	9.9627	6.66	
BOTHIDAE	22.40	10.2035	12.2676	152.09	
CITHARICHTHYS SP.	14.40	8.8455	10.7950	27.59	
PLEURONECTIDAE	13.60	8.6513	11.0921	61.34	
PAROPHRYS VETULUS	8.80	B.3224	10.5567	28.13	
PLEURONICHTHYS DECURRENS	6.40	7.3341	8.6363	4.71	
PEETTICHTHYS MELANOSTICTUS	4,80	7.5489	9.8063	10.13	

Table 2.--Fish eggs collected in bongo and neuston tows during cruise 1DA81, October-November 1981.

STAGE: LARVAE				
	GEAR: 1	NEUSTON	GEAR: 2	BONGO
	OCCUR.	LOG NO.	LOG NO.	MEAN NO.
	7.	IN AREA	IN AREA	PER 10M2
SPECIES				
UNIDENTIFIED	0.80	6.2802	9.5888	8.74
DISINTEGRATED	8.00	8.0226	10.8477	15.07
ENGRAULIS MORDAX	9.60	8.7170	9.8403	7.94
OSMERUS MORDAX			8.8084	6.54
MICROSTOMA MICROSTOMA			8.6972	5.87
BATHYLAGUS MILLERI			10.2197	5.76
BATHYLAGUS OCHOTENSIS			9.7121	5.44
CYCLOTHONE SP.			9.8615	5.66
ARGYROPELECUS LYCHNUS			8.7977	5.71
DANAPHOS OCULATUS			9.8566	6.16
CHAULIODUS MACOUNI			10.5392	6.69
TACTOSTOMA MACROPUS			9.0416	5.42
MYCTOPHIDAE	0.80	7.0503	10.1204	7.58
DIAPHUS THETA	0.00		9.8260	5.99
LAMPANYCTUS SP			0 7790	4 94
LAMPANYCTUS PERALTS			10 0007	4.10
LAMPANYCTUS RITTERI			0.0003	0.10
STENARRACHTIG I FUCARGADUS	0.00	7 0/70	7.0032	0.00
CYMPALAPUADUR CALTEADNIENCE	0.00	7.04/2	7.//4/	3.80
TADI ETANDEANTA COENIU ADTO	7.00	7.008/	44 7/70	10 /5
NTACENTRUTUVO CO	3.20	/./900	11.3438	10.45
DEALANYOTADUUN ODADUEDY			9.0132	5.34
			10.9836	9.20
FROTONICIOPHUM THOMPSONI			10.34//	6.10
LESTIDIOPS KINGENS			10.7914	9.99
GADUS MACROCEPHALUS			9.0277	5.67
THERAGRA CHALLOGRAMMA	0.80	6.2802		
COLOLABIS SAIRA	52,00	9.2010	9.6557	8.64
TRACHIPTERUS ALTIVELIS			8.6634	4.67
MELAMPHAEIDAE			10.4485	7.83
SEBASTES SP.	8.00	7.9002	11.2235	17.62
SEBASTOLOBUS SP.			9.5337	6.19
HEXAGRAMMOS DECAGRAMMUS	3.20	8.0349		
HEXAGRAMMOS LAGOCEPHALUS	10.40	0.1201		
COTTIDAE	0.80	6.2214		
ARTEDIUS HARRINGTONI			8.6891	5.71
LEPTOCOTTUS ARMATUS	0.80	6.1586		
SCORPAENICHTHYS MARMORATUS	17.60	8.1121		
AGONIDAE			8.5850	5.25
CYCLOPTERIDAE	1.60	6.5320	9.6641	7.58
ICICHTHYS LOCKINGTONI	0.80	6.4572	10.5319	7.42
TETRAGONURUS CUVIERI			10.0142	9.55
CITHARICHTHYS SP.	4.00	7.5611	11.3168	22.12
CITHARICHTHYS SORDIDUS	V = 2	-	10.8989	9.57
CITHARICHTHYS STIGMAEUS	0.80	6.3892	10.7692	7.89
GLYPTOCEPHALUS ZACHIRUS	1207	and do that an	8.7115	5.25
PAROPHRYS VETULUS	0.80	6.3571	9.6434	11.35
PLEURONICHTHYS DECURRENS	0.80	6.2619		
PSETTICHTHYS MELANOSTICTUS			8.6363	4.71

Table 3.--Fish larvae collected in bongo and neuston tows during cruise IDA81, October-November 1981.



Figure 1.--Station locations and cruise track for cruise 1DA81, October-November 1981.



Figure 2.--Rank abundance of eggs caught in neuston tows during cruise 1DA81, October-November 1981. ICHTHYOPLANKTON RANK ABUNDANCE





Figure 3.--Rank abundance of larvae caught in neuston tows during cruise 1DA81, October-November 1981.



Figure 4.--Rank abundance of eggs caught in bongo tows during cruise 1DA81, October-November 1981.

ICHTHYOPLANKTON RANK ABUNDANCE



Figure 5.--Rank abundance of larvae caught in bongo tows during cruise 1DA81, October-November 1981.



Figure 6.--Distribution and lengths of larvae of <u>Engraulis mordax</u> from neuston tows during cruise 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 7.—Distribution of eggs of Bathylagidae from bongo tows during cruise 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 8.--Distribution and lengths of larvae of <u>Protomyctophum crockeri</u> from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 9.--Distribution and lengths of larvae of <u>Tarletonbeania crenularis</u> from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².







Figure 11.--Distribution of eggs of <u>Trachipterus altivelis</u> from neuston tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 12.--Distribution of eggs of <u>Trachipterus altivelis</u> from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 13.--Distribution of eggs of <u>Icichthys lockingtoni</u> from neuston tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 14.--Distribution of eggs of <u>Icichthys</u> <u>lockingtoni</u> from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 15.--Distribution and lengths of larvae of <u>Sebastes</u> spp. from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 16.--Distribution and lengths of larvae of <u>Hexagrammos decagrammus</u> from neuston tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 17.--Distribution and lengths of larvae of <u>Scorpaenichthys</u> marmoratus from neuston tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 18.--Distribution of eggs of Bothidae from neuston tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 19.--Distribution of eqgs of Bothidae from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 20.--Distribution of eqgs of <u>Citharichthys</u> spp. from neuston tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 21.--Distribution and lengths of larvae of <u>Citharichthys</u> spp. from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 22.--Distribution and lengths of larvae of <u>Citharichthys sordidus</u> from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 23.--Distribution of eggs of <u>Pleuronichthys</u> <u>decurrens</u> from neuston tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 1,000 m³.



Figure 24.--Distribution of eggs of <u>Pleuronichthys</u> decurrens from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².



Figure 25.--Distribution of eggs of Teleost Type G from bongo tows during cruise, 1DA81, October-November 1981. Abundance expressed as numbers per 10 m².

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