RADIOANALYSIS SAMPLES FROM WELOC 76 not all non-RA preserved samples are listed here

H-76-1 13 VIII 1976 Sta. AP-1 BMT

Invertebrates:

6 asteroid sp A for C 14
8 asteroid sp B for C 14
4 asteroid sp C for C 14
20 asteroid sp A for Gamma analysis

Fishes:

2 C. armatus, 337, 320mm TL for C 14
11 C. armatus, 283, 295, 272, 269, 256, 256, 276, 267, 213, 156, 268* mm TL for Gamma analysis * with stomach contents removed & preserved

Preserved:

2-5 gal. bkts inverts
1-8 oz asteroid sp A
2 asteroid sp B (8 oz)
1 asteroid sp C (8 oz)
1-8 oz shrimp
1-2 oz C. armatus stomach contents

H-76-2 14 VIII 1976 Sta. AP-1 BMT 4883m

Invertebrates:

1 Psychropotes sp A for C 14
5 Molpadia sp A for C 14
5 Asteroid sp C for C 14
27 asteroid sp B for Gamma analysis

Fishes:

1 C. armatus, 459 mm TL for C 14
1 C. armatus, 465 mm TL for Gamma analysis

Preserved:

3-5 gal invertebrates
1 Molpadia sp A (32 oz)
1 Psychropotes sp A (32 oz)
1 gal shrimp
1-5 gal fish and squid

H-76-4 17 VIII 1976 Sta. AP-2 BMT 5180m

Invertebrates:

1 Psychropotes sp A for C 14
11 asteroid sp C for C 14
3 anemone sp. A for C 14
5 holothuroids sp A for C 14

Fishes:

1 C. armatus 669mm TL for Gamma analysis
4 C. armatus, 391, 430, 422, 406 mm TL for C 14

Preserved:

1 anemone sp A
1 cucumber sp A
2 cirromorph squids
1-5 gal fish

H-76-5 18 VIII 1976 Sta. AP-2 BMT

No animals frozen; small catch

H-76-6 19 VIII 1976 Sta. AP-2 BMT

Invertebrates:

7 anemone sp. A for Gamma analysis

Y=

NH= Newport Hydro line

NAO = Newport Anchor Dredge

THB = Tillamook Head Benthic

CP = Cascadia Plain

TP = Tufts Plain

DWD = Deep Water Dump

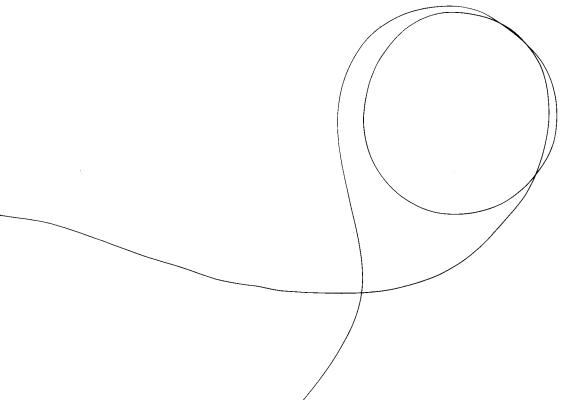
CBT = Coos Bay Transect

CBL = Cape Blanco Line

NAD 21 ≈ NH 65

NAD 8 ≈ NH-23

AT= Astoria Transect



SAMPLE	STA	DEPTH	DATE	ON BOTTOM	DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM	TIME	COUNT	
BMT 1	ND 6N	150M	7/24/64	44 43.9N 124 29.8W	1171M	826LT	.99879
		450M	Y6707D	44 44.5 124 29.6	20MN	825RT	
		COMMENTS					
BMT 2	ND11	800M	7/25/67	44 33.4N 124 55.9W	1348M	2258LT	.93344
		3000M	Y6707D	44 32.7 124 55.7	20MN	2419RT	
		COMMENTS					
BMT 3	ND11	800M	10/30/67	44 36.7N 124 56.7W	1335M	2420LT	.02438
		2400M	Y6710D	44 37.3 124 56.3	30MN	59RT	
		COMMENTS					
BMT 4	ND11	770M	10/30/67	44 34.3N 124 54.8W	1824M	3819LT	.51479
		2400M	Y6710D	44 33.4 124 55.2	30MN	1966RT	
		COMMENTS					
BMT 5	ND 8	200M	10/30/67	44 38.5N 124 36.0W	668M	650LT	.95385
		600M	Y6710D	44 38.8 124 36.2	10MN	620RT	
		COMMENTS					
BMT 6	ND 8	200M	10/30/67	44 38.6N 124 36.2W	926M	51LT	.09733
		600M	Y6710D	44 39.1 124 36.2	10MN	524RT	
		COMMENTS					
BMT 7	ND 6N	150M	10/31/67	44 42.8N 124 31.2W	0M	650LT	.79365
		650M	Y6710D	NA 0 NA 0	05MN	819RT	
		COMMENTS					
BMT 8	ND 6N	150M	10/31/67	44 43.7N 124 29.9W	0M	297LT	.89899
		650M	Y6710D	NA 0 NA 0	05MN	267RT	
		COMMENTS					
BMT 9	ND 4N	100M	10/31/67	44 43.2N 124 18.2W	764M	510LT	.53922
		350M	Y6710D	44 43.6 124 18.3	10MN	275RT	
		COMMENTS					
BMT 10	ND 4N	100M	10/31/67	44 44.1N 124 18.5W	262M	555LT	.32973
		350M	Y6710D	44 44.2 124 18.6	10MN	183RT	
		COMMENTS					
BMT 11	ND 2	50M	10/31/67	44 37.8N 124 10.1W	1677M	6847LT	.98715
		200M	Y6710D	44 38.7 124 10.2	30MN	6759RT	
		COMMENTS					
BMT 12	TH 8	200M	1/11/68	NA ON NA OW	0M	0LT	2.00000
		NA M	Y6801C	NA 0 NA 0	NA MN	0RT	
		COMMENTS NONQUANT PELAGIC					
BMT 13	ND 2	50M	7/13/68	44 39.5N 124 8.8W	2253M	911LT	.99232
		250M	Y6807C	44 40.7 124 9.0	20MN	904RT	
		COMMENTS					
BMT 14	ND 2	50M	7/13/68	44 40.5N 124 9.2W	1171M	740LT	.98930
		250M	Y6807C	44 39.9 124 9.0	30MN	748RT	
		COMMENTS					
BMT 15	ND 2	50M	7/13/68	44 39.9N 124 9.0W	1527M	706LT	.97592
		250M	Y6807C	44 40.7 124 9.2	20MN	689RT	
		COMMENTS					
BMT 16	ND 4N	100M	7/13/68	44 43.9N 124 8.4W	20032M	1034LT	.99903
		550M	Y6807C	44 44.5 124 19.2	15MN	1033RT	
		COMMENTS					
BMT 17	ND 4N	100M	7/13/68	44 45.4N 124 19.3W	0M	576LT	.56250
		600M	Y6807C	NA 0 NA 0	20MN	324RT	
		COMMENTS					
BMT 18	ND 6N	150M	7/13/68	44 43.7N 124 29.3W	1310M	796LT	.95352
		650M	Y6807C	44 43.0 124 29.4	20MN	759RT	
		COMMENTS					
BMT 19	ND 6N	150M	7/13/68	44 43.2N 124 29.4W	1127M	949LT	.89192
		650M	Y6807C	44 43.8 124 29.3	20MN	1064RT	
		COMMENTS					
BMT 20	ND 8	200M	7/14/68	44 36.9N 124 35.9W	1677M	654LT	.91437
		800M	Y6807C	44 36.0 124 35.8	20MN	598RT	
		COMMENTS					

SAMPLE	STA	DEPTH	DATE	ON BOTTOM	DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM	TIME	COUNT	
BMT 21	ND 8	200M	7/14/68	44 35.5N 124 35.8W	4112M	822LT	.97857
		850M	Y6807C	44 37.7 124 35.5	10MN	840RT	
		COMMENTS		LOST NET			
BMT 22	ND 8	200M	7/14/68	44 40.0N 124 34.2W	764M	974LT	.97303
		850M	Y6807C	44 39.6 124 34.3	10MN	1001RT	
		COMMENTS					
BMT 23	ND 8	200M	7/14/68	44 38.3N 124 34.6W	1335M	1865LT	.99893
		850M	Y6807C	44 37.9 124 34.0	10MN	1867RT	
		COMMENTS					
BMT 24	ND11	819M	7/14/68	44 38.8N 124 56.5W	12844M	1661LT	.88445
		3200M	Y6807C	44 31.9 124 55.8	20MN	1878RT	
		COMMENTS					
BMT 25	ND11	800M	7/14/68	44 33.1N 124 55.7W	0M	325LT	.96615
		3200M	Y6807C	NA 0 NA 0	20MN	314RT	
		COMMENTS		PELAGIC			
BMT 26	ND11	2900M	7/16/68	44 25.2N 125 37.2W	4079M	0LT	0
		5600M	Y6807C	44 26.9 125 35.8	65MN	907RT	
		COMMENTS					
BMT 27	SG 2	199M	8/13/68	45 38.8N 124 35.1W	0M	604LT	.74752
		850M	C6808E	NA 0 NA 0	45MN	808RT	
		COMMENTS					
BMT 28	SG 2	220M	8/13/68	44 39.7N 124 36.0W	414M	426LT	.92609
		NA M	C6808E	44 39.9 124 35.9	8MN	460RT	
		COMMENTS					
BMT 29	SG 4	150M	8/15/68	44 28.6N 124 41.5W	2071M	0LT	0
		NA M	C6808E	44 29.7 124 41.3	30MN	0RT	
		COMMENTS		LOST NET			
BMT 30	SG 7	95M	8/17/68	44 57.3N 124 17.4W	0M	601LT	.98669
		450M	C6808E	NA 0 NA 0	15MN	593RT	
		COMMENTS					
BMT 31	SG 7	95M	8/16/68	43 57.2N 124 18.6W	2095M	724LT	.99862
		500M	C6808E	43 58.0 124 17.8	20MN	725RT	
		COMMENTS					
BMT 32	SG 8	200M	8/20/68	43 55.6N 124 34.7W	0M	1897LT	.99685
		1000M	C6808E	NA 0 NA 0	30MN	1903RT	
		COMMENTS					
BMT 33	SG 8	192M	8/20/68	43 56.6N 124 36.6W	0M	598LT	.96656
		800M	C6808E	NA 0 124 36.6	5MN	578RT	
		COMMENTS					
BMT 34	SG 6	143M	8/21/68	44 .5N 124 35.0W	1171M	449LT	1.00000
		400M	C6808E	44 .7 124 35.6	15MN	449RT	
		COMMENTS					
BMT 35	SG 6	145M	8/21/68	44 .7N 124 35.5W	1747M	565LT	.97246
		500M	C6808E	44 1.5 124 35.0	15MN	581RT	
		COMMENTS					
BMT 36	SG 5	100M	8/22/68	44 14.4N 124 28.5W	0M	539LT	.97645
		400M	C6808E	NA 0 NA 0	20MN	552RT	
		COMMENTS					
BMT 37	SG 5	102M	8/22/68	NA ON NA OW	0M	1055LT	.95735
		400M	C6808E	44 15.6 124 29.0	20MN	1102RT	
		COMMENTS					
BMT 38	SG 2	185M	10/23/68	44 39.3N 124 36.9W	1824M	0LT	0
		NA M	C6810C	44 38.9 124 36.0	10MN	560RT	
		COMMENTS					
BMT 39	SG 2	183M	10/23/68	44 39.3N 124 34.7W	668M	67LT	.74627
		800M	C6810C	44 39.0 124 34.9	10MN	50RT	
		COMMENTS					
BMT 40	SG22	80M	10/23/68	44 14.2N 124 16.8W	1127M	0LT	0
		400M	C6810C	44 14.8 124 16.9	10MN	28RT	
		COMMENTS					

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT 41	SG22	75M	10/23/68	44 15.0N		124 16.8W		1080M	53LT	.86792
		NA M	C6810C	44 14.5		124 17.1		20MN	46RT	
		COMMENTS								
BMT 42										
NO DATA										
BMT 43	SG 7	100M	10/23/68	43 58.1N		124 18.1W		1824M	156LT	.83974
		550M	C6810C	43 58.5		124 19.0		10MN	131RT	
		COMMENTS								
BMT 44	SG 7	100M	10/23/68	43 58.4N		124 18.0W		2893M	170LT	.96045
		550M	C6810C	43 57.4		124 16.8		10MN	177RT	
		COMMENTS								
BMT 45	SG23	104M	10/24/68	43 48.5N		124 17.9W		926M	117LT	.52137
		550M	C6810C	43 48.0		124 17.9		10MN	61RT	
		COMMENTS								
BMT 46	SG23	104M	10/24/68	43 48.0N		124 18.0W		1861M	87LT	1.00000
		550M	C6810C	43 49.0		124 17.9		20MN	87RT	
		COMMENTS								
BMT 47	SG 8	185M	10/27/68	43 55.3N		124 34.8W		4359M	86LT	.93023
		800M	C6810C	43 53.0		124 34.3		10MN	80RT	
		COMMENTS NONQUANT								
BMT 48	SG 8	186M	10/27/68	43 55.9N		124 34.3W		1656M	13LT	.26000
		800M	C6810C	43 56.3		124 35.1		10MN	50RT	
		COMMENTS								
BMT 49	SG 6	144M	10/28/68	44 1.4N		124 35.2W		2492M	81LT	.60000
		NA M	C6810C	44 2.3		124 36.2		10MN	135RT	
		COMMENTS								
BMT 50	SG 6	131M	10/28/68	44 3.5N		124 36.5W		414M	61LT	.50833
		800M	Y6810C	44 3.3		124 36.4		10MN	120RT	
		COMMENTS								
BMT 51	SG1K	110M	10/28/68	44 8.5N		124 25.3W		109648M	47LT	.26257
		NA M	Y6810C	44 9.3		125 24.5		15MN	179RT	
		COMMENTS								
BMT 52	SG	20M	1/ 8/69	NA	0N	NA	0W	0M	79LT	.80612
		110M	C6901C	NA	0	NA	0	30MN	98RT	
		COMMENTS								
BMT 53	ES	17M	1/ 8/69	45 15.5N		124 59.4W		0M	11LT	.11000
		NA M	C6901A	NA	0	NA	0	45MN	100RT	
		COMMENTS								
BMT 54	ES	17M	1/ 8/69	45 15.5N		124 59.4W		0M	2LT	.02857
		NA M	C6901A	NA	0	NA	0	30MN	70RT	
		COMMENTS								
BMT 55	ES	17M	1/ 8/69	45 15.5N		124 59.4W		0M	2LT	.02857
		NA M	C6901A	NA	0	NA	0	45MN	70RT	
		COMMENTS								
BMT 56	ES	17M	1/ 8/69	45 15.5N		124 59.4W		0M	498LT	.42203
		110M	C6901A	NA	0	NA	0	30MN	1180RT	
		COMMENTS								
BMT 57	ES	17M	1/ 8/69	45 15.5N		124 59.4W		0M	314LT	.76585
		110M	C6901A	NA	0	NA	0	15MN	410RT	
		COMMENTS								
BMT 58	ES	17M	1/ 9/69	45 15.5N		124 59.4W		0M	432LT	0
		110M	C6901A	NA	0	NA	0	30MN	0RT	
		COMMENTS								
BMT 59	SG 2	200M	1/24/69	44 40.0N		124 36.7W		1310M	90LT	0
		700M	C6901C	44 40.5		124 36.2		10MN	0RT	
		COMMENTS								
BMT 60	SG	73M	1/25/69	44 15.0N		124 16.9W		586M	60LT	.50000
		NA M	C6901C	44 15.3		124 17.0		15MN	120RT	

SAMPLE	STA	DEPTH	DATE	ON BOTTOM		DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM		TIME	COUNT	
BMT 61	SG22	73M	1/25/69	44 14.8N	124 17.0W	741M	77LT	.45029
		350M	C6901C	44 14.4	124 17.0	30MN	171RT	
		COMMENTS						
BMT 62	SG15	100M	1/25/69	44 9.8N	124 25.8W	2492M	63LT	.57798
		350M	T6901C	44 10.7	124 26.8	20MN	109RT	
		COMMENTS		MALFUNCT				
BMT 63	SG15	100M	1/25/69	44 9.7N	124 26.4W	3240M	1293LT	.79505
		450M	C6901C	44 8.8	124 24.9	30MN	1028RT	
		COMMENTS						
BMT 64	SG 6	146M	1/25/69	44 .8N	124 35.0W	741M	352LT	.87129
		700M	C6901C	44 1.2	124 35.0	20MN	404RT	
		COMMENTS						
BMT 65	SG 6	150M	1/25/69	43 59.5N	124 34.9W	2619M	279LT	.95222
		700M	C6901C	43 58.5	124 33.9	20MN	293RT	
		COMMENTS						
BMT 66	SG 8	200M	1/27/69	43 55.2N	124 33.6W	1348M	248LT	.24031
		NA M	C6901C	43 55.9	124 33.8	20MN	1032RT	
		COMMENTS NONGUANT						
BMT 67	SG 8	200M	1/28/69	43 55.2N	124 34.7W	2112M	466LT	.38866
		800M	C6901C	43 54.3	124 34.0	20MN	1199RT	
		COMMENTS						
BMT 68								
NO DATA								
BMT 69	ND21	2830M	3/28/69	44 44.7N	125 37.3W	3676M	2100LT	.23762
		NA M	C6903G	44 43.2	125 36.0	120MN	499RT	
		COMMENTS						
BMT 70	ND21	2830M	3/29/69	44 38.8N	125 32.6W	4453M	2291LT	.96707
		NA M	C6903G	44 39.5	125 30.3	120MN	2369RT	
		COMMENTS						
BMT 71	C	2485M	3/29/69	45 32.0N	125 35.1W	7595M	25LT	.12000
		NA M	C6903G	45 36.1	125 35.0	120MN	3RT	
		COMMENTS NONGUANT		PELAGIC				
BMT 72	TH19	2195M	3/30/69	45 56.1N	125 41.8W	6321M	1629LT	.50460
		4600M	C6903G	45 59.0	125 40.0	120MN	822RT	
		COMMENTS						
BMT 73	TH19	2305M	3/30/69	45 58.9N	125 45.0W	4585M	1754LT	.77714
		4600M	C6903G	45 57.2	125 46.8	120MN	2257RT	
		COMMENTS						
BMT 74	SG 2	200M	4/24/69	44 39.2N	124 32.6W	4141M	381LT	.92029
		NA M	C6904E	44 39.6	124 34.8	20MN	414RT	
		COMMENTS						
BMT 75	SG 2	200M	4/24/69	44 38.7N	124 35.0W	4630M	26LT	.26804
		NA M	C6904E	44 41.2	124 35.0	25MN	97RT	
		COMMENTS						
BMT 76	SG22	75M	4/25/69	44 14.4N	124 17.7W	1861M	456LT	.88716
		300M	C6904E	44 13.4	124 17.8	15MN	514RT	
		COMMENTS						
BMT 77	SG22	75M	4/25/69	44 13.9N	124 17.4W	1493M	522LT	.77448
		300M	C6904E	44 14.7	124 17.3	40MN	674RT	
		COMMENTS						
BMT 78	SG15	95M	4/25/69	44 9.3N	124 24.1W	1824M	523LT	.95985
		NA M	C6904E	44 8.9	124 25.0	30MN	502RT	
		COMMENTS						
BMT 79	SG15	102M	4/25/69	44 9.2N	124 24.2W	2753M	1038LT	.76782
		NA M	C6904E	44 8.2	124 25.3	30MN	797RT	
		COMMENTS						
BMT 80	SG 6	150M	4/25/69	44 1.7N	124 32.8W	2928M	515LT	.51346
		NA M	C6904E	44 1.2	124 34.3	30MN	1003RT	

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT 81	SG 6	150M	4/25/69	44	1.0N	124	34.9W	3015M	877LT	.99886
		NA M	C6904E	44	.7	124	33.3	20MN	878RT	
		COMMENTS								
BMT 82	SG 8	226M	4/26/69	43	54.8N	124	37.3W	1707M	483LT	.89279
		700M	C6904E	43	55.0	124	36.4	15MN	541RT	
		COMMENTS								
BMT 83	SG 8	223M	4/26/69	43	56.3N	124	37.3W	1493M	1533LT	.91389
		900M	C6904E	43	56.7	124	36.6	15MN	1401RT	
		COMMENTS								
BMT 84	SG 7	100M	4/26/69	43	57.4N	124	18.2W	370M	428LT	.93246
		NA M	C6904E	43	57.4	124	18.0	10MN	459RT	
		COMMENTS								
BMT 85	SG 7	100M	4/26/69	43	57.3N	124	18.1W	1861M	657LT	.99697
		NA M	C6904E	43	57.4	124	19.1	20MN	659RT	
		COMMENTS								
BMT 86	223	102M	4/26/69	43	50.2N	124	17.9W	1310M	492LT	.81457
		NA M	C6904E	43	49.5	124	17.8	15MN	604RT	
		COMMENTS								
BMT 87	223	102M	4/26/69	43	49.0N	124	18.5W	1667M	649LT	.93837
		NA M	C6904E	43	49.0	124	19.4	15MN	609RT	
		COMMENTS								
BMT 88	CP1A	2200M	7/14/69	45	50.0N	120	29.8W	551409M	0LT	0
		4400M	Y6907C	45	45.3	125	27.5	120MN	3RT	
		COMMENTS NONQUANT PELAGIC								
BMT 89	CP1A	2225M	7/14/69	45	43.8N	125	26.8W	2291M	722LT	.64637
		4400M	Y6907C	45	45.0	125	26.5	60MN	1117RT	
		COMMENTS								
BMT 90	CP1B	2283M	7/14/69	45	37.5N	125	36.4W	10213M	499LT	.99601
		4400M	Y6907C	45	32.0	125	36.0	90MN	501RT	
		COMMENTS								
BMT 91	CP1B	2483M	7/15/69	45	29.2N	125	36.1W	13822M	1732LT	.86255
		4800M	Y6907C	45	31.5	125	29.0	90MN	2008RT	
		COMMENTS NONQUANT MALFUNCT								
BMT 92	CP1C	2359 M	7/15/69	45	17.0N	125	33.9W	10767M	17LT	.34694
		4800M	Y6907C	45	11.8	125	36.5	120MN	49RT	
		COMMENTS NONQUANT								
BMT 93	CP1C	2669M	7/15/69	45	9.3N	125	38.3W	2291M	921LT	.80017
		5200M	Y6907C	45	10.5	125	38.0	120MN	1151RT	
		COMMENTS DAMAGED								
BMT 94	CP1D	2688M	7/16/69	44	58.8N	125	34.0W	5159M	1631LT	.93194
		5400M	Y6907C	44	56.2	125	33.0	120MN	1520RT	
		COMMENTS								
BMT 95	CP1D	2706M	7/16/69	44	55.0N	125	35.0W	4178M	1560LT	.84783
		5200M	Y6907C	44	57.2	125	35.5	120MN	1840RT	
		COMMENTS								
BMT 96	CP1E	2786M	7/16/69	44	39.7N	125	36.3W	7327M	54LT	.83333
		5400M	Y6907C	44	36.0	125	34.9	120MN	45RT	
		COMMENTS NONQUANT								
BMT 97	CP1E	2862M	7/17/69	44	34.7N	125	39.4W	3800M	839LT	.68415
		5400M	Y6907C	44	36.2	125	40.8	120MN	574RT	
		COMMENTS MALFUNCT								
BMT 98	SG 2	176M	7/25/69	44	38.9N	124	35.1W	944M	385LT	.50525
		800M	C6907D	44	39.0	124	35.6	20MN	762RT	
		COMMENTS								
BMT 99	SG 2	234M	7/25/69	44	38.6N	124	35.6W	1889M	81LT	.26910
		NA M	C6907D	44	38.4	124	34.6	20MN	301RT	
		COMMENTS								
BMT100	SG22	75M	7/26/69	44	15.2N	124	18.0W	1446M	485LT	.07010
		300M	C6907D	44	15.7	124	18.6	14MN	34RT	
		COMMENTS								

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT101	SG22	75M	7/26/69	44	15.3N	124	18.2W	997M	435LT	.77931
		300M	C6907D	44	14.8	124	18.0	13MN	339RT	
		COMMENTS								
BMT102	SG15	100M	7/26/69	44	9.2N	124	24.5W	926M	429LT	.83626
		400M	C6907D	44	8.7	124	24.5	13MN	513RT	
		COMMENTS								
BMT103	SG15	100M	7/26/69	44	9.0N	124	24.5W	1186M	753LT	.97610
		400M	C6907D	44	9.4	124	25.0	22MN	735RT	
		COMMENTS								
BMT104	SG 6	146M	7/26/69	44	1.0N	124	35.7W	2168M	642LT	.92241
		NA M	C6907D	43	59.9	124	35.3	21MN	696RT	
		COMMENTS								
BMT105	SG 6	146M	7/26/69	44	.5N	124	36.0W	1127M	644LT	.45771
		NA M	C6907D	43	59.9	124	36.1	23MN	1407RT	
		COMMENTS								
BMT106	SG 8	190M	7/26/69	43	55.3N	124	35.8W	1080M	786LT	.84607
		NA M	C6907D	43	54.8	124	35.5	23MN	929RT	
		COMMENTS								
BMT107	SG 8	190M	7/26/69	43	56.1N	124	35.6W	944M	800LT	.49906
		NA M	C6907D	43	56.6	124	35.5	19MN	1603RT	
		COMMENTS								
BMT108	SG 7	99M	7/27/69	43	58.2N	124	17.7W	1757M	789LT	.97287
		NA M	C6907D	43	59.1	124	18.0	20MN	811RT	
		COMMENTS								
BMT109	SG 7	99M	7/27/69	43	58.9N	124	18.0W	1527M	867LT	.54908
		NA M	C6907D	43	58.1	124	17.8	20MN	1579RT	
		COMMENTS								
BMT110	SG23	102M	7/27/69	43	49.4N	124	18.0W	2652M	235LT	.85145
		400M	C6907D	43	50.7	124	18.6	20MN	276RT	
		COMMENTS								
BMT111	SG23	110M	7/27/69	43	49.3N	124	19.2W	1824M	638LT	.91799
		400M	C6907D	43	48.4	124	18.8	20MN	695RT	
		COMMENTS								
BMT112	CP1A	2195M	10/ 2/69	45	49.9N	125	32.0W	5004M	3520LT	.07756
		4400M	Y6910A	45	52.6	125	31.9	120MN	273RT	
		COMMENTS		DAMAGED						
BMT113	CP1A	2156M	10/ 3/69	46	3.2N	125	35.2W	224573M	2724LT	.60866
		4409M	Y6910A	46	7.0	123	34.0	120MN	1658RT	
		COMMENTS								
BMT114	CP1B	2300M	10/ 4/69	45	35.5N	125	36.1W	8499M	2LT	.40000
		4100M	Y6910A	45	40.0	125	37.0	120MN	5RT	
		COMMENTS	NONQUANT	PELAGIC						
BMT115	CP1B	2195M	10/ 4/69	45	48.3N	125	38.4W	7289M	2903LT	.82919
		4400M	Y6910A	45	50.1	125	41.9	120MN	3501RT	
		COMMENTS								
BMT116	CP1C	2500M	10/ 5/69	45	23.6N	125	37.0W	6248M	2462LT	.82341
		4900M	Y6910A	45	20.3	125	37.7	120MN	2990RT	
		COMMENTS								
BMT117	CP1C	2633M	10/ 5/69	45	18.2N	125	40.2W	6759M	1348LT	.78190
		4900M	Y6910A	45	21.8	125	39.6	120MN	1724RT	
		COMMENTS								
BMT118	CP1D	2652M	10/ 5/69	45	3.4N	125	35.1W	5215M	2899LT	.18351
		5300M	Y6910A	45	.6	125	34.8	120MN	532RT	
		COMMENTS								
BMT119	CP1E	2779M	10/ 6/69	44	42.5N	125	35.6W	5166M	3792LT	.95733
		5400M	Y6910A	44	39.8	125	36.3	120MN	3961RT	
		COMMENTS								
BMT120	CP1E	2825M	10/ 6/69	44	41.7N	125	33.5W	3339M	4061LT	.97667
		5400M	Y6910A	44	43.6	125	32.5	90MN	4158RT	
		COMMENTS								

SAMPLE	STA	DEPTH	DATE	ON BOTTOM		DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM		TIME	COUNT	
BMT121	OFC3	86M	10/11/69	45 54.5N	124 10.7W	1571M	236LT	.04739
		NA M	C6910C	45 55.1	124 11.3	14MN	498ORT	
		COMMENTS		DISCARD				
BMT122	OFC4	124M	10/11/69	45 55.0N	124 16.0W	1582M	15LT	.53571
		500M	C6910C	45 55.3	124 16.8	13MN	28RT	
		COMMENTS		DISCARD				
BMT123	OFC5	146M	10/11/69	45 54.7N	124 21.8W	3066M	103LT	.39806
		600M	C6910C	45 55.4	124 23.3	18MN	41RT	
		COMMENTS		DISCARD				
BMT124	OFC6	154M	10/11/69	45 55.3N	124 27.2W	370M	361LT	0
		600M	C6910C	45 55.5	124 27.2	12MN	0RT	
		COMMENTS		DISCARD				
BMT125	OF15	153M	10/11/69	45 50.9N	124 26.8W	1048M	440LT	0
		600M	C6910C	45 51.3	124 27.2	15MN	0RT	
		COMMENTS		DISCARD				
BMT126	OF14	148M	10/11/69	45 51.1N	124 22.3W	926M	427LT	0
		NA M	C6910C	45 51.6	124 22.3	15MN	0RT	
		COMMENTS		DISCARD				
BMT127	OFC3	86M	10/11/69	45 54.3N	124 9.1W	1186M	428LT	0
		NA M	C6910C	45 54.7	124 9.6	11MN	0RT	
		COMMENTS						
BMT128	OFC4	117M	10/11/69	45 54.6N	124 14.9W	1242M	411LT	0
		450M	C6910C	45 54.9	124 15.5	12MN	0RT	
		COMMENTS						
BMT129	OFC5	140M	10/11/69	45 54.9N	124 21.3W	1582M	308LT	0
		560M	C6910C	45 55.2	124 22.1	13MN	0RT	
		COMMENTS						
BMT130	OFC6	154M	10/12/69	45 54.8N	124 27.1W	1048M	439LT	0
		600M	C6910C	45 55.2	124 27.5	13MN	0RT	
		COMMENTS						
BMT131	OF15	156M	10/12/69	45 50.8N	124 26.5W	1446M	288LT	0
		NA M	C6910C	45 51.4	124 27.0	13MN	0RT	
		COMMENTS						
BMT132	OF15	154M	10/12/69	45 50.9N	124 22.6W	1571M	251LT	0
		600M	C6910C	45 51.5	124 23.2	13MN	0RT	
		COMMENTS						
BMT133	OF15	132M	10/12/69	45 50.9N	124 16.6W	1335M	173LT	0
		500M	C6910C	45 51.3	124 17.2	12MN	0RT	
		COMMENTS						
BMT134	OF15	110M	10/12/69	45 58.8N	124 15.7W	828M	202LT	0
		450M	C6910C	45 59.2	124 15.9	8MN	0RT	
		COMMENTS						
BMT135	OF11	140M	10/12/69	45 58.8N	124 21.7W	1080M	372LT	0
		560M	C6910C	45 59.3	124 22.0	15MN	0RT	
		COMMENTS						
BMT136	OF12	150M	10/12/69	45 59.4N	124 26.6W	1335M	86LT	0
		NA M	C6910C	46 0	124 27.0	13MN	0RT	
		COMMENTS						
BMT137	OF13	M	10/12/69	ON	OW	0M	332LT	0
		M	C6910C	0	0	MN	0RT	
		COMMENTS		I				
BMT138	SG22	75M	11/ 1/69	44 14.2N	124 16.7W	1656M	671LT	.67362
		NA M	C6911A	44 15.0	124 17.1	15MN	452RT	
		COMMENTS						
BMT139	SG22	75M	11/ 1/69	44 14.9N	124 17.7W	1707M	596LT	.98993
		NA M	C6911A	44 14.0	124 17.5	15MN	590RT	
		COMMENTS						
BMT140	SG15	100M	11/ 1/69	44 10.0N	124 25.1W	944M	535LT	.98505
		NA M	C6911A	44 10.5	124 25.2	15MN	527RT	
		COMMENTS						

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT141	SG15	97M	11/ 2/69	44	10.3N	124	25.7W	1242M	369LT	.55656
		NA M	C6911A	44	9.7	124	26.0	NAMN	663RT	
		COMMENTS								
BMT142	SG 6	142M	11/ 2/69	44	1.4N	124	35.3W	2003M	349LT	.55751
		500M	C6911A	44	.8	124	36.2	15MN	626RT	
		COMMENTS								
BMT143	SG 6	140M	11/ 2/69	44	.8N	124	36.1W	1335M	669LT	0
		NA M	C6911A	44	1.2	124	35.5	NAMN	0RT	
		COMMENTS								
BMT144	SG 8	200M	11/ 2/69	43	56.4N	124	36.6W	997M	732LT	.85246
		NA M	C6911A	43	55.9	124	36.4	18MN	624RT	
		COMMENTS								
BMT145	SG 8	200M	11/ 2/69	43	56.3N	124	36.5W	1582M	587LT	.89608
		NA M	C6911A	43	56.6	124	37.3	15MN	526RT	
		COMMENTS								
BMT146	SG23	100M	11/ 2/69	43	48.9N	124	17.5W	1667M	0LT	0
		NA M	C6911A	43	48.0	124	17.5	16MN	1400RT	
		COMMENTS								
BMT147	SG23	100M	11/ 2/69	43	48.3N	124	17.4W	1677M	555LT	.89516
		NA M	C6911A	43	49.2	124	17.5	15MN	620RT	
		COMMENTS								
BMT148	SG 7	100M	11/ 3/69	43	58.3N	124	18.0W	1111M	1LT	.11111
		300M	C6911A	43	58.9	124	18.0	12MN	9RT	
		COMMENTS								
BMT149	SG 7	99M	11/ 3/69	43	58.5N	124	18.0W	1296M	568LT	.96271
		400M	C6911A	43	57.8	124	18.0	13MN	590RT	
		COMMENTS								
BMT150	SG 7	99M	11/ 3/69	43	57.0N	124	18.1W	1111M	540LT	.97122
		400M	C6911A	43	56.4	124	18.1	14MN	556RT	
		COMMENTS								
BMT151	SG 2	200M	11/ 3/69	44	39.3N	124	35.8W	1171M	167LT	.30812
		800M	C6911A	44	39.9	124	36.0	11MN	542RT	
		COMMENTS								
BMT152	SG 2	199M	11/ 3/69	44	39.0N	124	35.9W	741M	630LT	.98571
		NA M	C6911A	44	38.6	124	35.9	19MN	621RT	
		COMMENTS								
BMT153	SG 2	199M	11/ 3/69	44	38.9N	124	35.9W	2046M	360LT	.68053
		NA M	C6911A	44	40.0	124	36.0	15MN	529RT	
		COMMENTS								
BMT154	CP2A	2666M	1/16/70	45	53.1N	126	39.0W	6915M	26LT	.00957
		5200M	Y7001B	45	51.8	126	42.5	120MN	2717RT	
		COMMENTS								
BMT155	CP2B	2675M	1/16/70	45	46.0N	126	43.0W	3038M	29LT	.76316
		5500M	Y7001B	45	45.0	126	41.7	120MN	38RT	
		COMMENTS								
BMT156	CP2B	2661M	1/17/70	45	35.0N	126	20.5W	7636M	2021LT	.25433
		5400M	Y7001B	45	34.0	126	16.5	134MN	514RT	
		COMMENTS								
BMT157	CP2C	2606M	1/17/70	45	27.8N	126	17.4W	6830M	9LT	.00340
		5400M	Y7001B	45	27.0	126	21.0	124MN	2645RT	
		COMMENTS								
BMT158	CP2A	2651M	1/17/70	45	50.4N	126	29.0W	8497M	163LT	.09304
		5400M	Y7001B	45	46.1	126	27.4	120MN	1752RT	
		COMMENTS								
BMT159	CP2C	2721M	1/18/70	45	17.0N	126	38.8W	6335M	2008LT	.75489
		5600M	Y7001B	45	16.1	126	42.1	120MN	2660RT	
		COMMENTS								
BMT160	CP2D	2784M	1/18/70	45	10.8N	126	43.0W	0M	367LT	.97347
		5176M	Y7001B	NA	0	NA	0	NA MN	377RT	
		COMMENTS								

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT161	CP2D	2770M	1/19/70	44 55.0N	126	29.9W		6386M	23LT	.00748
		5601M	Y7001B	44 52.0	126	31.6		115MN	3075RT	
		COMMENTS		MALFUNCT						
BMT162	CP2D	2774M	1/19/70	44 54.4N	126	35.0W		6469M	1962LT	0
		5700M	Y7001B	44 53.0	126	31.8		120MN	0RT	
		COMMENTS		MALFUNCT						
BMT163	CP2E	2787M	1/19/70	44 45.2N	126	30.1W		6469M	2635LT	.76621
		5700M	Y7001B	44 42.0	126	31.5		120MN	3439RT	
		COMMENTS								
BMT164	CP2E	2813M	1/20/70	44 36.6N	126	25.2W		8182M	0LT	0
		6785M	Y7001B	44 36.2	126	20.8		120MN	0RT	
		COMMENTS	NONQUANT	LOST NET						
BMT165	SG 8	200M	2/ 3/70	43 55.6N	124	36.4W		764M	477LT	.98554
		NA M	C7002A	43 56.0	124	36.5		14MN	484RT	
		COMMENTS								
BMT166	SG 8	200M	2/ 3/70	43 55.7N	124	36.3W		1482M	128LT	.87075
		NA M	C7002A	43 54.9	124	36.3		13MN	147RT	
		COMMENTS								
BMT167	SG 7	99M	2/ 3/70	43 58.0N	124	17.9W		1757M	350LT	.81143
		NA M	C7002A	43 58.9	124	18.2		12MN	284RT	
		COMMENTS								
BMT168	SG 7	99M	2/ 3/70	43 58.1N	124	18.2W		1934M	33LT	.93939
		NA M	C7002A	43 57.1	124	17.9		15MN	31RT	
		COMMENTS								
BMT169	SG23	99M	2/ 3/70	43 48.3N	124	17.6W		944M	447LT	.91051
		NA M	C7002A	43 47.8	124	17.5		13MN	407RT	
		COMMENTS								
BMT170	SG23	99M	2/ 3/70	43 47.8N	124	17.9W		1310M	294LT	.62245
		400M	C7002A	43 48.5	124	17.8		13MN	183RT	
		COMMENTS								
BMT171	SG 6	150M	2/ 4/70	44 .9N	124	37.1W		944M	672LT	.87649
		600M	C7002A	44 1.4	124	37.0		16MN	589RT	
		COMMENTS								
BMT172	SG 6	150M	2/ 4/70	44 .9N	124	36.6W		1707M	379LT	.82322
		600M	C7002A	44 .2	124	37.2		13MN	312RT	
		COMMENTS								
BMT173	SG15	100M	2/ 4/70	44 8.2N	124	25.2W		1582M	391LT	.81841
		400M	C7002A	44 9.0	124	24.9		15MN	320RT	
		COMMENTS								
BMT174	SG15	100M	2/ 4/70	44 8.5N	124	24.8W		1111M	128LT	.57813
		NA M	C7002A	44 7.9	124	24.8		15MN	74RT	
		COMMENTS								
BMT175	SG22	75M	2/ 4/70	44 15.0N	124	17.5W		764M	123LT	.60976
		NA M	C7002A	44 15.4	124	17.4		16MN	75RT	
		COMMENTS								
BMT176	SG22	75M	2/ 4/70	44 15.0N	124	17.5W		1111M	11LT	.91667
		NA M	C7002A	44 14.4	124	17.5		13MN	12RT	
		COMMENTS								
BMT177	SG 2	200M	2/ 4/70	44 39.7N	124	35.9W		1080M	396LT	.97537
		NA M	C7002A	44 40.2	124	36.2		15MN	406RT	
		COMMENTS								
BMT178	SG 2	200M	2/ 5/70	44 40.5N	124	37.0W		1127M	755LT	.97925
		NA M	C7002A	44 39.9	124	36.9		17MN	771RT	
		COMMENTS								
BMT 179										
NO DATA										
BMT180	SG 2	207M	2/ 5/70	44 40.4N	124	36.0W		1335M	0LT	0
		NA M	C7002A	44 39.8	124	36.4		15MN	0RT	
		COMMENTS								

SAMPLE	STA	DEPTH / WIRE / CRUISE	DATE	ON BOTTOM / OFF BOTTOM	DIST / TIME	WHEEL / COUNT	RATIO
BMT181	ND 8	204M	3/15/70	44 38.2N 124 37.0W	524M	526LT	.97407
		NA M Y7003B		44 38.0 124 37.2	10MN	540RT	
		COMMENTS					
BMT182	ND10	620M	3/15/70	44 38.2N 124 53.0W	1493M	1105LT	.85249
		NA M Y7003B		44 37.8 124 52.3	20MN	942RT	
		COMMENTS					
BMT183	ND11	1000M	3/15/70	44 35.1N 124 58.4W	1527M	1813LT	.30502
		NA M Y7003B		44 34.3 124 58.2	30MN	553RT	
		COMMENTS					
BMT184	ND21	2875M	3/16/70	44 39.0N 125 34.5W	7394M	2668LT	.53786
		NA M Y7003B		44 40.5 125 38.2	120MN	1435RT	
		COMMENTS					
BMT185	CP1E	2816M	3/16/70	44 37.6N 125 39.9W	2291M	1325LT	.71777
		5400M Y7003B		44 37.3 125 41.1	120MN	1846RT	
		COMMENTS					
BMT186	CP1E	2816M	3/16/70	44 35.6N 125 35.2W	6626M	1798LT	.80773
		NA M Y7003B		44 34.0 125 32.0	120MN	2226RT	
		COMMENTS					
BMT187	CP1D	2760M	3/17/70	44 56.1N 125 39.8W	3937M	625LT	.54443
		5400M Y7003B		44 54.7 125 41.4	120MN	1148RT	
		COMMENTS					
BMT188	CP1D	2790M	3/17/70	44 58.5N 125 44.3W	7244M	1909LT	.81967
		5400M Y7003B		44 58.8 125 40.4	120MN	2329RT	
		COMMENTS					
BMT189	CP1C	2560M	3/18/70	45 18.0N 125 43.2W	10843M	2LT	.01942
		5400M Y7003B		45 17.2 125 49.0	120MN	103RT	
		COMMENTS		PELAGIC			
BMT190	CP1C	2597M	3/18/70	45 19.5N 125 47.4W	5768M	2560LT	.66680
		5450M Y7003B		45 19.8 125 44.3	120MN	1707RT	
		COMMENTS					
BMT191	CP1C	2605M	3/18/70	45 18.0N 125 47.2W	7734M	2215LT	.49300
		5200M Y7003B		45 16.8 125 51.2	120MN	1092RT	
		COMMENTS		MALFUNCT			
BMT192	CP1B	2450M	3/19/70	45 36.6N 125 48.5W	8681M	2996LT	.61482
		NA M Y7003B		45 39.2 125 44.6	120MN	1842RT	
		COMMENTS		MALFUNCT			
BMT193	CP1B	2425M	3/19/70	45 38.7N 125 48.5W	16349M	2370LT	.97571
		5000M Y7003B		45 39.4 125 57.3	120MN	2429RT	
		COMMENTS					
BMT194	CP1A	2030M	3/20/70	45 55.5N 125 38.8W	10186M	1754LT	.81581
		NA M Y7003B		45 55.5 125 33.3	120MN	2150RT	
		COMMENTS					
BMT195	CP1A	2265M	3/20/70	45 57.8N 125 44.2W	7282M	1632LT	.89474
		4200M Y7003B		45 57.3 125 48.1	120MN	1824RT	
		COMMENTS					
BMT196	TH19	2250M	3/20/70	45 57.2N 125 42.7W	12497M	0LT	0
		4200M Y7003B		45 56.4 125 36.0	120MN	2RT	
		COMMENTS		PELAGIC			
BMT197	~~CP1A~~ TH11	800M	3/20/70	45 57.9N 124 53.5W	35003M	1946LT	.96004
		3200M Y7003B		45 39.0 124 53.6	21MN	2027RT	
		COMMENTS NONGUANT		MALFUNCT			
BMT198	TH 8	200M	3/21/70	45 51.7N 124 38.5W	524M	788LT	.98350
		800M Y7003B		45 51.9 124 38.3	10MN	775RT	
		COMMENTS					
BMT199	OF13	130M	4/28/70	45 50.8N 124 16.5W	1080M	569LT	.97364
		530M C7004B		45 51.1 124 17.0	16MN	554RT	
		COMMENTS					
BMT200	OF14	146M	4/28/70	45 50.6N 124 22.2W	786M	519LT	.91137
		550M C7004B		45 50.9 124 22.5	15MN	473RT	
		COMMENTS					

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT201	OF15	157M	4/28/70	45 50.7N		124 26.7W		828M	390LT	.93976
		450M	C7004B	45 51.1		124 26.5		13MN	415RT	
		COMMENTS								
BMT202	OF 6	157M	4/28/70	45 54.9N		124 27.8W		828M	420LT	.89762
		450M	C7004B	45 55.3		124 27.6		13MN	377RT	
		COMMENTS								
BMT203	OF 5	144M	4/28/70	45 55.5N		124 21.7W		556M	292LT	.96233
		NA M	C7004B	45 55.8		124 21.7		10MN	281RT	
		COMMENTS								
BMT204	OF13	132M	4/28/70	45 50.9N		124 16.6W		1656M	549LT	.97513
		520M	C7004B	45 51.7		124 17.0		14MN	563RT	
		COMMENTS								
BMT205	OF14	146M	4/28/70	45 50.7N		124 22.1W		926M	499LT	.94589
		580M	C7004B	45 51.2		124 22.1		15MN	472RT	
		COMMENTS								
BMT206	OF15	155M	4/28/70	45 51.0N		124 26.8W		668M	502LT	.65936
		620M	C7004B	45 51.2		124 27.1		13MN	331RT	
		COMMENTS								
BMT207	OF 6	151M	4/29/70	45 55.3N		124 27.0W		1127M	465LT	.71828
		NA M	C7004B	45 55.9		124 27.1		15MN	334RT	
		COMMENTS								
BMT208	OF 5	150M	4/29/70	45 54.9N		124 20.5W		1446M	542LT	0
		NA M	C7004B	45 55.5		124 20.0		15MN	0RT	
		COMMENTS								
BMT209	OF 4	117M	4/29/70	45 56.5N		124 13.9W		3297M	28LT	0
		NA M	C7004B	45 57.9		124 15.0		21MN	0RT	
		COMMENTS								
BMT210	OF 4	119M	4/29/70	45 54.2N		124 14.4W		1969M	3LT	.60000
		NA M	C7004B	45 55.0		124 13.7		15MN	5RT	
		COMMENTS								
BMT211	OF 6	150M	4/30/70	45 55.8N		124 26.8W		2168M	450LT	.96222
		NA M	C7004B	45 56.9		124 26.4		14MN	433RT	
		COMMENTS								
BMT212	OF 5	150M	4/30/70	45 54.8N		124 21.6W		1493M	397LT	0
		250M	C7004B	45 55.5		124 22.0		15MN	0RT	
		COMMENTS								
BMT213	OF 4	120M	4/30/70	45 55.0N		124 15.4W		1348M	182LT	0
		360M	C7004B	45 55.7		124 15.6		16MN	0RT	
		COMMENTS								
BMT214	SG22	75M	5/16/70	44 14.7N		124 16.9W		764M	625LT	.91520
		NA M	C7005D	44 15.1		124 17.0		14MN	572RT	
		COMMENTS								
BMT215	SG22	75M	2/16/70	44 15.2N		124 17.1W		1677M	313LT	.94562
		NA M	Y7005C	44 14.3		124 17.2		15MN	331RT	
		COMMENTS								
BMT216	SG 7	101M	5/16/70	43 57.7N		124 17.8W		1127M	556LT	.95862
		NA M	Y7005D	43 58.3		124 17.9		16MN	580RT	
		COMMENTS								
BMT217	SG 7	101M	5/16/70	43 57.7N		124 17.9W		1171M	440LT	.89613
		NA M	Y7005C	43 57.1		124 17.7		14MN	491RT	
		COMMENTS								
BMT218	SG23	100M	5/17/70	43 48.6N		124 18.0W		1335M	341LT	.94722
		NA M	Y7005D	43 49.0		124 18.6		16MN	360RT	
		COMMENTS								
BMT219	SG23	100M	5/17/70	43 49.0N		124 18.4W		1969M	338LT	.92604
		NA M	Y7005D	43 48.2		124 17.7		16MN	313RT	
		COMMENTS								
BMT220	SG 8	220M	5/17/70	44 56.4N		124 35.8W		828M	463LT	.84335
		NA M	Y7005C	44 56.8		124 36.0		18MN	549RT	
		COMMENTS								

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT221	SG 8	200M	5/17/70	44	57.8N	124	36.5W	1335M	578LT	.61073
		NA M	Y7005D	44	57.2	124	36.1	18MN	353RT	
		COMMENTS								
BMT222	SG 6	150M	5/17/70	44	1.2N	124	36.1W	926M	510LT	.00392
		NA M	Y7005D	44	1.7	124	36.1	15MN	2RT	
		COMMENTS								
BMT223	SG 6	150M	5/17/70	44	1.6N	124	35.5W	926M	348LT	.93103
		NA M	Y7005D	44	2.1	124	35.5	14MN	324RT	
		COMMENTS								
BMT224	SG 2	205M	5/19/70	44	39.9N	124	36.2W	1527M	699LT	.94973
		NA M	Y7005C	44	40.7	124	36.4	15MN	736RT	
		COMMENTS								
BMT225	SG 2	225M	5/19/70	44	40.7N	124	36.8W	1707M	370LT	.96354
		NA M	Y7005C	44	39.8	124	37.0	14MN	384RT	
		COMMENTS								
BMT226	SG15	100M	5/20/70	44	8.4N	124	24.6W	828M	483LT	.51824
		NA M	Y7005C	44	8.0	124	24.4	13MN	932RT	
		COMMENTS								
BMT227	SG15	100M	5/20/70	44	7.8N	124	24.4W	668M	576LT	0
		NA M	Y7005D	44	8.1	124	24.2	18MN	0RT	
		COMMENTS								
BMT228	TP 1	3354M	5/30/70	44	46.3N	131	25.6W	6971M	3015LT	.86700
		6500M	Y7005C	44	45.2	131	22.0	120MN	2614RT	
		COMMENTS								
BMT229	TP 1	3358M	5/31/70	44	52.9N	131	25.1W	5633M	2377LT	.98754
		6500M	Y7005C	44	55.9	131	25.6	120MN	2407RT	
		COMMENTS								
BMT230	TP 2	3655M	6/ 1/70	44	27.0N	132	14.0W	5669M	3076LT	.92133
		7000M	Y7005C	44	24.6	132	12.9	120MN	2834RT	
		COMMENTS								
BMT231	TP 2	3655M	6/ 1/70	44	30.4N	132	11.4W	3777M	2529LT	.64887
		7000M	Y7005C	44	32.4	132	11.8	105MN	1641RT	
		COMMENTS		DAMAGED						
BMT232	TP 3	3724M	6/ 3/70	44	40.2N	133	35.7W	5886M	2735LT	.81666
		7500M	Y7005C	44	39.5	133	38.8	120MN	3349RT	
		COMMENTS								
BMT233	TP 3	3687M	6/ 4/70	44	40.7N	133	28.1W	6677M	2918LT	.83039
		7500M	Y7005C	44	40.9	133	24.5	120MN	3514RT	
		COMMENTS		DAMAGED						
BMT234	SG 2	200M	8/16/70	44	39.7N	124	36.1W	556M	580LT	.73232
		7500M	Y7008C	44	40.0	124	36.1	55MN	792RT	
		COMMENTS								
BMT235	SG 2	200M	8/16/70	44	38.7N	124	36.2W	1656M	357LT	.73006
		NA M	Y7008D	44	37.9	124	36.6	15MN	489RT	
		COMMENTS								
BMT236	SG 7	100M	8/17/70	43	56.5N	124	18.8W	1080M	354LT	.54802
		NA M	Y7008D	43	57.0	124	18.5	15MN	194RT	
		COMMENTS								
BMT237	SG 7	100M	8/17/70	43	56.4N	124	18.4W	1111M	472LT	.48811
		NA M	Y7008D	43	55.8	124	18.4	15MN	967RT	
		COMMENTS								
BMT238	SG15	100M	8/17/70	44	8.8N	124	25.0W	1127M	575LT	.92593
		NA M	Y7008C	44	9.4	124	24.9	15MN	621RT	
		COMMENTS								
BMT239	SG15	100M	8/17/70	44	8.8N	124	24.4W	586M	384LT	.71111
		NA M	Y7008C	44	8.5	124	24.3	15MN	540RT	
		COMMENTS								
BMT240	SG22	75M	8/17/70	45	14.5N	124	16.9W	997M	153LT	.56250
		NA M	Y7008C	45	15.0	124	17.1	NAMN	272RT	
		COMMENTS								

SAMPLE	STA	DEPTH / WIRE	DATE / CRUISE	ON BOTTOM				DIST / TIME	WHEEL COUNT	RATIO
				OFF BOTTOM						
BMT241	SG22	75M	8/17/70	44	15.1N	124	17.0W	2112M	152LT	.55882
		NA M	Y7008C	44	14.0	124	16.7	13MN	272RT	
		COMMENTS								
BMT242	SG23	100M	8/17/70	43	48.9N	124	17.6W	1410M	603LT	.95522
		NA M	Y7008D	43	48.2	124	17.9	13MN	576RT	
		COMMENTS								
BMT243	SG23	100M	8/17/70	43	48.2N	124	18.5W	926M	295LT	.77836
		NA M	Y7008C	43	48.6	124	18.8	15MN	379RT	
		COMMENTS								
BMT244	SG 8	200M	8/18/70	43	56.5N	124	37.9W	764M	418LT	.95434
		NA M	Y7008D	43	56.9	124	38.0	15MN	438RT	
		COMMENTS								
BMT245	SG 8	200M	8/18/70	43	56.1N	124	37.8W	1242M	325LT	.92857
		NA M	Y7008D	43	55.5	124	37.5	15MN	350RT	
		COMMENTS								
BMT246	SG 6	149M	8/18/70	44	.5N	124	35.8W	1310M	562LT	.90569
		NA M	Y7008D	43	59.8	124	35.7	15MN	509RT	
		COMMENTS								
BMT247	SG 6	150M	8/18/70	44	.9N	124	35.3W	17595M	339LT	.93388
		NA M	Y7008D	44	10.4	124	35.4	15MN	363RT	
		COMMENTS								
BMT248	TH 2	50M	9/25/70	45	54.2N	124	1.9W	1861M	937LT	.99469
		250M	C7009D	45	53.2	124	1.8	21MN	942RT	
		COMMENTS								
BMT249	TH 8	200M	9/26/70	45	52.5N	124	38.4W	556M	514LT	.87549
		NA M	C7009C	45	52.8	124	38.4	12MN	450RT	
		COMMENTS								
BMT250	TH11	732M	9/26/70	45	52.5N	124	55.0W	2071M	0LT	0
		NA M	C7009D	45	53.0	124	54.0	20MN	0RT	
		COMMENTS NONQUANT DAMAGED								
BMT251	19	2377M	9/27/70	45	57.6N	125	51.2W	6291M	687LT	.29384
		4500M	C7009C	45	55.3	125	53.7	120MN	2338RT	
		COMMENTS		DAMAGED						
BMT252	ND21	2800M	9/30/70	44	46.7N	125	41.8W	5506M	1342LT	.90387
		5000M	C7009D	44	44.7	125	44.0	120MN	1213RT	
		COMMENTS								
BMT253	CP2E	2816M	9/30/70	44	39.7N	126	39.6W	19120M	24LT	0
		5000M	C7009C	44	39.0	126	49.9	120MN	0RT	
		COMMENTS NONQUANT PELAGIC								
BMT254	CP2E	2816M	9/30/70	44	39.8N	126	44.9W	6329M	1500LT	.88810
		5000M	C7009C	44	38.6	126	41.7	120MN	1689RT	
		COMMENTS								
BMT255	CP2E	2816M	10/ 1/70	44	44.1N	126	45.9W	9915M	1691LT	.98029
		5000M	Y7009C	44	39.6	126	48.8	120MN	1725RT	
		COMMENTS NONQUANT								
BMT256	CP2A	2743M	2/14/71	45	57.5N	126	37.9W	10226M	0LT	0
		5400M	Y7102B	46	.7	126	42.4	120MN	3352RT	
		COMMENTS NONQUANT DAMAGED								
BMT257	CP2A	2706M	2/15/71	46	2.2N	126	33.5W	9260M	1467LT	.79512
		5400M	Y7102B	46	2.2	126	28.5	120MN	1845RT	
		COMMENTS NONQUANT MALFUNCT								
BMT258	CP2A	2670M	2/15/71	45	56.3N	126	35.7W	7011M	2612LT	.17956
		5400M	Y7102B	45	55.5	126	39.4	120MN	469RT	
		COMMENTS								
BMT259	CP2A	2665M	2/15/71	45	46.9N	126	35.5W	4969M	3100LT	.94282
		5400M	Y7102B	45	45.7	126	33.1	120MN	3288RT	
		COMMENTS								
BMT260	CP2A	2650M	2/16/71	45	50.7N	126	29.2W	7613M	1560LT	.96538
		5400M	Y7102B	45	54.8	126	29.5	120MN	1506RT	
		COMMENTS								

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT261	CP2B	2670M	2/16/71	45	38.5N	126	41.5W	8551M	3066LT	.99478
		5400M	Y7102B	45	38.9	126	46.1	120MN	3050RT	
		COMMENTS								
BMT262	CP2B	2721M	2/17/71	45	38.2N	126	47.9W	7787M	3006LT	.99601
		5400M	Y7102B	45	38.4	126	43.7	120MN	2994RT	
		COMMENTS								
BMT263	CP2B	2730M	2/17/71	45	36.4N	126	42.6W	8336M	3037LT	.53375
		5400M	Y7102B	45	36.5	126	47.1	120MN	1621RT	
		COMMENTS								
BMT264	CP2C	2750M	2/17/71	45	20.6N	126	35.7W	7429M	3224LT	.90943
		5400M	Y7102B	45	20.9	126	39.7	120MN	2932RT	
		COMMENTS								
BMT265	CP2C	2750M	2/18/71	45	18.7N	126	34.4W	13262M	3134LT	.85737
		5400M	Y7102B	45	18.5	126	28.6	120MN	2687RT	
		COMMENTS								
BMT266	CP2C	2710M	2/18/71	45	18.0N	126	26.4W	7816M	2697LT	.94142
		5400M	Y7102B	45	17.0	126	30.5	120MN	2539RT	
		COMMENTS								
BMT267	CP2D	2795M	2/18/71	44	58.1N	126	35.8W	9632M	2943LT	.52260
		5400M	Y7102B	44	58.2	126	41.0	120MN	1538RT	
		COMMENTS								
BMT268	CP2D	2770M	2/19/71	44	59.3N	126	39.6W	8176M	3198LT	.44559
		5400M	Y7102B	44	58.3	126	35.3	120MN	1425RT	
		COMMENTS								
BMT269	CP2D	NA M	2/19/71	44	57.3N	126	37.3W	10084M	2826LT	.58740
		5400M	Y7102B	44	58.0	126	42.7	120MN	1660RT	
		COMMENTS								
BMT270	CP2E	2850M	2/20/71	44	38.5N	126	40.6W	5199M	2934LT	.94751
		5400M	Y7102B	44	38.3	126	43.4	120MN	2780RT	
		COMMENTS								
BMT271	CP2E	2832M	2/20/71	44	39.1N	126	43.6W	6482M	2386LT	.82272
		5400M	Y7102B	44	39.1	126	40.1	120MN	1963RT	
		COMMENTS								
BMT272	CP2E	2832M	2/20/71	44	40.0N	126	46.6W	6677M	2902LT	.93005
		5400M	Y7102B	44	39.8	126	50.2	120MN	2699RT	
		COMMENTS								
BMT273	SHRP	160M	4/27/71	44	48.9N	124	28.1W	1186M	789LT	.93373
		NA M	Y7104C	44	49.4	124	27.7	10MN	845RT	
		COMMENTS								
BMT274	SHRP	155M	4/27/71	44	48.7N	124	26.7W	2632M	213LT	.81609
		NA M	Y7104C	44	49.8	124	25.8	11MN	261RT	
		COMMENTS								
BMT275	SHRP	160M	4/28/71	44	49.8N	124	27.1W	926M	587LT	.88271
		NA M	Y7104C	44	50.2	124	27.4	17MN	665RT	
		COMMENTS								
BMT276	CP3A	2761M	5/17/71	45	56.3N	127	36.6W	7774M	2378LT	.95579
		5400M	Y7105B	45	57.2	127	40.7	120MN	2488RT	
		COMMENTS								
BMT277	CP3A	2765M	5/17/71	45	55.3N	127	35.0W	6649M	2661LT	.97259
		5400M	Y7105B	45	54.5	127	31.5	120MN	2736RT	
		COMMENTS								
BMT278	CP3C	2811M	5/18/71	45	23.4N	127	36.9W	8142M	2964LT	.98077
		5400M	Y7105B	45	24.7	127	41.1	120MN	2907RT	
		COMMENTS								
BMT279	CP3C	2798M	5/18/71	45	22.7N	127	36.3W	8318M	1902LT	.98107
		5400M	Y7105B	45	21.8	127	31.9	120MN	1866RT	
		COMMENTS NONGUANT MALFUNCT								
BMT280	CP3C	2800M	5/18/71	45	21.5N	127	33.0W	10193M	2873LT	.95440
		5400M	Y7105B	45	21.7	127	38.5	120MN	2742RT	
		COMMENTS								

SAMPLE	STA	DEPTH	DATE	ON BOTTOM		DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM		TIME	COUNT	
BMT281	CP3E	2816M	5/19/71	44 38.8N	127 36.8W	8385M	2275LT	.97099
		5400M	Y7105B	44 38.3	127 41.3	90MN	2209RT	
		COMMENTS						
BMT282	CP3E	2816M	5/19/71	44 37.6N	127 33.4W	7244M	1970LT	.96616
		5400M	Y7105B	44 37.3	127 29.5	100MN	2039RT	
		COMMENTS						
BMT283	ND 8	200M	3/ 7/72	44 40.2N	124 35.8W	764M	557LT	.87253
		800M	C7203B	44 40.6	124 35.9	15MN	486RT	
		COMMENTS						
BMT284	ND 8	200M	3/ 7/72	44 40.0N	124 35.4W	764M	607LT	.88468
		800M	C7203B	44 40.4	124 35.3	10MN	537RT	
		COMMENTS						
BMT285	ND 8	200M	3/ 7/72	44 40.0N	124 35.1W	944M	577LT	.98267
		800M	C7203B	44 40.5	124 35.0	10MN	567RT	
		COMMENTS						
BMT286	ND21	2758M	3/ 8/72	44 49.6N	125 33.0W	4645M	1946LT	.82169
		5400M	C7203B	44 51.9	125 32.0	120MN	1595RT	
		COMMENTS						
BMT287	ND21	2743M	3/ 8/72	44 50.0N	125 38.0W	4685M	2654LT	0
		5400M	C7203B	44 47.6	125 38.8	120MN	0RT	
		COMMENTS						
BMT288	CP1W	2940M	6/14/72	44 5.3N	125 23.6W	4714M	2606LT	.98637
		5400M	Y7206B	44 7.1	125 21.8	120MN	2642RT	
		COMMENTS						
BMT289	CP1W	2938M	6/15/72	44 4.2N	125 24.1W	4987M	3036LT	.99242
		5400M	Y7206B	44 1.6	125 23.4	90MN	3013RT	
		COMMENTS						
BMT290	CP1W	2938M	6/15/72	44 4.9N	125 24.5W	5556M	1059LT	.83475
		5400M	Y7206B	44 7.9	125 24.5	90MN	884RT	
		COMMENTS						
BMT291	CP1W	2938M	6/15/72	44 5.0N	125 24.0W	3704M	2337LT	.99658
		5400M	Y7206B	44 3.0	125 24.0	90MN	2329RT	
		COMMENTS						
BMT292	CP1X	2992M	6/16/72	43 44.7N	125 26.0W	4359M	322LT	.13696
		5400M	Y7206B	43 47.0	125 26.5	90MN	2351RT	
		COMMENTS						
BMT293	CP1X	2997M	6/17/72	43 34.2N	125 29.6W	12292M	2648LT	.91579
		5400M	Y7206B	43 40.8	125 30.3	90MN	2425RT	
		COMMENTS						
BMT294	CP1X	3000M	6/17/72	43 44.0N	125 26.0W	5926M	3053LT	.93515
		5400M	Y7206B	43 47.2	125 26.0	120MN	2855RT	
		COMMENTS						
BMT295	CP1XX	1640M	6/17/72	43 43.1N	125 27.1W	8041M	6LT	0
		5400M	Y7206B	43 38.8	125 27.7	NA MN	0RT	
		COMMENTS NONQUANT PELAGIC						
BMT296	TP 5	NA M	10/ 4/72	45 0N	131 25.0W	5264M	35LT	.10355
		6600M	Y7210A	45 1.8	131 22.8	120MN	338RT	
		COMMENTS		LOST NET				
BMT297	TP 5	NA M	10/ 4/72	44 52.5N	131 36.8W	2222M	3175LT	.89039
		6600M	Y7210A	44 53.7	131 36.8	136MN	2827RT	
		COMMENTS						
BMT298	TP 6	3585M	10/ 5/72	44 59.0N	132 12.0W	4819M	3167LT	.93590
		7200M	Y7210A	45 1.6	132 12.1	120MN	2964RT	
		COMMENTS						
BMT299	TP 6	3580M	10/ 6/72	44 58.6N	132 11.5W	6667M	3217LT	.94451
		7200M	Y7210A	44 55.0	132 11.5	120MN	3406RT	
		COMMENTS						
BMT300	TP 6	3585M	10/ 6/72	44 57.4N	132 14.7W	2784M	3325LT	.99699
		7000M	Y7210A	44 58.9	132 14.8	120MN	3315RT	
		COMMENTS						

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT301	TP 6	3585M	10/ 6/72	44	56.1N	132	14.0W	4066M	3374LT	.90093
		7091M	Y7210A	44	54.2	132	15.1	120MN	3745RT	
		COMMENTS								
BMT302	TP 7	NA M	10/ 7/72	44	58.6N	133	14.2W	110220M	3159LT	.91618
		7500M	Y7210A	44	57.3	132	14.7	90MN	3448RT	
		COMMENTS								
BMT303	TP 7	3700M	10/ 7/72	45	4.3N	133	10.9W	2963M	3753LT	.54836
		NA M	Y7210A	45	5.9	133	10.9	120MN	2058RT	
		COMMENTS								
BMT304	TP 7	3700M	10/ 8/72	45	5.9N	133	11.0W	3054M	196LT	.05563
		7000M	Y7210A	45	4.3	133	11.4	120MN	3523RT	
		COMMENTS								
BMT305	TP 8	3900M	10/ 9/72	45	5.0N	134	42.8W	2408M	3199LT	.99626
		7200M	Y7210A	45	5.5	134	44.0	60MN	3211RT	
		COMMENTS								
BMT306	TP 8	3900M	10/ 9/72	45	3.3N	134	43.4W	6429M	2920LT	.97171
		7400M	Y7210A	45	.7	134	41.1	120MN	3005RT	
		COMMENTS								
BMT307	TP 8	3900M	10/10/72	45	1.8N	134	44.2W	6875M	1230LT	.99675
		NA M	Y7210A	45	5.1	134	45.9	72MN	1226RT	
		COMMENTS								
BMT308	TP 9	3932M	10/10/72	45	1.1N	135	12.0W	6114M	3252LT	.97104
		7800M	Y7210A	45	1.2	135	15.3	120MN	3349RT	
		COMMENTS								
BMT309	TP 9	3990M	10/11/72	45	.3N	135	22.7W	6335M	3543LT	0
		7800M	Y7210A	45	3.6	135	23.6	120MN	0RT	
		COMMENTS								
BMT310	TP 9	3990M	10/11/72	45	1.1N	135	22.0W	7862M	2937LT	.80158
		7800M	Y7210A	45	5.2	135	23.1	180MN	3664RT	
		COMMENTS								
BMT311	NH39	950M	10/22/72	44	40.0N	124	58.2W	2778M	2468LT	.70300
		NA M	Y7210A	44	41.2	124	59.1	32MN	1735RT	
		COMMENTS								
BMT312	NH39	950M	10/22/72	44	39.0N	124	59.9W	0M	1127LT	.48101
		3000M	Y7210A	44	39.0	124	59.9	6MN	2343RT	
		COMMENTS		PELAGIC						
BMT313	NH39	970M	10/23/72	44	37.4N	125	.3W	0M	1083LT	.88049
		3000M	Y7210A	NA	0	NA	0	NA MN	1230RT	
		COMMENTS								
BMT314	NH23	200M	10/23/72	NA	0N	NA	0W	0M	799LT	.96381
		800M	Y7210A	NA	0	NA	0	NA MN	829RT	
		COMMENTS								
BMT315	CP3E	2803M	2/ 2/72	44	44.4N	127	28.6W	2046M	3941LT	.96830
		5400M	Y7301F	44	45.5	127	28.5	115MN	4070RT	
		COMMENTS	NONGUANT	DAMAGED						
BMT316	CP3E	2749M	2/ 2/72	44	43.6N	127	26.5W	3937M	2804LT	.99608
		5400M	Y7301F	44	45.2	127	25.1	120MN	2793RT	
		COMMENTS								
BMT317	CP3E	2818M	2/ 3/72	44	43.1N	127	29.3W	5525M	3904LT	.49225
		5400M	Y7301F	44	46.0	127	28.6	122MN	7931RT	
		COMMENTS								
BMT318	CP3C	2783M	2/ 3/72	45	27.1N	127	27.8W	5136M	3695LT	.99275
		5400M	Y7301F	45	29.6	127	29.0	150MN	3722RT	
		COMMENTS								
BMT319	CP3C	2780M	2/ 4/72	45	27.5N	127	26.3W	3170M	2887LT	.99449
		5400M	Y7301F	45	25.8	127	26.1	120MN	2903RT	
		COMMENTS								
BMT320	CP3C	2780M	2/ 4/72	45	33.5N	127	24.0W	3709M	0LT	0
		5770M	Y7301F	45	33.6	127	26.0	84MN	3RT	
		COMMENTS	NONGUANT	PELAGIC						

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT321	CP3A	2763M	3/11/73	45	56.6N	127	31.6W	5303M	2901LT	.96507
		5400M	Y7303A	45	57.8	127	34.2	120MN	3006RT	
		COMMENTS								
BMT322	CP3A	2740M	3/12/73	46	1.4N	127	31.0W	7223M	4010LT	.97354
		5400M	Y7303A	46	5.0	127	32.5	120MN	4119RT	
		COMMENTS								
BMT323	CP3A	2763M	3/13/73	45	56.0N	127	37.1W	7408M	3149LT	.99270
		5400M	Y7303A	45	56.0	127	41.1	100MN	3126RT	
		COMMENTS								
BMT324	CP3C	2809M	3/14/73	45	13.2N	127	32.0W	4987M	3289LT	.98966
		5400M	Y7303A	45	10.7	127	33.0	120MN	3255RT	
		COMMENTS								
BMT325	ND 8	200M	3/15/73	44	40.7N	124	35.5W	185M	0LT	0
		800M	Y7303A	44	40.6	124	35.5	12MN	0RT	
		COMMENTS		DISCARD						
BMT326	ND11	800M	3/15/73	NA	ON	NA	OW	0M	2320LT	.93621
		3000M	Y7303A	44	42.1	124	57.7	30MN	2172RT	
		COMMENTS		DISCARD						
BMT327	ND 4	100M	3/15/73	44	43.0N	124	13.7W	1493M	1270LT	.94705
		NA M	Y7303A	44	42.2	124	13.6	32MN	1341RT	
		COMMENTS		DISCARD						
BMT328	CP4E	2780M	11/ 3/73	44	42.0N	128	23.5W	4141M	0LT	0
		5400M	C7310B	44	44.0	128	22.5	120MN	3432RT	
		COMMENTS								
BMT329	CP4E	2776M	11/ 3/73	44	43.0N	128	21.0W	8282M	79LT	.36709
		5400M	C7310B	44	47.0	128	19.0	120MN	29RT	
		COMMENTS	NONQUANT	PELAGIC						
BMT330	CP4E	2794M	11/ 3/73	44	40.0N	128	25.5W	2071M	365LT	.38624
		4300M	C7310B	44	41.0	128	26.0	60MN	945RT	
		COMMENTS								
BMT331	CP4E	2820M	11/ 3/73	44	34.5N	128	21.5W	7091M	3234LT	.82313
		5400M	C7310B	44	31.6	128	19.0	110MN	2662RT	
		COMMENTS								
BMT332	CP3D	2826M	11/ 4/73	44	55.0N	127	28.5W	6677M	2479LT	.87877
		5400M	C7310B	44	52.0	127	26.5	120MN	2821RT	
		COMMENTS								
BMT333	CP3D	2838M	11/ 4/73	44	53.0N	127	27.3W	5883M	2121LT	.98514
		4500M	C7310B	44	54.5	127	30.1	120MN	2153RT	
		COMMENTS								
BMT334	CP3D	2838M	11/ 5/73	45	1.2N	127	32.0W	5623M	2335LT	.98565
		4300M	C7310B	45	4.1	127	32.9	120MN	2369RT	
		COMMENTS								
BMT335	CP3D	2884M	11/ 5/73	45	.7N	127	28.8W	3405M	1945LT	.95476
		4500M	C7310B	44	59.0	127	29.5	120MN	1857RT	
		COMMENTS								
BMT336	CP3D	2850M	11/ 5/73	45	.2N	127	30.0W	6677M	2608LT	.95552
		4500M	C7310B	45	3.2	127	32.0	165MN	2492RT	
		COMMENTS								
0		M	0/ 0/ 0		ON		OW	0M	0LT	2.00000
		M			0		0	MN	0RT	
		COMMENTS								

ERROR IN BCD IN CALLED FROM 77162 UNCHECKED ECF LUN 10

ABNORMAL TERMINATION OF FORTRAN EXECUTION

D. Cascadia Plain Transect Lines

Station	Distance from shore	Position		Depth (m)
		Lat.	Long.	
CP-1-A	65 mi.	45°56.0	125°35.0	1975
B	65 mi.	45°39.1	125°34.8	2233
C	65 mi.	45°19.1	125°34.1	2560
D	65 mi.	44°59.1	125°35.0	2706
E	65 mi.	44°38.6	125°34.8	2816
CP-2-A	105 mi.	45°55.5	126°31.5	2713
B	105 mi.	45°39.0	126°30.9	2669
C	105 mi.	45°19.3	126°31.0	2719
D	105 mi.	44°59.1	126°30.0	2820
E	105 mi.	44°39.0	126°30.0	2816
CP-3-A	145 mi.	45°54.7	127°26.1	2765
B	145 mi.	45°39.0	127°26.5	----
C	145 mi.	45°19.2	127°27.0	2889
D	145 mi.	44°59.1	127° 28.0	----
E	145 mi.	44°39.1	127°28.2	2833
CP-4-E		44° 39.1	128° 23.0	2785

E. Tuft's Abyssal Plain Stations

TP-1	305 m.	44°38.5	131°11.5	3389
TP-2	350 m.	44°38.8	132°10.6	3655
TP-3	400	44°41.0	133°24.5	3784
TP-4	450	44°39.1	134°39.5	3909

F. Continental Slope Base Stations

CP-1-WW		44° 04.8	125° 23.8	2940

NAO	10	44° 39.1	124°54.0
	11	44° 39.1	124°57.6
	11B	44°29.6	125°06.2
	13	44°39.1	125°10.0
	14	44° 39.1	125°11.0
	15	44°39.1	125°11.7
	20	44°39.1	125°20.5
	21	44°39.1	125°35.0
	22	44°39.1	126°03.0
	22A	44°39.1	126°16.2
	23	44°39.1	126°30.0
	24	44° 39.1	126°59.1
	25	44°39.1	127°28.2
	26	44°39.1	127°54.3
3T	310		
	310C	43°28.0	124°50.0
	310D2	43°28.0	124°51.6
	310 E	43°28.0	124°52.7
	310F2	43°28.0	124°535
	310 I	43°21.2	124° 47.0
CP	1A		
	1B		
	1C		
	1D		
	1E		
	1F		
	1W		
	1X		

BENTHOS STATIONS

A. Newport Line

Station Number (NAD)	Distance From Shore (mi)	(km)	Position Latitude		Longitude		Depth (M)
1	1.7	3.1	44°	39.1	124°	05.9	25
1N.	1.5	2.8	44°	44.5	124°	05.3	25
2	4.8	8.9	44°	39.1	124°	09.8	50
2N	2.9	5.4	44°	44.0	124°	08.0	50
3N	8.0	14.8	44°	44.0	124°	14.9	75
4N	10.9	20.2	44°	44.0	124°	18.2	100
5N	11.1	20.5	44°	44.0	124°	26.0	125
6N	19.5	36.1	44°	44.0	124°	29.8	150
7N	22.2	41.1	44°	39.1	124°	33.3	175
8	23.6	43.7	44°	39.1	124°	36.0	200
9	33.8	62.5	44°	39.1	124°	50.7	400
10	36.5	67.5	44°	39.1	124°	54.0	600
11	39.2	72.5	44°	39.1	124°	57.6	800
11B	44.9	83.1	44°	29.6	125°	06.2	1250
11A	46.6	86.2	44°	39.1	125°	06.7	800
12	47.4	87.7	44°	39.1	125°	09.1	1000
13	48.0	88.8	44°	39.1	125°	10.0	1200
14	48.8	90.3	44°	39.1	125°	11.0	1400
15	49.2	91.0	44°	39.1	125°	11.7	1600
16	49.5	91.6	44°	39.1	125°	12.1	1800
17	51.5	95.3	44°	39.1	125°	14.9	2000
17A	53.8	94.5	44°	39.1	125°	19.5	2000
18	----	----	44°	39.6	125°	17.2	2200
19	----	----	44°	39.6	125°	18.7	2400
20	55.1	101.9	44°	39.1	125°	20.5	2600
20A	59.2	109.5	44°	39.1	125°	26.8	2850
21	65.0	120.3	44°	39.1	125°	35.0	2810
22	85.0	157.3	44°	39.1	126°	03.0	2850
22A	95.0	175.8	44°	39.1	126°	16.2	2860
23	105.0	194.3	44°	39.1	126°	30.0	2810
24	125.0	231.3	44°	39.1	126°	59.1	2810
25	145.0	268.3	44°	39.1	127°	28.2	2690
26	165.0	305.3	44°	39.1	127°	54.3	2610

SEA GRANT PROJECT

Station 2	Cruise #	Date of each BMT
BMT 27	C6808E	8/13/68
28	C6808E	8/13/68
38	C6810C	10/23/68
39	C6810C	10/23/68
59	C6901C	1/24/69
74	C6904E	4/24/69
75	C6904E	4/24/69
98	C6907D	7/25/69
99	C6907D	7/25/69
151	C6911A	11/03/69
152	C6911A	11/03/69
177	C7002A	2/04/70
178	C7002A	2/05/70
224	C7005D	5/19/70
225	C7005D	5/19/70
234	C7008D	8/16/70
235	C7008D	8/16/70

Station 4		
BMT 29	C6808E	8/15/68

Station 5		
36	C6808E	8/22/68
37	C6808E	8/22/68

Station 6		
34	C6808E	8/21/68
35	C6808E	8/21/68
49	C6810C	10/28/68
50	C6810C	10/28/68
64	C6901C	1/26/69
65	C6901C	1/26/69
80	C6904E	4/25/69
104	C6907D	7/26/69
105	C6907D	7/26/69
143	C6911A	11/02/69
171	C7002A	2/04/70
172	C7002A	2/04/70
222	C7005D	5/17/70
223	C7005D	5/17/70
246	C7008D	8/18/70
247	C7008D	8/18/70

Station 7	Cruise #	Date of each BMT
BMT 30	C6808E	8/17/68
31	C6808E	8/17/68
43	C6810C	10/23/68
44	C6810C	10/24/68
84	C6904E	4/26/69
85	C6907E	7/27/69
108	C6907D	7/27/69
109	C6907D	7/27/69
148	C6911A	11/03/69
149	C6911A	11/03/69
150	C6911A	11/03/70
167	C7002A	2/03/70
216	C7005D	5/16/70
217	C7005D	5/16/70
236	C7008D	8/17/70
237	C7008D	8/17/70

Station 8		
BMT 32	C6808E	8/20/68
33	C6808E	8/20/68
47	C6810C	10/27/68
48	C6810C	10/27/68
66	C6901C	1/27/69
67	C6901C	1/28/69
82	C6904E	4/26/69
83	C6904E	4/26/69
106	C6907D	7/26/69
107	C6907D	7/26/69
144	C6911A	11/02/69
145	C6911A	11/02/69
165	C7002A	2/03/70
166	C7002A	2/03/70
220	C7005D	5/17/70
221	C7005D	5/17/70
244	C7008D	8/18/70
245	C7008D	8/18/70

Station 15		
BMT 51	C6810C	10/28/68
62	C6901C	1/25/69
63	C6901C	1/25/69
78	C6904E	4/25/69
79	C6904E	4/25/69

Station 15	Cruise #	Date of each BMT
BMT 102	C6907D	7/26/69
141	C6911A	11/02/69
226	C7005D	5/20/70
227	C7005D	5/20/70
238	C7008D	8/17/70
239	C7008D	8/17/70

Station 22		
BMT 41	C6810C	10/23/68
61	C6901C	1/25/69
77	C6904C	4/25/69
100	C6907D	7/26/69
215	C7005D	5/16/70
240	C7008D	8/17/70
241	C7008D	8/17/70

Station 23		
BMT 45	C6810C	10/24/68
46	C6810C	10/24/68
86	C6904E	4/26/69
87	C6904E	4/26/69
110	C6907D	7/27/69
111	C6907D	7/27/69
146	C6911A	11/02/69
147	C6911A	11/02/69
169	C7002A	2/03/70
170	C7002A	2/03/70
218	C7005D	5/17/70
219	C7005D	5/17/70
242	C7008D	8/17/70
243	C7008D	8/17/70

Station		Depth	Track-line Positions			
1	CBT-310-A	500m	43°29.4'N	124°41.2'W -	43°26.8'N	124°47.0'W
2	CBT-310-B	530m	43 25.7	124 48.0	43 30.8	124 48.0
3	CBT-310-C	550m	43 26.0	124 50.0	43 30.0	124 50.0
4	CBT-310-D	600m	43 26.0	124 51.6	43 30.0	124 51.6
5	CBT-310-E	650m	43 26.0	124 52.3	43 30.0	124 53.1
6	CBT-310-F	700m	43 26.0	124 53.0	43 30.0	124 54.0
7	CBT-310-V	800m	43 27.2	124 56.6	43 33.7	124 56.4
8	CBT-310-W	1000m	43 27.6	124 57.2	43 34.2	124 57.0
9	CBT-310-X	1000m	43 28.2	124 57.8	43 33.5	124 57.6
10	CBT-310-Y	1100m	43 27.0	124 57.0	43 33.3	125 00.0
11	CBT-310-Z	1200m	43 28.9	125 08.6	43 30.3	124 55.7
12	CBT-310-Z'	1500m	43 27.0	125 08.8	43 33.5	125 12.0
13	CBT-310-G	500m	43 17.1	124 46.3	43 21.1	124 45.8
14	CBT-310-H	550m	43 18.0	124 46.7	43 21.5	124 46.2
15	CBT-310-I	600m	43 19.4	124 47.7	43 23.0	124 46.3
16	CBT-310-J	600m	43 22.2	124 50.3	43 23.7	124 54.6
17	CBT-310-K	650m	43 21.6	124 49.7	43 22.7	124 54.0
18	CBT-310-L	700m	43 21.0	124 50.5	43 23.7	124 54.5
19	CBT-310-M	750m	43 21.0	124 53.3	43 21.2	124 58.5
20	CBT-310-N	700m	43 20.2	124 55.7	43 20.7	124 50.7
21	CBT-310-O	650m	43 20.5	124 49.8	43 19.7	124 54.5
22	CBT-310-P	600m	43 19.1	124 54.6	43 20.1	124 49.8
23	CBT-310-Q	800m	43 23.0	124 56.1	43 27.2	124 56.4
24	CBT-310-R	1000m	43 16.0	125 04.8	43 18.2	125 03.0
25	CBT-310-S	1200m	43 19.8	125 02.9	43 23.5	125 04.8
26	CBT-310-T	1600m	43 18.8	125 10.2	43 23.5	125 09.5
27	CBT-310-U	2000m	43 20.2	125 11.8	43 22.8	125 16.0

CBT = Coos Bay

CBL = Cape Blanco

A + B = Astoria

MID PTS

310 S 43°21.6N 125°03.8W
T 43°21.2N 125°09.8W
U 43°21.5N 125°13.9W

MID — PTS

CBT 310 A — 43°28.1N 124°44.1W
310 B — 43°28.2N 124°48.0W
310 C — 43°28.0N 124°50.0W
D — 43°28.0N 124° 51.6W
E — 43° 28.0N 124° 52.7W
F — 43° 28.0N 124° 53.5W
V — 43° 30.4N 124° 56.5W
W — 43° 30.9N 124° 57.1W
X — 43° 30.8N 124° 57.7W
Y — 43° 30.2N 124° 58.5W
Z — 43° 29.6N 125° 02.2W
Z' — 43° 30.2N 125° 10.0W
G — 43° 19.1N 124° 46.1W
H — 43° 19.8N 124° 46.4W
I — 43° 21.2N 124° 46.9W
J — 43° 23.0N 124° 52.4W
K — 43° 22.1N 124° 51.8W
L — 43° 22.4N 124° 52.5
M — 43° 21.1N 124° 55.9
N — 43° 20.4N 124° 53.2W
O — 43° 20.1N 124° 52.2W
P — 43° 19.6N 124° 52.2W
Q — 43° 25.1N 124° 57.2W

TRACKLINES:

Cape Blanco

Station	Depth	Trackline Positions			
CBL-A	300m	42°37.2'N	124°42.6'W	- 42°34.2'N	124°43.5'W
CBL-B	350m	42 37.2	124 42.4	- 42 34.4	124 44.8
CBL-C	400m	42 36.2	124 44.2	- 42 33.7	124 46.2
CBL-D	450m	42 34.5	124 46.7	- 42 31.8	124 48.2
CBL-E	550m	42 36.8	124 45.2	- 42 34.3	124 47.8
CBL-F	650m	42 36.2	124 47.1	- 42 33.3	124 49.8
CBL-G	750m	42 37.0	124 47.2	- 42 33.8	124 50.0
CBL-H	300m	42 52.8	124 53.4	- 42 50.5	124 50.8
CBL-I	350m	42 50.7	124 52.8	- 42 47.9	124 54.5
CBL-J	1000m	42 59.8	125 00.3	- 42 45.9	124 58.8
CBL-K	1150m	43 00.5	125 02.7	- 42 56.5	125 01.2

Coos Bay

Station	Depth	Trackline Positions			
CBT-310-A	500m	43°29.4'N	124°41.2'W	- 43°26.8'N	124°47.0'W
CBT-310-B	530m	43 25.7	124 48.0	- 43 30.8	124 48.0
CBT-310-C	550m	43 26.0	124 50.0	- 43 30.0	124 50.0
CBT-310-D	600m	43 26.0	124 51.6	- 43 30.0	124 51.6
CBT-310-E	650m	43 26.0	124 52.3	- 43 30.0	124 53.1
CBT-310-F	700m	43 26.0	124 53.0	- 43 30.0	124 54.0
CBT-310-V	800m	43 27.2	124 56.6	- 43 33.7	124 56.4
CBT-310-W	1000m	43 27.6	124 57.2	- 43 34.2	124 57.0
CBT-310-X	1000m	43 28.2	124 57.8	- 43 33.5	124 57.6
CBT-310-Y	1100m	43 27.0	124 57.0	- 43 33.3	125 00.0
CBT-310-Z	1200m	43 28.9	125 08.6	- 43 30.3	124 55.7
CBT-310-Z'	1500m	43 27.0	125 08.8	- 43 33.5	125 12.0
CBT-310-G	500m	43 17.1	124 46.3	- 43 21.1	124 45.8
CBT-310-H	550m	43 18.0	124 46.7	- 43 21.5	124 46.2
CBT-310-I	600m	43 19.4	124 47.7	- 43 23.0	124 46.3
CBT-310-J	600m	43 22.2	124 50.3	- 43 23.7	124 54.6
CBT-310-K	650m	43 21.6	124 49.7	- 43 22.7	124 54.0
CBT-310-L	700m	43 21.0	124 50.5	- 43 23.7	124 54.5
CBT-310-M	750m	43 21.0	124 53.3	- 43 21.2	124 58.5
CBT-310-N	700m	43 20.2	124 55.7	- 43 20.7	124 50.7
CBT-310-O	650m	43 20.5	124 49.8	- 43 19.7	124 54.5
CBT-310-P	600m	43 19.1	124 54.6	- 43 20.1	124 49.8
CBT-310-Q	800m	43 23.0	124 56.1	- 43 27.2	124 56.4
CBT-310-R	1000m	43 16.0	125 04.8	- 43 18.2	125 03.0
CBT-310-S	1200m	43 19.8	125 02.9	- 43 23.5	125 04.8
CBT-310-T	1600m	43 18.8	125 10.2	- 43 23.5	125 09.5
CBT-310-U	2000m	43 20.2	125 11.8	- 43 22.8	125 16.0

Station	Depth (Meters)	Mid Point of Transect	
AT-A	92.5	46°08'	124°13'
B	139	46°05'	124°31'
C	185	46°04'	124°39'
D	231	46°02'	124°42'
E	278	46°01'	124°43'
F	324	46°00'	124°43'
G	370	46°00'	124°44'
H	416	45°58'	124°45'
I	463	45°59'	124°45'
J	509	45°57'	124°45'
K	555	45°59'	124°47'
L	601	45°57'	124°47'
M	648	45°57'	124°49'
N	694	45°57'	124°51'
O	740	45°57'	124°53'
P	786	45°53'	124°47'
Q	833	45°52'	124°52'
R	925	45°52'	124°53'
S	1110	46°02'	124°55'
T	1202	45°45'	124.54'
U	1388	45°43'	124°55'
V	1480	45°36'	124°54'
W	1573	46°02'	125°05'
Y	1665	45°50'	125°11'
Z	1943	45°42'	125°13'

Existing topographic maps indicate the bottom contours lie north - south. We will trawl north to south or south to north and use the listed coordinates as a mid point of the trawl.

no inverts saved : /
[redacted] : no fish records at all

Tanner Crab Beam Trawls

#	Sta	Date	L	R	Comments
[redacted]					
338	310C	3 VII 74	1871	1921	kept all inv. + sm. fish
[redacted]					
340	C-3	4 VII 74	1611	1636	no fish kept, some records on sheet
341	D-1	4 VII 74	2163	585	" "
[redacted]					
343	E	5 VII 74	1520	530	no fish kept, some records on sheet
[redacted]					
[redacted]					
346	K	"	1277	780	no fish kept, some records on sheet
[redacted]					
348	J-3	6 VII 74	740	16	no fish kept, some records on sheet
349	L	"	254	—	no fish kept, "
[redacted]					
351	P-2	"	1326	1496	no fish kept, few records on sheet
352	B	"	1021	1338	no fish kept, records on sheet
353	B	7 VII 74	2132	2337	" "
354	D	"	1716	1868	" "
[redacted]					
364	B	3 VII 74	911	922	no fish kept
365	C	"	1165	1245	"
366	D	4 VII 74	522	815	no fish kept, records on sheet
367	E	"	1009	1146	" "
[redacted]					

#	Sta	Date	L	R	Comments
370	310H	4 VIII 74	1675	1687	no fish kept, some records on sheet
[illegible]		"	[illegible]	[illegible]	[illegible]
372	310 I	5 VIII 74	1084	1172	no fish kept
[illegible]		"	1013	1018	
374	K	"	1938	2021	no fish kept, some records on sheet
375	L	"	1978	2061	" "
376	P	"			no fish kept
377	B	6 VIII 74	1797	1799	no fish kept, some records on sheet
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
379	D	"	1635	1666	"
380	E	"	1743	1851	"
381 38	F	"	890	887	2 lipards kept
[illegible]		12 VIII 74	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
385	AT-H	13 VIII 74	1232	1191	fish recorded 4 P, no fish kept
386	AT-K	"	1253	1144	" "
387	AT-L	"	1281	1221	" "
[illegible]		"	[illegible]	[illegible]	[illegible]
389	AT M 2	"	850	1073	fish recorded 4 P + some saved
390	AT N	"	517	2199	fish recorded 4P
391	AT P	"	—	1248	"
392	AT-Q	"			poor haul - mud
393 3[illegible]	310 B	14 VIII 74	992	1009	fish recorded 4P
394	C	"	1240	1206	?
395	D	15 VIII 74	1133	1212	some fish saved, some records on sheet

—	Sta.	Date	L	R	Comments
397	310F	15 VIII 74	1971	1992	no fish kept
[illegible]	"	"	[illegible]	[illegible]	[illegible]
399	I	"	1574	1179	some fish kept with insects; 3 acid
400	J	"	2134	2223	no fish kept
401	K	16 VIII 74	2287	2401	"
[illegible]	[illegible]	"	[illegible]	[illegible]	?
[illegible]	[illegible]	"	1555	1712	no fish kept
[illegible]	CBL-A	16 IX 74	778	06	no fish kept, some records on sheet
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	no sample
445	CBL-D2	"	730	772	no fish kept, some records on sheet
446	E	"	965	1394	" "
417 41	F	"	—	03	no fish kept
448	G	"	—	—	no fish kept, some records on sheet
419	J	"	1150	698	kept "1 large strange fish"
444 [illegible]	CBL B	10 I 75	1145	Lost	
[illegible]	[illegible]	11 I 75	[illegible]	[illegible]	no sample
[illegible]	[illegible]	"	[illegible]	[illegible]	no fish kept
447	D	"	1622	1689	2 liparids saved; fish rec. on sheet
448	E	"	1572	1428	no fish kept, some records on sheet
449	F	"	1376	741	" "
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
451	I	"	1440	1546	no fish kept, some records on sheet
452	J	"	1641 ~~[illegible]~~	2153	fish (some) saved, records on sheet
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	"	[illegible]		
455	310-B	6 III 75	1446	1161	no fish saved

#	Sta.	Date	L	R	Comments
456	310-C	26 III 75	1643	1745	no fish kept
457	D	"	2000	2030	"
458	D-2	"	1251	1949	some fish kept (16 g)
459	E	27 III 75	2441	2592	" (32 g, frozen bag)
[redacted]					
461	F-2	"	1853	1859	some fish kept (2-32 g)
~~462~~	H	"	1379	1398	nothing kept, some record on sheet
463	I	"	1870	1867	no fish kept

		z	# sp ef.	
✓	Bothrocara brunneum	2532	1	P
✓	molle	2000-2688	5	P
	~~Lycodon cortezianus~~	~~200~~		
	~~Lycodopsis pacifica~~	~~800~~	~~6~~	
	Lycodes diapterus	400-800 777-1260	93	S
	Embryx crotalina	~~FRAGMENTED~~	66	S
✓	Lycenchelys camchaticus ?	600-786	6	S
✓	Lycenchelys sp A	1285	9	S
✓	sp B	~~2997~~ 2510-2997	28	P
✓	sp C	2721-3050	8	P
✓	sp D	2030-2816	7	P
✓	sp E	2750-2800	2	P
✓	Maynea bulbiceps	2606-2816	11	P
✓	Taaretzella lycodema?	2225-3000	16	P
			242	

UNIVERSITY OF SOUTHERN CALIFORNIA
UNIVERSITY PARK
LOS ANGELES, CALIFORNIA 90007
DEPARTMENT OF BIOLOGICAL SCIENCES

July 7, 1974

Dr. William G. Pearcy
School of Oceanography
Oregon State University
Corvallis, Oregon 97331

Dear Bill,

Here is a brief summary of the work I did while at Corvallis and an assessment of the work yet to be completed on the zoarcids. I estimate that I sorted about 297 eelpouts and identified about 183 of them to the following species:

Aprodon cortezianus) ca. 30 specimens
Lycodopsis pacifica)
Lycodes diapterus - 93 specimens
Embryx crotalina - 60 specimens

Five and approximately 8 specimens respectively were identified to Lycodapus sp. and / Bothrocara sp. The remaining specimens plus the 8 specimens of Bothrocara will require more detailed study and I have asked David to send them to me. A step was taken toward identifying them in that they were sorted into 14 very tentative "species" and David and I prepared radiographs of most of the smaller specimens representing nine of the "species." I completed the counts of the vertebrae from these radiographs and generally my tentative "species" seem to be holding up. There are 7 different clusters of vertebrae counts. It wouldn't surprise me if there turns out to be at least twelve more species in the collection in addition to the four listed above. Including retakes there still remains about 40 specimens to x-ray and they can be completed in one day using the larger film and faster machine here at USC. I'll complete these radiographs sometime this summer, but the various measurements and counts that will be required from each specimen will probably have to wait until September unless some unforeseen time before then becomes available. By November and quite possibly before that I should have completed the list of species you require for your analysis. I don't expect to have all of the nomenclatural problems solved by then, but I should have a firm grasp of what they are and plans formulated and steps taken to solve them. My teaching schedule this fall at Pasadena City College is rather compact and most afternoons each week will be free for work on the material. I am looking forward to working on the material since there are several interesting similarities and differences I have observed thus far between the OSU eelpouts and the material I have already studied from off California and farther south. Considering now the size and the diversity of your collection of eelpouts it is obvious now that my goal of producing a list of species for you at Corvallis was unrealistic.

While the time I spent in Corvallis was quite busy, nevertheless the climate and more relaxed atmosphere in Oregon was a pleasant change from smoggy and busy Los Angeles. This was made even more enjoyable by the friendly feeling at OSU and all of the help that David gave to me during my stay. I hope to return to Oregon sometime when there is time to take advantage of the camping and fishing opportunities there.

Regards,

Shelly R. Johnson
Dept. of Biological Sciences

PASADENA CITY COLLEGE
1570 EAST COLORADO BOULEVARD
PASADENA, CALIFORNIA 91106

DEPARTMENT OF LIFE SCIENCES

January 27, 1975

Mr. David Stein
School of Oceanography
Oregon State University
Corvallis, Oregon 97331

Dear David,

Find enclosed the weights (nearest 0.1 g) for all of the eelpouts I have borrowed. I blotted each specimen with a paper towel and weighed each specimen with a triple beam double pan balance.

I have enclosed two other lists that relate to the following. Can you send me a Xerox copy of the original station data for each of the BMT, OTB, and other stations listed on "OSU-Stations (Zoarcidae)." I want to check all of the data on the labels. I found some labels with incomplete data and others that had conflicting data (see "Labels with same stations nos. but with slightly different data). I have indicated in "Labels . . ." all the data I found on the six labels .

Are you going to send me the specimens of Bothrocara and Lycodapus (BMT 113, ~~x-296~~; OTB 272, ~~x-297~~, ~~x-298~~; OTB 209, ~~x-299~~, x-900; BMT 9, ~~x-912~~) that you left behind in August? Are there any other eelpouts that you may have obtained that I should look at?

If you have prepared the list of Lycodopsis pacificus and Aprodon cortezianus that I identified but forgot to list with station numbers I would like to obtain a copy.

Sincerely,

Shelly R. Johnson
Dept. of Life Sciences

PASADENA CITY COLLEGE
1570 EAST COLORADO BOULEVARD
PASADENA, CALIFORNIA 91106
February 8, 1975

DEPARTMENT OF LIFE SCIENCES

Dr. William G. Pearcy
School of Oceanography
Oregon State University
Corvallis, Oregon 97331

Dear Bill,

Find enclosed my three page list of OSU zoarcid material identified to species. The list includes all of the material I looked at either at Corvallis or Pasadena. All of the material I borrowed is identified with an X-ray number (this includes the entries marked "X-ray----"). The list of material for Aprodon cortezianus and Lycodopsis pacifica is incomplete. While at Corvallis I identified a fair number of specimens to these two species, but I neglected to list the station numbers and numbers of specimens. Dave knows about this and I believe he can prepare the list himself, or if you wish you can send me the material and I'll do it if it is needed. The 14 species recognized in this list include described and undescribed species. They are all diagnosed with respect to each other and I am convinced that they are all good species. The question mark following three of the nominal species indicates that their identification to that taxon is tentative until more informatior is obtained from the holotypes. I will write and request information from Andriashev for Taranetzella lyoderma. For Lycenchelys camchaticus and Bothrocara molle I doubt that the USNM will send me the types as I think it is against their policy, but I can ask anyway, and I don't think anyone can look at them for me. I'm not sure when I'll get a chance to go to the Smithsonian. The endings for the scientific names are from Quast and Hall(1972) or Bailey (Amer. Fish. Soc. Sp. Pub. #2, 1960) or others. Probably these endings should be checked with the more recent fish list, but I didn't have a copy handy this weekend. I'll do it the first chance I get. The combinations of generic and specific names are from the most recent publications (some quite old) and donot reflect my own unpublished conclusions. Zoarcid generic classification is rather inadequate and primitive and is badly in need of revision. Some of this revision I have been attempting and may be part of the paper that includes the OSU material. Thus I believe L. camchaticus, L. sp. A, B, and C represent one species group and Maynea bulbiceps, L. sp. D and E represent another. Perhaps the two species groups represent two different genera. Otherwise there is no other significance to the order of the taxa in the list. In fact, L. sp. A should precede L. sp. B. I didn't notice its omission from the list until I proofread the list and there was room for it only at the end of the page.

I have not yet completed my assessment of the affinities of the 14 Oregon species to both the North and the South of Oregon. This I plan to do in my paper, but I've only really begun this phase. At the moment L. sp. B is the only species endemic to Oregon. The other species are either represented both north and south of Oregon or either north or south. Two of the new species (L. sp. A and C) are definitely conspecific with two new species I have previously discovered from California and Baja California. Lycenchelys sp. D and E are quite close to two other new species from California, but I have not completed my comparisons yet to the point where I can say that they are conspecific. There are some differences between them. Another point worth mentioning is that while one might think that your collections were extensive enough to obtain examples of all of the zoarcids off the coast of Oregon, within the depth range sampled, it doesn't seem to be the case. I have identified specimens from off the mouth of the Columbia River and San Francisco to L. jordani (the holotype is from off Cape Blanco, Oregon, 1846 m), but none of the OSU material I examined could be identified to this species. This is another holotype at the USNM I'd like to look at since I only have an X-ray of it and the limited data included in its original description.

I hope the list I have provided you with is what you require for your distributional analysis. Please let me know if I have omitted anything, you suspect errors or .... I'll reply promptly. Has any new zoarcid material been trawled? If you wish to include them in your analysis send them right away and I can probably identify them fairly quickly. If not, I do want to include them in my paper and they can be sent later.

As for the future I will spend most of this spring working on my dissertation, but I will keep up my correspondance regarding information about the types. For some time now I have been thinking of a revision of the eastern North Pacific Zoarcidae. New species would be described, old ones redescribed and evolutionary and zoogeographic relationships assessed. It would include the material I have accumulated thus far and that has been obtained from near the equator to Oregon. Also I would like to determine if the collections in Washington and Canada have any important specimens. Perhaps this approach is too broad in scope and would take too long and might be difficult to publish in a reasonably short time. I'm going to make inquiries around here regarding a possible Journal for the paper. Do you have any suggestions? Where is Dave going to publish his liparid Paper? Another approach might be to describe the new species from Oregon and include only other eastern North Pacific material that is conspecific or closely related.

Also I have some questions about a number of details regarding the fate of the material (especially types), and the assignment of catalogue numbers to all of the specimens so that these details can be included in the paper. Do you have any preferences? I seem to recall that some of the OSU material is deposited at the California Academy of Sciences. I think in addition to them the Los Angeles County Museum and possibly Scripps might be interested. Perhaps some of these institutions might welcome publishing my paper if some of the material is deposited with them.

Sincerely yours,

Shelly R. Johnson
Dept. of Life Sciences

P. S. Any material sent to me should go to USC, Dept. of Biological Sciences, Los Angeles, Ca. 90007 as that is where I curate the material. Otherwise it is faster if you send other correspondance to Pasadena City College.

To: William G. Pearcy

February 7, 1975

From: Shelly R. Johnson

Subject: Identification of Oregon State University Zoarcidae

Bothrocara brunneum (Bean)

X-ray #	Station #	No. of Specimens
-----	BMT 3	1

Bothrocara molle?Bean

X-ray #		Station #	
291	19.3	OTB 41	
292	20.2	OTB 501	
293	19.3	BMT 94	
294	28.8	OTB 206	
295	18.8	BMT 113	

Aprodon cortezianus Gilbert

X-ray #	Station #	
910, 913	OTB 99	200m

Lycodopsis pacifica (Collett)

X-ray #	Station #	
911	OTB 89	incorrect
901, 902, 903, 904, 905, 906	OTB 240	800

Lycodes diapterus Gilbert

Station #		No. of Specimens
OTB 110	400	2
OT 26		1
BMT 337	512	2
OTB 549	500	8
OTB 566	500	1
OTB 551	603	21
OTB 567	535	3
OTB 571	622	2
OTB 150	600	1
OTB 557	599	38
Commando		2
OTB 570	530	1
OTC #3 (Acona)		3
OTB 120	645	3
OTB 126	800	5
		93

Embryx crotalina (Gilbert)

OTB 53	780	2
OTB 189	800	15
OTB 209	800	2
? OTB 69	75	2
OTB 260	800	2
OTB 46	800	3
OTB 290	777	14
OTB 65	800	2
BMT 197	~~200~~ 800	1
BMT 197	~~200~~ 800	1
OTB 272	800	3
OTB 75	800	2

	OTB 312 768	1
	OTB 245 800	1
	OTB 65 800	1
	BMT 197 800	1
	OTB 385 786	1
	OTB 65 800	1
	BMT 197 800	1
X-ray # 909	OTB 385 786	1
	OTB 65 800	1
	OTB 1 800	1
	OTB 52 ~1200	1
	OT 123 1260	1
	OTB 66 1250	1
X-ray # 290	?? BMT 185 2816	1
X-ray # ---	?? BMT 268 2770	3

66

Lycenchelys camchaticus? (Gilbert and Burke)

X-ray # 200, 201, 202	Station # OTB 557
203	OTB 553
204, 205	OTB 385

Lycenchelys Species B

X-ray # 288	Station # BMT 293
217	BMT 191
218	BMT 266
219	BMT 289
267	BMT 190
237	BMT 288
216	BMT 157
220	BMT 158
221	BMT 187
222	BMT 251
223	BMT 160
224	BMT 8
225, 226	OTB 155
227, 228, 229	BMT 94
230, 231	BMT 293
232, 233, 234, 235	BMT 93
236	BMT 252
238	BMT 190
239	BMT 191
240	BMT 188
241	BMT 290

Lycenchelys Species C

X-ray # 206	Station # BMT 264
242	OTB 76
243	BMT 269
244	BMT 159
245	BMT 267
246	BMT 293
247	OTB 155
248	BMT 282

Lycenchelys Species A

X-ray #207,208,209,210,211,212,213,214,215 Station # OTB 313

Maynea bulbiceps Garman

X-ray #	Station #
268	BMT 157
907	BMT 265
249, 250	BMT 257
251	BMT 264
252	BMT 322
253, 254, 255	BMT 253
256, 257	BMT 266

Lycenchelys Species D

X-ray #	Station #
258	OTB 90
259	BMT 266
260	BMT 194
261	BMT 154
263	BMT 93
264	BMT 259
285	BMT 253

Lycenchelys Species E

X-ray #	Station #
283	BMT 265
284	BMT 280

Taranetzella lyoderma? Andriashev

X-ray #	Station #
265	BMT 195
266	BMT 90
269, 270	DWD 2 BMT
272	BMT 288
273	BMT 186
274, 275	BMT 187
276, 277	BMT 185
278	BMT 188
279	BMT 294
280, 281, 282	BMT 288
286	BMT 89

Too damaged for identification (Zoarcidae)

X-ray	
287	OTB 242
289	OTB 53

School of Oceanography
Oregon State University
Corvallis, Oregon 97331 (503) 754-3504

20 February 1975

Shelly R. Johnson
Dept. of Life Sciences
Pasadena City College
Pasadena, CA 91106

Dear Shelly:

Received your listing of species and weights of the zoarcids. Thank you very much. We are entering the data on the 14 species for our general study of fish communities. Please let us know as you resolve the problems of species names and we'll change our records here. When you get a chance please send the length data for the specimens so we can also enter it in our records.

I have no answers to the Lycenchelys jordani problem, maybe some will turn up.

We are sending down some recently collected material, including more Bothrocara. Do you have a key on diagnosis we can use to identify our species? If so, it would save sending material you weren't especially interested in.

Dave talked to Peden today and Alex will apparently receive our Lycodapus. Hope that's okay.

Cal. Academy is a fine place for type material. That's where Dave plans to publish his liparid paper.

My only advice on your thesis is finish it! Bite off a big enough piece of the zoarcid problem to produce a coherent, publishable paper. If your scope is large (and ever expanding?) the end is never quite there. Including just the northeastern Pacific or Oregon material and conspecifics sounds reasonable to me.

Good luck, Shelly, and thanks again. Let me know if I can help. May even be able to spare some $ for part of your Smithsonian trip.

Sincerely,

William G. Pearcy
Professor

jb

COPY

School of Oceanography
Oregon State University
Corvallis, Oregon 97331 (503) 754-3504

March 13, 1975

Mr. Shelly Johnson
Department of Life Sciences
Pasadena City College
1570 East Colorado Blvd.
Pasadena, CA 91106

Dear Shelly:

Sorry to have taken so long to get back to you..... I hope that everything is O.K. with you and your family.

We would like lengths, weights, and IDS on the zoarcids which I sent you recently. I received the length data o.k; there's only one problem: the species identifications on the weight sheets don't match them! I assume that the IDS on the weights are the correct ones. For instance, Lycenchelys "B" #217 on the wts is species "D" on the lengths, and so on. Please advise me about this situation.

As Bill may have written, we would like some tranchant characters for distinguishing between species; especially the well known ones. Then we wouldn't need to send them to you, as I could easily do yhem here. I expect to continue sending the new or rare ones, however, if you want them.

Sincerely,

David Stein
Research Assistant

PASADENA CITY COLLEGE
1570 EAST COLORADO BOULEVARD
PASADENA, CALIFORNIA 91106

DEPARTMENT OF LIFE SCIENCES

March 18, 1975

Mr. David Stein
School of Oceanography
Oregon State University
Corvallis, Oregon 97331

Dear Dave,

Enclosed are the loan sheets for the last shipment of zoarcids. There was a macrourid among the eelpouts, do you want me to send it back right away?

Thanks for the station data. I am looking forward to receiving the rest of them including the station data for the specimens sent in the last two shipments. There are a number of data sheets without capture depths, what do I do about them? If the depth and/or the coordinates on the label in the bottle is/are different from that on the Station Data Sheet which do I believe?

I will send you the lengths and weights for the additional zoarcids soon.

Sorry about the mixup on the letter designations I have used. I forgot to mention that I assigned new letters to the species in order to make the list a little neater. I am enclosing a copy of the specimens with their lengths and weights and "official" letter designation. The original lettering system designated forms and the new"official" system designates species. I will use only the "official" system from now on.

Regarding trenchant characters for the identification of eelpouts. I'll try to send you something before too long for Aprodon cortezianus, Lycodopsis pacifica, Lycodes ~~XXX~~ diapterus, and Embryx cortezianus. Only Lycodes diapterus has a unique "key" character (notched, v-shaped pectoral fin). All the rest are diagnosed by more than one character. At the moment I donot have the necessary data in a form that would make much sense to you and I can"t spare the time to write it and prepare illustrations. A short-cut in all of this for you would involve vertebral counts, but preparing them is somewhat time consuming. I think it would save us both time in the long run just to send them.

Sincerely yours,

Shelly R. Johnson
Dept. of Life Sciences

P.S. Most of the material you recently shipped is Lycodes diapterus.

PASADENA CITY COLLEGE
1570 EAST COLORADO BOULEVARD
PASADENA, CALIFORNIA 91106

August 24, 1976

DEPARTMENT OF LIFE SCIENCES

Dr. William G. Pearcy
School of Oceanography
Oregon State University
Corvallis, Oregon 97331

Dear Bill,

Thank you for the station data. However a few problems remain.

1) The three stations for the two species cited below give depths that are significantly different from the other stations for the same species. Are the data I have correct? Is there any evidence to refute these depths?

   a) Lycenchelys sp. D. The depth range for the other seven stations for this species is 2000-2816 m, but the one cited below is only 146m. Note that August is indicated on the label with the specimen but the data you supplied me gives July.

data on label	data you supplied me
BMT 406 Yaquina Y7407 B	BMT 406 29VII74 146m NAD 8
C-P-1F VIII74	44°32.9'N, 124° 35.3'W

   b) Embryx crotalina The depth range for 22 other stations is 768-1250 m, but the two stations below are over twice as deep. All published records and unpublished records known to me are below 1250 m.

data on label

OK BMT 185 OSUO 1898 Yaquina Y7003B
16IIII70 2816 m CP1-E

BMT 268 Yaquina Y7102B
2770 m CP-2-D

2) For the two stations listed below there are some inconsistencies that should be cleared up.

   a) Are the data I received for OT 28 correct? In Iwamoto and Stein (1974:17) Yaquina is the vessel cited for OT 28, but my label says Acona. Does Acona 6110, OT 28 equal Yaquina OT 28? If they are not synonomous was the data I received for Acona 6110 OT 28? If not please send data for Acona OT 28.

They were wrong! Dave?

data on label

OK OT 28, Acona,6110,20X61, 600-650 fathoms, OSUO 865, Pearcy et al.

   b) In Iwamoto and Stein (1974:45) there are station data for cruise 6507, trawl no. 78 which lists the same coordinates as OTB 78 (below), but a different depth, i.e. 2500 m. Does OTB equal trawl no. 78? If so, which is the correct depth? If not are my data correct and which vessel occuppied OTB 78?

data on label

74 mi off Till.,1 VIII65, OTB 78, 45°59.6'N, 125°44.0'W, 2380 m.

3) I have decided to follow the method used by Iwamoto and Stein (1974) in describing my station data by including the name of the vessel that occuppied each station. Will you send me the names for the stations listed below?

OTB 78 YAQUINA	BMT 338 CAYUSE	OTB 553 C7310A Cayuse?
OTB 240 YAQUINA	BMT 366 CAYUSE	BMT 381 C7407A Cayuse?
OTB 242 YAQUINA	BMT 452 CAYUSE	BMT 336 C7310B Cayuse?
OTB 53 6501B YAQUINA	OTB 155 YAQUINA	OTB 76 6507 YAQUINA
OTB 549 C7310-A Cayuse?	BMT 290 YAQUINA	BMT 267 Y7102B OSUO 2071 Yaquina?
BMT 341 C7406-A Cayuse?	OTC 3	BMT 89 Y6907-C Yaquina?

Sincerely,

Shelly R. Johnson

P.S. Did you receive my key? Has

PASADENA CITY COLLEGE
1570 EAST COLORADO BOULEVARD
PASADENA, CALIFORNIA 91106
ARTMENT OF LIFE SCIENCES

August 4, 1976

Dr. William G. Pearcy
School of Oceanography
Oregon State University
Corvallis, Oregon 97331

Dear Bill,

Find enclosed the key to Oregon Zoarcidae I have prepared. On page 3 you will find definitions for the measurements and on page 4 a rough sketch of the distribution of cephalic pores with their nomenclature. Only the series of pores under lined in red are utilized in the key.

If I am informed of the name and total length of any zoarcids identified I can then decide whether or not I would like to examine the specimen.

I have not yet received any word regarding my request for station data that I mailed June 30, 1976.

Sincerely,

Shelly R. Johnson

Dave, Give me a try at keeping a known unknown zoarcids & reply to Shelly.

School of Oceanography
Oregon State University
Corvallis, Oregon 97331 (503) 754-3504

September 23, 1976

Mr. Shelly Johnson
Pasadena City College
1570 East Colorado Blvd.
Pasadena, CA 91106

Dear Shelly;

Bill asked me to take care of your questions when I came back from my last cruise (which ended up in Hawaii) that's why there's been such a long delay.

In answer to your questions:

1. a) The trawl no. was changed after the cruise to:

BMT 410	Y7407B
Sta. CP-I-F	2878 m
4VIII 74	0255-0545
44° 24.2'N	125° 34.5'W

this is the correct data.

b) The data is correct, unless someone got the trawl numbers incorrect on the labels (which of course is a possibility) the depths must stand. If you doubt their validity, say so in the paper.

2. a) The data for OT 28 are correct - the rattail paper should say "ACONA".

b) OTB 78 equals trawl no. 78; the vessel was the YAQUINA. The depth is 1389 fm = 2539.8 m.

3. Here are the trawl numbers and the vessels which made them:

OTB 78	Y	OTB 155	Y
OTB 240	Y	BMT 290	Y
OTB 242	Y	OTC 3	(send me the data, too)
OTB 53	Y	OTB 553	C
OTB 549	C	BMT 381	C
BMT 341	C	BMT 336	C
BMT 338	C	OTB 76	Y
BMT 366	C	BMT 267	Y
BMT 452	C	BMT 89	Y

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Let me explain to you about the relationship between OSU vessels and trawl numbers. THERE IS NONE. Trawl numbers are kept by the scientific party. There is no trawl series connected with the vessel. Probably the prefix, i.e. MT, IKMT, or whatever, would be different for different investigators, in order to avoid confusion. There is no list or record connecting the ship with the collection number except that of the scientific party. I know that some other institutions number trawl series by ship, i.e. "Velero 22" or whatever. We do not. For instance, in your question 2a, there is only one, OT 28; the name of the vessel which made it is not significant, nor does it allow access to information about the trawl. The OT is most important, since it means "otter trawl", and records are kept by gear type. Therefore, I do not recommend the inclusion of OSU vessel names in published collection data. The data cannot be obtained by utilizing vessel name and date. I, personally leave vessel information out. It was included in "Iwamoto and Stein" because Tomio wanted it; I don't think he really understood why it was unnecessary.

I haven't tried your key yet, but I will give it a good trial as soon as I can. Please let me know if you have any further questions.

Sincerely,

David Stein
Research Assistant

DS:jb

Weights for OSU Zoo Cards

OSU X-ray #	wt. (g)	Sta.	No.	Z	Total length (mm)		Standard length (mm)
Lycenchelys Camchaticus?							
200	0.8	OTB	557		86	600	84.6
201	0.8	OTB	557		88	"	86.0
202	0.6	OTB	557		83		81.2
203	4.6	OTB	553		150	650	148
204	1.0	OTB	385		94	786	92
205	1.8	OTB	385		110	"	108
Lycenchelys sp. B							
288	13.3	BMT	293	2997m	204		202
Lycenchelys sp. A							
207	5.9	OTB	313	1285	158		156
208	3.6	"	"	"	147		145
209	2.0	"	"	"	119		117
210	3.0	"	"	"	134		132
211	2.2	"	"	"	130		128
212	4.4	"	"	"	150		147
213	5.0	"	"	"	161		159
214	3.7	"	"	"	147		145
215	7.4	"	"	"	177		174
Lycenchelys sp. B							
217	2.1	BMT	191	2605m	122		120
218	14.1	BMT	266	2710m	198		196
219	19.1	BMT	289	2938	223		221
267	4.7	BMT	190	2597	154		152
237	14.3	BMT	288	2940	216		214
216	6.7	BMT	157	2606	172		170
220	39.2	BMT	158	2651	275		273
221	19.2	BMT	187	2760	228		226
222	27.3	BMT	251	2377	242		238
223	25.5	BMT	160	2784	247		245
224	35.0	mid BMT	8	2510	277		274
225	18.0	OTB	155	2830	212		210
226	19.9	OTB	155	"	214		212
227	13.8	BMT	94	2688	198		196
228	22.9	BMT	94	2688	217		215
229	12.2	BMT	94	2688	207		205
230	18.6	BMT	293	2997	218		216
231	9.1	BMT	293	2997	181		179

	OSU X-ray #	wt (g)	Sta No.		Total length (mm)	Standard length (mm)
	232	1.4	BMT 93	2669	111	109
Lycenchelys sp. B	233	4.0	BMT 93	"	148	146
	234	16.0	BMT 93	"	220	218
	235	13.5	BMT 93		199	197
	236	11.2	BMT 252	2800	203	201
	238	2.0	BMT 190	2597	125	123
	239	2.2	BMT 191	2605	129	127
	240	5.3	BMT 188	2790	161	159
	241	2.9	BMT 290	2938	137	135
Lycenchely sp. C	206	41.3	BMT 264	2750	274	270
	242	77.8	OTB 76	3050	332	328
	243	10.4	BMT 269	~2770	192	189
	244	81.9	BMT 159	2721	382	378
	245	84.1	BMT 267	2795	318	314
	246	9.9	BMT 293	2997	187	183
	247	92.6	OTB 155	2830	350	346
	248	43.5	BMT 282	2816	301	298
Maynea bulbiceps	268	0.9	BMT 157	2606	86	83.3
	907	1.9	BMT 265	2750	101	98.1
	249	20.0	BMT 257	2706	214	208
	250	420.6	BMT 257	2706	471	454
	251	544.3	BMT 264	2750	513	494
	252	359.0	BMT 322	2740	453	437
	253	297.2	BMT 253	2816	439	425
	254	70.2	BMT 253	2816	295	286
	255	346.9	BMT 253	2816	465	449
	256	111.8	BMT 266	2710	330	320
	257	365.9	BMT 266	2710	468	453
Lycenchelys sp. D	258	abdominal viscera missing 422.9	OTB 90	2800	443	431
	259	8.5	BMT 266	2710	152	147
	260	198.8	BMT 194	2030	373	365
	261	395.4	BMT 154	2666	430	418
	263	460.0	BMT 93	2669	458	446
	264	65.3	BMT 259	2665	276	269

(cont.)	OSU X-ray #	wt (g.)	Sta NO	Total length (mm)	Standard length (mm)
Lyconchelys sp. D					
N	285	243.2	BMT-253 2816	391	380
M	283	242.8	BMT-265 2750	365	356
Lyconchelys sp. E	284	325.2	BMT-280 2800	398	388
✗	265	0.9	BMT 195 2265	79	76.3
Taranetzella	266	1.0	BMT 90 2283	80	76.8
lycoderma?					
✗	269	3.9	DWD 2 BMT 2520	117	113
	270	8.8	DWD 2 BMT 2520	155	149
	272	13.4	BMT 288 2940	166	160
	273	13.2	BMT 186 2816	165	159
	274	8.4	BMT 187 2760	145	139
	275	4.1	BMT 187 2760	117	112
	276	18.2	BMT 185 2816	184	177
	277	9.6	BMT 185 2816	151	145
	278	5.5	BMT 188 2790	140	134
	279	0.7	BMT 294 3000	72	68.5
	280	1.8	BMT 288 2940	96	92.4
	281	2.8	BMT 288 2940	105	101
	282	3.3	BMT 288 2940	113	108
	286	0.5	BMT 89 2225	65	62.1

	OSU x-ray #	Wt. (g.)	STA NO.	Total length (mm)	Standard length (mm)
Zaprorhora Damaged	287	1.9	OTB -242	2100 116	115
Zaprorhora DAMaged	289	0.3	OTB 53	780 72	70.4
Embrux Crotalina	909	0.9	OTB 385	786 96	94.1
	290	6.0	BMT 185	2816 172	169
	—	87.1	BMT 268	2770 389	384
	—	55.4	BMT 268	" 352	348
	—	45.4	BMT 268	" 326	321
Lycodopsis pacifica	901	1.3	OTB 240	800 76	73.9
	902	1.5	"	" 82	79.7
	903	1.2	"	" 77	74.9
	904	1.0	"	" 74	71.9
	905	1.1	"	" 72	69.6
	906	1.6	"	" 85	82.6
Bathyraja brunneum	—	266.9	BMT 3	2532 389	374
Bathyraja maculata	291	19.3	OTB 41	2086 220	211
	292	20.2	OTB 501	2000 217	209
	293	19.3	BMT 94	2688 220	214
	294	28.8	OTB 206	2300 232	223
	295	18.8	BMT 113	2456 235	228

School of Oceanography
Oregon State University
Corvallis, Oregon 97331 (503) 754-3504

9 December 1975

Mr. Shelly Johnson
Department of Life Sciences
Pasadena City College
1570 E. Colorado Blvd
Pasadena, CA 91106

Dear Shelly:

In answer to your questions about x-rays - you know what the Oceanography x-ray business is like. There is also an x-ray science and technology laboratory which will take (& develop) x-rays. They charge for them - $20.00 for a 14x17 sheet.

Please send me a list of the discrepancies in trawl data. I recall (I guess incorrectly) that I sent you a list once before. I can't find a record of it, though, so I guess it's not true.

I'm revising my liparid paper in accordance with the comments of reviewers before I finally submit it for publication at CAS.

Hope you and your family are well.

Sincerely,

David Stein
Research Assistant

jb

COPY

Lengths and Weights FOR OSU Zoarcidae

	OSU X-ray #	wt. (g)	STA. NO.	Total length (mm)	Standard length (mm)
A,	✓200	0.8	OTB 557	86	84.6
	✓201	0.8	OTB 557	88	86.0
	✓202	0.6	OTB 557	83	81.2
	✓203	4.6	OTB 553	150	148
	✓204	1.0	OTB 385	94	92
	✓205	1.8	OTB 385	110	108
A_2	✓288	13.3	BMT 293	204	202
C	✓207	5.9	OTB 313	158	156
	✓208	3.6	" "	147	145
	✓209	2.0	" "	119	117
	✓210	3.0	" "	134	132
	✓211	2.2	" "	130	128
	✓212	4.4	" "	150	147
	✓213	5.0	" "	161	159
	✓214	3.7	" "	147	145
	✓215	7.4	" "	177	174
D	✓217	2.1	BMT 191	122	120
	✓218	14.1	BMT 266	198	196
	✓219	19.1	BMT 289	223	221
	✓267	4.7	BMT 190	154	152
	✓237	14.3	BMT 288	216	214
E	✓216	6.7	BMT 157	172	170
	✓220	39.2	BMT 158	275	273
	✓221	19.2	BMT 187	228	226
	✓222	27.3	BMT 251	242	238
	✓223	25.5	BMT 160	247	245
	✓224	35.0	BMT 8	277	274
	✓225	18.0	OTB 155	212	210
	✓226	19.9	OTB 155	214	212
	✓227	13.8	BMT 94	198	196
	✓228	22.9	BMT 94	217	215
	✓229	12.2	BMT 94	207	205
	✓230	18.6	BMT 293	218	216

	OSU X-RAY #	wt (g)	Sta	No.	Total length (mm)	Standard length (mm)
E	✓232	1.4	BMT	93	111	109
	✓233	4.0	BMT	93	148	146
	✓234	16.0	BMT	93	220	218
	✓235	13.5	BMT	93	199	197
	✓236	11.2	BMT	252	203	201
	✓238	2.0	BMT	190	125	123
	✓239	2.2	BMT	191	129	127
	✓240	5.3	BMT	188	161	159
	✓241	2.9	BMT	290	137	135
B	✓206	41.3	BMT	264	274	270
F	✓242	77.8	OTB	76	332	328
	✓243	10.4	BMT	269	192	189
	✓244	81.9	BMT	159	382	378
	✓245	84.1	BMT	267	318	314
	✓246	9.9	BMT	293	187	183
	✓247	92.6	OTB	155	350	346
	✓248	43.5	BMT	282	301	298
K	✓268	0.9	BMT	157	86	83.3
	✓907	1.9	BMT	265	101	98.1
G	✓249	20.0	BMT	257	214	208
	✓250	420.6	BMT	257	471	454
	✓251	544.3	BMT	264	513	494
	✓252	359.0	BMT	322	453	437
	✓253	297.2	BMT	253	439	425
	✓254	70.2	BMT	253	295	286
	✓255	346.9	BMT	253	465	449
	✓256	111.8	BMT	266	330	320
	✓257	365.9	BMT	266	468	453
H	✓258	abdominal viscera missing 422.9	OTB	90	443	431
I	✓259	8.5	BMT	266	152	147
	✓260	198.8	BMT	194	373	365
	✓261	395.4	BMT	154	430	418
	✓263	460.0	BMT	93	458	446

	OSU X-ray #	wt (g.)	Sta. NO.	Total length (mm)	Standard length (mm)
N	✓285	243.2	BMT-253	391	380
M	✓283	242.8	BMT-265	365	356
	✓284	325.2	BMT-280	398	388
J	✓265	0.9	BMT 195	79	76.3
	✓266	1.0	BMT 90	80	76.8
L	✓269	3.9	DWD 2 BMT	117	113
	✓270	8.8	DWD 2 BMT	155	149
	✓272	13.4	BMT 288	166	160
	✓273	13.2	BMT 186	165	159
	✓274	8.4	BMT 187	145	139
	✓275	4.1	BMT 187	117	112
	✓276	18.2	BMT 185	184	177
	✓277	9.6	BMT 185	151	145
	✓278	5.5	BMT 188	140	134
	✓279	0.7	BMT 294	72	68.5
	✓280	1.8	BMT 288	96	92.4
	✓281	2.8	BMT 288	105	101
	✓282	3.3	BMT 288	113	108
	✓286	0.5	BMT 89	65	62.1

	OSU x-ray #	Wt (g.)	STA NO.	Total length (mm)	Standard length (mm)
2 rockfish Damaged	✓287	1.9	OTB -242	116	115
2 rockfish DAMAGED	✓289	0.3	OTB 53	72	70.4
Embryo, Crotalina	✓909	0.9	OTB 385	96	94.1
	✓290	6.0	BMT 185	172	169
	✓ —	87.1	BMT 269	389	384
	✓ —	55.4	BMT 268	352	348
	✓ —	45.4	BMT 268	326	321
Lycodopsis pacifica	✓901	1.3	OTB 240	76	73.9
	✓902	1.5	" "	82	79.7
	✓903	1.2	" "	77	74.9
	✓904	1.0	" "	74	71.9
	✓905	1.1	" "	72	69.6
	✓906	1.6	" "	85	82.6
Pathrocara brucyarium	✓ —	266.9	BMT 3	389	374
Pathrocara [illegible]	✓291	19.3	OTB 41	220	211
	✓292	20.2	OTB 501	217	209
	✓293	19.3	BMT 94	220	214
	✓294	28.8	OTB 206	232	223
	✓295	18.8	BMT 113	235	228

Dave —

Shelly wants:
Gives sizes available for:

2 small Agrodon cortezianus —

0 Bothrocara brunneum <200mm he has all

0 B. remigera specimen lost

✓✓ Lychanichelys A BMT 963:1; BMT 957:1; BMT 120:1
B
C
D BMT 120:1
E

Any other species not previously listed

malle remigera may be conspecific

Embryx coat @ 2814, 2770 are small

Magnea bubl.

L. canchatiens

Comments about table 1 Pearcy MS by S.R. Johnson 12/2/77

Aprodon cortezianus

C cannot verify - I donot have any data for this species based on material from off Oregon
— Shelly needs specimens (range & size)

Bothrocara branneum osu

My three records give depth range 600 - 800 m
✓ Shelly wants to look at small specimens (<200m)
Is 2322 the larger specimen?

Bothrocara molle

Depth range correct

Bothrocara remigera ~~(need small (<200m))~~

- The depth 1430 m is based on the specimen identified by Day (1968:MS), and which I have not examined. The identification should be rechecked. According to page 11 in Day (1968:MS) the fish was obtained by Shrimp trawl # 40. Do we have specimens? If not, let us B molle-remigera?
- B. remigera may be a junior synonym of molle ✓ Alton, as Shelly id'd Grinols remigera as molle.

Embryx crotalina

Shelly id'd 22 Stations give depths ranging from 768 - 1250 m
✓ labels → Two stations BMT 185 & BMT 268 have depths ✓ Depths respectively of 2816 m & 2770 m. All other depth records known to me are shallower than 1250 m
- Peden (1973), Syesis vol. 6: 115-120, cites three localities off Oregon. The depth for two of the localities is 731 m. There is no depth given for the third locality list as 600 - 1210 (2816)?

Lycenchelys Jordani but I can support the depth range given
- Cannot verify - I donot have any data for this species based on OSU material. I do have data from one AEC specimen (from Grinols) and the depth was 1645 m
- Peden (1973) cites two localities with depths similar to yours
- Type is from off oregon

Lycenchelys camchaticus

- This is not second published record. Andriashev in several papers cites other localities
- Peden (1973) questionably identifies a specimen to L. camchaticus so I would say your specimen would be the first for oregon.
- My deepest record was 600 m

Lycenchelys sp. A

- OK.

Lycenchelys sp. B

- My shallowest station is 2377 m, yours 2510 m

Lycenchelys sp. C

- My deepest station is 3000 m, yours 3050 m

Lycenchelys sp. D

- My shallowest station is 2000 m, yours 2030 m

Lycenchelys sp. E

- OK.

Lycodes brevipes

- Cannot verify - I have no records for this species off oregon.

Lycodes diapterus

- My deepest station is 800 m, yours 878 m

Maynea bulbiceps

- OK.

Taranetzella lyoderma

- OK.

* Need specimens of any new species

Lycodes diapterus

Haul #	St. L.	Wt. gms.	#
✓BMT 337	304	90.5	
	182	18.6	
✓OTB 150	264	54.3	
UT 6/26/67 OTB 178 ? not possible	339	90.6	
	301	80.7	
✓OTB 571	274	59.6	
	206	24.0	
✓OTB 551	77	1.0	
	93	2.1	
	128	5.9	
	129	5.2	
	158	10.0	
	157	10.7	
	142	7.2	
	139	6.7	
	213	24.6	
	163	9.8	
	130	4.8	
	209	21.5	
	177	12.6	
	174	14.0	
	158	8.8	

	Haul	SL	wt
Aprodon cortezianus	✓ OT44	273	93.5
OSUO 1748 - 1749		347	180.9
? (not possible) ↓ OTB 78	VIII 65 ✓	222	31.5
Zoarcidae			
OSUO 777	MT 703	mm	9.5
Aprodon cortezianus			
910 , 913	✓ OTB 99	74	1.3
		85	2.0
Zoarcidae			
OSUO 776	MT 704		24.1
Bothrocara brunneum			
OSUO 1871	✓ OTB 150		275.8
11 11	OT 28		
OSUO 865			599.6

A. cortezianus

X ray 910 + 913	OTB 99	2 sp.
OTB 228		2 sp.
OSUO 1748-1749		2 sp

Lycodopsis pacifica

OSUO 1747		1 sp.
OSUO 2080 2082		2 sp.
OT 11		1 sp.
X ray 911	OTB 99	1 sp.
OSUO ~~1729~~ 1744-46		3 sp.
OSUO 2079		1 sp.
OTB 237		~20 sp.
OTB 228		2 sp

MANUSCRIPT KEY TO ZOARCIDAE OFF OREGON Shelly R. Johnson July 1976
Obtained by OSU

1a Pelvic fins absent 2

2a Scales present 3

3a Gill-opening long, extends from above upper margin of base of pectoral fin to the isthmus. Ventral portion of gill-membrane gently rounded. Upper jaw includes lower jaw. . . . . Bothrocara sp.

3b Gill-opening short, extends from above upper margin of base of pectoral fin to lower margin (rarely below) of base of pectoral fin well above the isthmus. Gill-membrane nearly straight, not curved ventrally. Lower jaw nearly even with upper jaw.

"Maynea" bulbiceps

2b Scales absent 4

4a Small gill-opening completely above base of pectoral fin. Melanostigma pammelas

4b Large gill-opening, extends well below base of pectoral fin. . . . . Lycodapus sp.

1b Pelvic fins present. . . . . .

5a Scales absent on head and abdomen. Scales present only on posterior two-thirds of tail. . . . . Taranetzella lyoderma

5b Scales present on tail and abdomen. . . . . .

6a Posterior margin of pectoral fin with prominant V-shaped notch. Lycodes diapterus

6b Posterior margin of pectoral fin rounded (indentations may be present), prominant V-shaped notch absent. . . . . .

7a Vomerine teeth absent. . . . . .

8a Palatine teeth present. . . . . .Aprodon cortezianus

8b Palatine teeth absent. . . . . .

9a Head and body greyish to light brown, darker across top of head, somewhat paler below; dorsal fin with prominant dark spot on margin near origin. . . Lycodopsis pacifica

9b Head and body dark brown to black in color. . . . . Embryx crotalina

7b Vomerine teeth present. 10

10a Tail short, 55.9-56.7 % of standard length. Abdomen long, 29-29.7% of standard length. . . . . ."Lycenchelys" sp. E

10b Tail longer, greater than 61.0% of standard length. Abdomen shorter, less than 22.8% of standard length. 11

11a Right and left lateral supratemporal pores present; median supratemporal pore absent. Lycenchelys sp. A

11b Lateral and median supratemporal pores absent. 12

12a Lower jaw nearly even with upper jaw. Gill-membrane nearly straight, not curved ventrally. . . . . "Lycenchelys" sp. D

12b Lower jaw included by upper jaw. Ventral portion of gill-membrane gently curved. . 13

13a Two temporal pores on each side. . . . . Lycenchelys jordani (not in OSU collection)

13b One or zero temporal pores on each side. 14

14a Abdomen short, 13.3-16.4% standard length. Tail long 68.4-71.0% standard length. Lycenchelys camchaticus

14b Abdomen longer, greater than 17.2% standard length. Tail shorter, less than 67.8% standard length. 15

15a Head length short, 13.2-14.3% standard length. Seven (rarely 8) infraorbital pores present on each side. . . . . Lycenchelys sp. B

15b Head length longer, 16.1-18.7% standard length. Eight (rarely 9 or 10) infraorbital pores present on each side. . . . . Lycenchelys sp. C

Total length (TL): measured from tip of snout above upper lip to end of caudal fin. In Lycodapus from the base of anterior edge of premaxillary symphysis to end of caudal fin.

Standard length (SL): computed by subtracting caudal fin length from total length.

Head length (HL): measured from tip of snout (except Lycodapus, see Total length above) to posteriormost part of the upper corner of the opercular membrane.

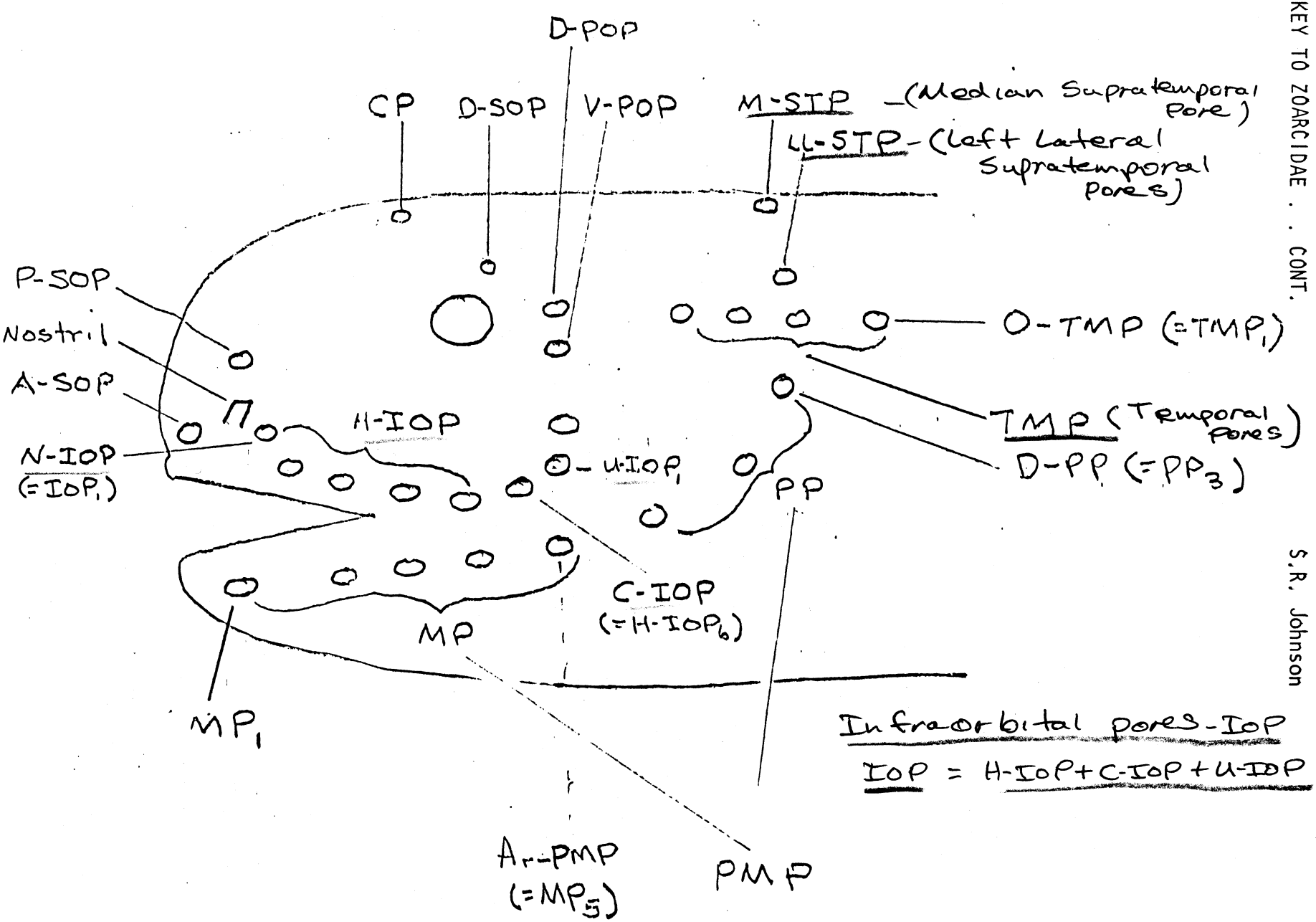
Abdominal length (AL): computed by subtracting head length from preanal length.

Tail length (TaL): computed by subtracting preanal length from standard length.

Caudal fin length (CL): measured from midway between bases of lowest epaxial hypural ray and uppermost hypaxial hypural ray to end of caudal fin.

Preanal length (SA): measured from tip of snout (except Lycodapus, see Total length above) to the base of the first anal ray.

Fig. 2.



Infraorbital pores - IOP

IOP = H-IOP + C-IOP + U-IOP

Diagnoses for Oregon

	Abdominal vertebrae	Caudal vertebrae	Total Vert	Head length %SL	Abdominal length %SL	Tail length %SL	Preoperculo-mandibular Pore	Infraorbital Pores	Ventral Post-ocular Pore	Temporal Pores	STP Supra-Temporal Pores R L M L L	Pelvic Fins	Pectoral Fin Shape no. of rays
Aprodon cortezianus	23-25	87-91	111-115	21.2-26.1	16.0-21.3	55.5-60.6	8	10-12	+	3	+ + o + o	+	Round 18-19
Lycodes brevipes	19-22	72-82	92-102	22.8-25.1	18.2-25.1	53.7-58.0	8	7,8	+	3	+ o +	+	Round 18-20
Lycodes diapterus	19-21	100-105	121-125	16.8-20.3	15.2-16.8	64.5-67.3	8	7,8	+	2,3	+ + o +		V-notch in Post. Margin 19-
Embryx crotalina	22-25	103-109	120-131	15.2-16.8	14.0-15.5	68.5-70.4	8	7,8	+	1	o o o	+	Round 15-17
Lycenchelys jordani	25	108	133	14.8	16.6	69.7	8	7	o	2	o o o		Round
L. Camchaticus	21-22	98-103	120-124	13.0-16.4	13.3-16.8	68.4-71.0	8	7	+	1	o o o	+	Round 13-14
L. sp A	22-24	103-108	126-130	13.7-15.6	14.0-17.3	68.4-71.7	8	9,8	+	2	+ o +	+	Round 15-17
L. sp. B	27-31	97-105	124-133	13.1-15.6	18.3-22.7	63.2-67.8	8	7,8	o	1,2,3	o o o	+	Round 15-17
L. sp. C	27-30	97-104	125-134	16.1-18.7	17.2-19.9	61.5-66.7	8,9,10	8,9,10	o,+	o,1	o o o	+	Round 16-17
L. sp D	24-26	82-91	106-115	15.4-18.1	19.9-22.8	61.0-64.6	8	6,7	o,+	2	o o o	+	Round 16-18
L sp E	28	75-77	103-105	13.7-14.4	29.6-29.7	55.9-56.7	8	6	o	1	o o o	+	Round 16,18
Maynea bulbiceps	27-32	85-91	114-120	13.7-15.4	20.4-23.2	61.5-65.2	8	6,7	o,+	1	o o,+ o	o	Round 17,18
Taranetzella lyoderma	18-21	70-78	90-97	16.0-20.1	14.9-19.1	63.0-67.1	9	6,7,8	o	1,2	o o o		Round 14-16
Bothrocara brunneum	18-19	94-99	113-118	21.8-22.4	19.2-20.5	57.1-58.7	+	+	+	+	+	o	Round 16
Bothrocare molle	18-19	93-95	110-114	20.2-21.8	15.5-18.4	59.9-62.7	+	+	+	+	+	o	Round 13

+ = Present
o = absent

Gill-opening → upper Base of Pectoral fin
Base of pelvic fin → Lower Base of Pectoral fin

Diagnoses for Oregon Benthic Zoarcidae (MS) Shel

	Preopercular-mandibular Pore	Infraorbital Pores	Ventral Post-ocular Pore	Temporal Pores	STP Supra-Temporal Pores R M L	Pelvic Fins	Pectoral Fin Shape no. of rays	Vomerine Teeth no. of Teeth	Palatine Teeth	Scales occiput operculum abdomen Axilla Tail	upper & Lower Jaws	Marg lum ope * = ati
5-6	8	10-12	+	3	+ +;0 +;0	+	Round 18-19	0	+	0: 0 + + +	Lower jaw included	
7-0	8	7,8	+	3	+ 0 +	+	Round 18-20	+	+	0: 0 + + +	Lower jaw included	
5-3	8	7,8	+	2,3	+ +; 0 +		V-notch in Post. Margin 19-21	+	+	+ 0 + + +	Lower jaw included	
5-4	8	7,8	+	1	0 0 0	+	Round 15-17	0	0	0,+ 0,+ + 0,+ +	Lower jaw included	
9,7	8	7	0	2	0 0 0		Round	+ 9	+ 8,9	0 0 + 0 +	Lower jaw included	
8	8	7	+	1	0 0 0	+	Round 13-14	+ 1-4	+ 1-7	0,+ 0,? + + +	Lower jaw included	7=
4-7	8	9,8	+	2	+ 0 +	+	Round 15-17	+ 1-4	+,0 0-2	0,+ 0 + + +	Lower jaw included	
2-8	8	7,8	0	1,2,3	0 0 0	+	Round 15-17	+ 1-6, 16	+,0 0-2	0,+ 0 + 0 +	Lower jaw included	
7	8,9,10	8,9, 10	0,+	0,1	0 0 0	+	Round 16-17	+ 2-15	+ 2-9	+ 0 + 0 +	Lower jaw included	
6	8	6,7	0,+	2	0 0 0	+	Round 16-18	+ 5-11	+ 5-18	+ 0; + + + +	upper & Lower jaw even	7=
7	8	6	0	1	0 0 0	+	Round 16,18	+ 3-4	+ 6-10	0 0 + 0 +	upper & Lower jaw even	7=
5-2	8	6,7	0,+	1	0 0,+ 0	0	Round 17,18	+ 2-7	+ 2-10	0 0 0 + 0, 0 + +	Jaws, nearly even	7=
0-1	9	6,7,8	0	1,2	0 0 0		Round 14-16	+	+	0 0 0 0 0,+ Post half of Tail	Jaws, nearly even	7=
7	+	+	+	+	+	0	Round 16	+ 2 crescent shaped rows	+ 2-3 rows Ant; 1 row post	+ + + +		7
7	+	+	+	+	+	0	Round 13	+,0; 0-3 Single row	+,0; 0-12 Single row	+ + + +		7=

↙ upper Base of Pectoral fin

↖ Lower Base of Pectoral fin

* 1 = Data from non-Oregon ma

nthic Zoarcidae (MS) Shelly R. Johnson Dec 1, 1976

Teeth no. of Teeth	Palatine Teeth	Scales occiput	Scales operculum	Scales abdomen	Scales Axilla	Scales Tail	upper & Lower Jaws	Margin of operculum and Gill opening * = See explanation below	
	+	0?	0	+	+	+	Lower jaw included	⟩=	Pale vertical bars across body, one across occiput in front of origin of dorsal fin
	+	0?	0	+	+	+	Lower jaw included	⟩=	
	+	+	0	+	+	+	Lower jaw included	⟩=	
	0	0,+	0,+	+	0,+	+	Lower jaw included	⟩	
	+	0	0	+	0	+	Lower jaw included	⟩=	
	8,9								
	+	0,+	0,?	+	+	+	Lower jaw included	⟩=	
-4	1-7								
	+,0	0,+	0	+	+	+	Lower jaw included	⟩=	
-4	0-2								
	+,0	0,+	0	+	0	+	Lower jaw included	⟩=	
6, 16	0-2								
	+	+	0	+	0	+	Lower jaw included	⟩=	
-15	2-9								
	+	+	0,+	+	+	+	upper & Lower jaw even	⟩=	
-11	5-18								
	+	0	0	+	0	+	upper & Lower jaw even	⟩=	
-4	6-10								
+	+	0	0	+	0,+	0,+	Jaws, nearly even	⟩=	
-7	2-10								
+	+	0	0	0	0	0,+	Jaws, nearly even	⟩=	
		Post half of Tail							
+	+	+		+	+	+		⟩= attached to Isthmus	Pectoral fin length 10.9-12.5% SL reaches about 3/5 length of abdomen
crescent haped rows	2-3 rows Ant; 1 row post								
+,0; 0-3	+,0; 0-12	+		+	+	+		⟩= attached to Isthmus	Pectoral fin length 16.2-17.3% SL reaches nearly to anus
ngle row	Single row								

* 1 = Data from non-oregon material

OSU 1450

Rhinolparis *cHemeatus*

OTB 209	L	68		
	W	1.0		
		#761		
OT ?	L	79		
	W	1.4		
		#494	#493	
✓ BMT 9	L	110	.93	
	W	3.4	2.4	
		#847		
OT 20	L	62		
	W	0.9		

~~*Carcharocles* *bathycaelus*~~

		#479		
BMT 163	L	142		
	W	11.8		
		9/2013		
OTB 259	L	153		
	W	15.1		
		#504		
BMT 277	L	119		
	W	9.7		

Paralparis ~~*caudatus*~~ *dactylosus*

		#533				#342
✓ BMT 394	L	89	✓ BMT 366	L		81
	W	3.5		W		3.1

Carcharocles ~~*angerni*~~

		OTB 249		
✓ BMT 8 DWD	L	431		
	W	2348		
OTB 132	L	302		
	W	.		

Elasodus cius ~~*cuvieri*~~ *caudatus*

		#507		
~~OTB~~ 567	L	85		
	W	5.2		

A. opercularis

OSU 1450

DWD 3														
L	54													
W	0.7													
DWD 5 L	77													
W	2.3													
BMT 93 L	64	58	56	36										
W	1.3	0.8	2.2	0.2										
BMT 94 L	60	47	37											
W	1.0	0.3	0.2											
BMT 186 L	60	49	45											
W	0.8	0.7	0.5											
	438													
187 L	56	51	47	45	42	38								
W	0.9	0.9	0.4	0.4	0.4	0.1								
188 L	71	66												
W	2.2	1.4												
			512	513										
190 L	52	37	49	70										
W	0.5	0.2	0.5	1.9										
191 L	50	49	44	42	41	40								
W	0.4	0.6	0.3	0.3	0.4	0.3								
					511									
192 L	59	57	52	46	68									
W	1.0	0.8	0.7	0.4	2.0									
	1920													
194 L	62													
W	1.8													
195 L	54	52	49	49	41	41	36	36	35	32	34			
W	0.9	0.6	0.5	0.4	0.4	0.4	0.2	0.2	0.2	0.1	0.2			
		[illegible]												
259 L	51													
W	0.5	[illegible]												
265 L	57	43												
W	1.1	0.4												

A operculars

OSU 1450

✓ BHT 267	L	57		
	W	0.8		
✓ 269	L	49		
	W	0.4		
2832 ✓ 271	L	66		
	W	1.5		
✓ 272	L	73	41	
	W	2.1	0.4	
✓ 287	L	43		
	W	0.4		
2940 ✓ 288	L	69		
	W	2.0		
		437		
✓ 291	L	56		
	W	0.5		
		436		
2997 ✓ 293	L	61		
	W	1.5		
✓ 336	L	34		
	W	0.1		
chk → 363	L	54		left ant — trunk = incorrect
	W	0.9		
		514		
✓ OTB 259	L	55		
	W	1.2		
		510		
✓ BHT 318	L	60		
	W	1.3		

C. microstomus

OSU 1450

#422

BMT 269	L	178	153
	W	37.6	20.9
BMT 298	L	197	
	W	58.6	
BMT 318	L	168	
	W	33.8	
BMT 322	L	183	
	W	40.1	
BMT 278	L	140	
	W	14.1	
BMT 289	L	82	
	W	2.2	
		0/2067	
BMT 280	L	146	
	W	18.6	

C. filamentosus

OSU 1450

✓	BMT 265	L	58													
		W	0.5													
			#463													
✓	BMT 270	L	141	73	180											
		W	15.8	1.5	37.4											
✓	BMT 262		#459													
		L	40													
		W	0.3													
✓	BMT 322															
		L	3.9													
		W	0.2													
✓	BMT 288															
		L	46													
		W	0.2													
✓	BMT 259															
		L	65													
		W	0.9													
✓	BMT 266															
		L	60													
		W	0.6													
✓	BMT 192															
		L	92													
		W	3.4													
✓	BMT 195															
		L	67	50												
		W	1.1	0.5												

megalyra

P. intermedius

OSU 1450

✓	BMT 300	L	110												
		W	6.3												
✓	BMT 359	L	106	57	62	65	57								
		W	4.9	0.7	1.1	0.9	0.4								
			#418	#485	#434										
✓	BMT 291	L	150	107	139										
		W	10.5	3.7	17.9										
✓	BMT 120	L	—												
		W	9.9												
✓	BMT 408	L	137												
		W	11.2												
✓	BMT 288	L	121												
		W	6.7												
	OTB 155	L	152												
		W	21.4												

C. oregonensis

21+

| | | |

Caseyoctus melanurus

OSU 1450

✓ BMT 338	L	116	168
	W	17.2	46.6
		#497	
✓ BMT 349	L	179	
	W	87.6	
✓ BMT 343	L	232	
	W	139	
		#500	
✓ BMT 285	L	221	
	W	161.1	
OTB 209	L	108	
	W	10.7	
OTB 567	L	128	
	W	18.6	
✓ OTB 628	L	134	
	W	34.1	
		0/2070	
OTB 423	L	240	
	W	232.2	
		#498	
OTB 567	L	78	
	W	4.8	
		#499	
OTB 557	L	175	
	W	67.2	
		#509	
OTB 559	L	170	
	W	73.2	
OTB 120	L	138	
	W	26.8	
~~[illegible]~~		#522	
OTB 620	L	224	
	W	200.8	
		#408	
OT 52	L	312	
	W	425.7	
OTB1	L	98	
	W	5.4	

C. longifilis ⊙

409

OSU 1450

CP1-XX BMT 293	L	88																
	W	5.9																
			#515															
CP-1-D BMT 188	L	45	68															
	W	0.6	0.9															
		9/248																
NAD 21 BMT 69	L	109																
	W	17.0																
			#411															
CP-1-WW BMT 288	L	88	126	109														
	W	11.2	14.9	14.3														
		#414	#412															
CP-1-D BMT 187	L	~~75~~	~~46~~															
	W	3.9	14.1															
CP-2-A BMT 258	L	59																
	W	1.8																
CP-2-C BMT 264	L	56																
	W	1.2																
		#410																
CP-2-C BMT 159	L	122																
	W	16.4																
CP-2B BMT 157	L	71	64	142														
	W	2.7	1.7	24.6														
		#502																
CP-3-D BMT 335	L	113																
	W	17.9																
		#413																
CP-3-C BMT 315	L	162																
	W	47.4																
		#503																
CP-2-C BMT 265	L	70	61															
	W	2.5	0.6															
		*																
CP-2-D BMT 161	L	43																
	W	0.5																
CP-2-C BMT 163	L	131																
	W	14.8																
CP-1-XX BMT 294	L	106																

C. Longfellow

OSU 1450

| | | |

P. latifrons?

OSU 1450

✓ DWD BMT 7	L	41	38	51	92	61	39	52	67	62	59	72	69	68
	W	0.3	0.4	0.4	0.2	0.3	0.3	0.5	1.1	1.0	0.8	1.2	1.9	1.1
	L	77												
	W	1.7												
✓ DWD BMT 1	L	98												
	W	0.6												
✓ BMT 359	L	43												
	W	0.5												
✓ BMT 321	L	30												
	W	0.2												

P. latifrons?

OSU 1450

✓ BMT 268	L	38													
	W	0.3													
✓ BMT 335	L	34	31												
	W	0.3	0.2												
✓ BMT 93	L	75	76	81											
	W	1.8	1.6	3.9											
✓ BMT 194	L	57	49												
	W	0.5	0.2												
										#488		#486			
✓ BMT 192	L	64	47	42	54	55	67	68	91	[illegible]	50	58			
	W	1.7	0.6	0.4	0.8	1.0	1.1	1.6	3.0	3.1	0.6	1.1			
		#517												#526	
✓ BMT 193	L	61	39	47	36	29	40	39	41	42	48	61	59	57	
	W	1.0	0.2	0.5	0.2	0.1	0.2	0.4	0.2	0.5	0.3	0.7	1.0	1.1	
		#525	#487	#489											
✓ BMT 195	L	79		51	32	43	44	39	47	37	49	47	67	82	
	W	1.9	3.1	0.6	0.1	0.3	0.4	0.3	0.5	0.6	0.5	0.6	1.0	2.1	
		#474													
✓ BMT 158	L	66													
	W	1.5													
✓ DWD BMT 8	L	43	37	49	46	45	31	32	64	46	70	33	66	69	
	W	0.5	0.3	0.6	0.4	0.3	0.1	0.2	1.1	0.6	1.1	0.2	1.3	1.6	
	L	84	78												
	W	2.3	3.3												
			#475											#476	
✓ BMT 89	L	76	85	10 NTCL	29	36	51	53	40	68	59	83	59	74	44
	W	1.9	3.8	0.2	0.1	0.3	0.5	0.5	0.2	1.2	0.9	1.9	0.6	1.5	0.6
		0/2036	0/2037												
✓ BMT 116	L	96													
	W	5.5	0.6												
		#524													
✓ BMT 91	L	26													
	W	0.1													
		#496													
✓ BMT 113	L	88													
	W	2.7													
✓ BMT 95	L	61	74	90											

P. roseus.

OSU 1450

			#471													
✓	BMT 158	L	68													
		W	1.5													
✓	BMT 332	L	35	54	44	49	40									
		W	0.2	0.8	0.3	0.5	0.2									
✓	BMT 259	L	64													
		W	1.2													
✓	BMT 186	L	67													
		W	0.7													
✓	BMT 318	L	63													
		W	1.8													
			#480													
✓	BMT 195	L	65													
		W	1.2													
✓	BMT 272	L	42	59												
		W	0.3	1.0												
✓	BMT 191	L	55													
		W	0.5													
✓	BMT 282	L	39	42												
		W	0.2	0.2												
✓	BMT 270	L	64	44	44	63										
		W	0.9	0.4	0.3	0.9										
✓	BMT 336	L	51	48												
		W	0.6	0.6												

P. rosaceus

OSU 1450

✓ BMT 322	L	42														
	W	0.3														
		#2103														
✓ BMT 265	L	57	74													
	W	0.7	1.6													
✓ BMT 321	L	43	44	45												
	W	0.3	0.3	0.4												
		#451														
✓ BMT 190	L	52														
	W	0.4														
		#470														
✓ BMT 89	L	51	54	75												
	W	0.5	0.7	1.5												
		#468	#465													
✓ BMT 194	L	79	91													
	W	2.1	3.6													
		#477														
✓ BMT 95	L	63														
	W	1.0														
		#469														
✓ BMT 161	L	78														
	W	2.0														
		#472														
✓ BMT 188	L	61														
	W	0.9														
		#466														
✓ BMT 291	L	58														
	W	0.8														
		#528														
✓ BMT 91	L	75														
	W	2.4														
✓ BMT 229	L	61														
	W	0.9														
✓ BMT 276	L	49														
	W	0.2														
		#467														
✓ BMT 229	L	82														
	W	2.5														
		#481														
✓ BMT 263	L	63														

P. Roacus ○

OSU 1450

#529

CP-1-D	BMT 187 L	289	263	71												
	W	160.6	114.3	1.4												
		#433														
M-6-S	BMT 286 L	321														
	W	510.8														
		9/2064														
CP-2-A	BMT 257 L	299														
	W	413.5														
		#421														
CP-2-D	BMT 269 L	285														
	W	194.2														
		#419														
CP-3-A	BMT 323 L	288														
	W	249.4														
CP-3-C	BMT 280 L	281	63	54												
	W	320.8	0.9	0.5												
CP-2-C	BMT 264 L	266	58	66	51	46	44									
	W	182.2	0.9	1.3	0.5	0.5	0.3									
CP-2-E	BMT 254 L	254														
	W	152.8														
CP-1-B	BMT 192 L	333														
	W	518.1														
CP-3-C	BMT 324 L	361														
	W	482.9														
CP-2-C	BMT 159 L	376														
	W	433.8														
CP-3-C	BMT 278 L							Stained + cleaned, lg								
	W															
	BMT 357 L	69	54	44	47	42										
	W	1.2	0.5	0.3	0.4	0.3										
		9/2063														
	BMT 97 L	70														
	W	2.2														
	BMT 363 L	64														

O. cascadia

OSU 1450

NAD 27 NF 65	OTB 50	L	77	
		W	2.9	
NAD 22	OTB 8	L	70	
		W	2.3	
	OTB's =		32.0 g	
			14 sp	
	BMT's =		204.6 g	
			119 sp	
✓	BMT 287	L	68	
		W	1.8	
✓	BMT 363	L	31	
		W	0.2	
✓	BMT 322	L	67	29
		W	2.6	0.2

O. cascadiae

OSU 1450

		0/2035													
CP-1-E BMT 119	L	76													
	W	4.2													
CP-3-C BMT 280	L	73	72	56											
	W	2.5	2.8	1.2											
CP-2-B BMT 155	L	56													
	W	1.1													
CP-1-B BMT 194	L	56													
	W	0.6													
CP-3-C BMT 318	L	63													
	W	1.7													
CP-2-C BMT 266	L	79													
	W	2.9													
CP-1C BMT 93	L	61	29	39											
	W	1.3	0.1	0.3											
CP 2 A BMT 158	L	61	71												
	W	1.6	2.1												
CP-2-C BMT 264	L	68	83	61	62	47	48	43	37						
	W	2.5	3.5	1.3	1.3	0.6	0.6	0.4	0.3						
		~~0/1930~~										BMT's = 204.6			
~~BMT 120 L~~		~~71~~													
	~~W~~	~~2.5~~													
THB 19 OTB 259	L	76	71	69	69	49	66								
	W	3.2	1.8	2.2	2.4	0.8	1.3								
				0/1817											
NH 65 OTB 112	L	82	84	71											
	W	3.1	3.1	2.2											
NH 65 OTB 29	L	71													
	W	2.2													
VA021/NH65 OTB 207	L	81													
	W	2.2													
		0/2051													
NA021/NH65 OTB 155	L	74													

O. cascadrae

OSU 1450

		0/2068														
CP-1-S BMT 192	L	80	51													
	W	4.8	0.8													
									TYPE							
CP-1-UW BMT 288	L	68	65	68	50	53	83	45	—							
	W	2.5	1.9	2.4	1.1	0.9	4.5	0.4	5.5							
BMT 404	L	63														
	W	2.1														
CP-2-E BMT 281	L	56	54													
	W	1.4	0.6													
CP-2-E BMT 271	L	71	69													
	W	2.6	3.0													
		#426														
CP-2-C BMT 159	L	58														
	W	1.0														
CP-1-D BMT 95	L	65	69	61	67	50	52	49								
	W	1.4	2.7	1.5	2.1	0.9	0.6	0.6								
CP-2-D BMT 161	L	63	68													
	W	1.5	1.5													
CP-1-D BMT 188	L	63	48	52	42											
	W	1.1	0.6	0.7	0.3											
CP-3-D BMT 336	L	60	37													
	W	1.3	0.3													
CP-2-B BMT 261	L	44														
	W	0.5														
CP-1-D BMT 94	L	76														
	W	3.0														
CP-2-C BMT 265	L	39	35	49	32	44										
	W	0.3	0.2	0.8	0.2	0.6										
CP-2-D BMT 268	L	69	73	47												
	W	2.3	2.7	0.7												
CP-2-E BMT 270	L	69	68	48	35	37	58	63								
	W	1.6	2.2	0.6	0.3	0.3	1.1	1.5								

O. cascadiae O

#431

OSU 1450

CP-1 XX BMT 292 L	54	41	66	86	26										
W	1.0	0.4	1.5	3.9	0.1										
			#492	#430											
CP-1-E BMT 120 L	71	68	73	71											
W	2.0	2.1	2.1	2.5											
CP-3A BMT 321 L	74	67	59	57	42	31									
W	2.6	1.7	1.5	1.1	0.4	0.2									
XX BMT 293 L	57														
W	1.2														
CP-2-O BMT 267 L	62														
W	1.4														
	#2033														
THB 65 BMT 70 L	83														
W	4.5														
			#506												
CPIE BMT 186 L	70	73	85												
W	2.1	2.9	4.3												
	#491														
CP1E BMT 179 L	82	74	102	70	71	111	69	61	70	63	45	47			
W	4.0	2.9	5.6	2.5	2.7	6.7	2.4	1.6	2.6	1.5	0.8	0.7			
	#429														
CP-1-XX BMT 294 L	56														
W	1.2														
CP-2-A BMT 259 L	63	67	42												
W	1.7	1.7	0.5												
	#428														
CP-1-WW BMT 290 L	79														
W	3.2														
CP-3-E BMT 282 L	53														
W	1.4														
	#427														
CP-3-A BMT 277 L	72														
W	2.8														
CP-1-WW BMT 291 L	60	71	67	68											
W	1.5	2.8	1.7	1.3											

Lyparids

Careproctis microstoma

		S.L.	wt.	tag
✓	BMT 269	178	37.6	422
✓	BMT 269	153	20.9	423
✓	BMT 298	197	[illegible]	424
✓	BMT 318	168	33.8	425
✓	BMT 323	183	40.1	432
✓	BMT 278	140	14.1	435
✓	BMT 284	82	2.2	442

Careproctis beameyensis

	✓	BMT	163	11.8	479
	✓	OTB	259	15.1	05/10 2043
	✓	BMT	277	9.7	504
2♂		BMT	265	11.9	439
	✓	BMT	266	0.9	447
	✓	BMT	191	0.5	453

133

Specimen	haul	st. length	wt.
✓ P. rosaceus	BMT 357	69	1.2
		54	0.5
		44	0.3
		47	0.4
		42	0.3
0540 2063 ✓ P. rosaceus	BMT 97	70	2.2
✓ "	BMT 363	64	1.1
✓ " 0540 2103	BMT 322	42	0.3
✓ "	BMT 265	57	0.7
✓ "	BMT 321	43	0.3
		44	0.3
		45	0.4
✓ P. intermedius ?	BMT 357	106	4.9
		57	0.7
		62	1.1
		65	0.9
		57	0.4
✓ C. melanurus	OTB 1	98	5.4

C. Crenarchaeota cont.

	SL		wt.	tag #
✓	BMT 317		9.7	519
✓	BMT 187		1.9	457
✓	BMT 95		0.7	454
✓	BMT 161		0.7	458
✓	BMT 269		5.3	441
✓	BMT 323		5.4	448
✓	BMT 268		4.2	440
✓	BMT 163	108	4.4	
✓	BMT 280		3.2	OSUO 2066

Phospholipid Archaeota

✓	OT?		1.4	OSUO 761
✓	BMT 9		3.4	494
✓	BMD 9			493
✓	OT-20		0.9	OSUO 847

Specimen	Haul	standard lengths	wt. gms
✓ D. cascadia	BMT 363	31	0.2
✓ Rhinoliparis	OTB 209	68	1.0
✓ Ocentrices	BMT 322	67	2.6
		29	0.2
✓ D. cascadia	BMT 321		
		59	1.5
		57	1.1
		42	0.4
		31	0.2
✓ P. latifrons	BMT 1	48	0.6
✓ "	BMT 89	44	0.6
✓ "	OSVO 2037 BMT 116		0.6
✓ "	BMT 357	43	0.5
✓ "	BMT 321	30	0.2
✓ P. rosaceus	BMT 264	58	0.9
		66	1.3
		51	0.5
		46	0.5

OSTEODISCUS CASCADIAE

			SZ	WT (gm)	
✓	BMT	292	54	1.0	
			41	.4	
			66	1.5	
✓	BMT	120	71	2.0	
✓	OTB	112	82	3.1	
✓	BMT	321	74	2.6	
			69	1.7	
✓	OTB	112	84	3.1	
* ✓	OTB	207	81	2.2	
✓	BMT	293	57	1.2	
✓	BMT	267	62	1.4	
✓	BMT	70	83	4.5	OSUO 2033
✓	BMT	186	70	2.1	
			73	2.9	
X	BMT	292	86	3.9	
✓	BMT	179	82	4.0	X491

		S.L.	Wt. (gms)	tag
✓ BMT	280	73	2.5	
		72	2.8	
		56	1.2	
✓ OTB	29	71	2.2	
✓ BMT	265	49	0.8	
		32	0.2	
		44	0.6	
✓ BMT	155	56	1.1	
✓ BMT	194	56	0.6	
✓ BMT	318	63	1.7	
✓ BMT	266	79	2.9	
✓ BMT	93	61	1.3	
		29	0.1	
✓ BMT	288	—	5.5	type
✓ BMT	158	61	1.6	
		71	2.1	

		S.L.	Wt.	tag
× BMT 292		26	0.1	431
✓ BMT 94		76	3.0	
✓ BMT 265		39	0.3	
		35	0.2	
✓ BMT 268		69	2.3	
		73	2.7	
		47	0.7	
✓ BMT 192		51	0.8	
✓ BMT 288		45	0.4	
✓ BMT 270		69	1.6	
		68	2.2	
		48	0.6	
		35	0.3	
		37	0.2	
* ✓ undias? BMT	93	39	0.3	
✓ BMT	119	76	4.2	OSUO 2035
✓ BMT	270	58	1.1	
		63	1.5	

		S.L.	Wt. (gms.)	
✓ BMT 120		73	2.1	492
✓ BMT 95		69	2.7	
		61	1.5	
		67	2.1	
		50	0.9	
		52	0.6	
		49	0.6	
✓ BMT	291	68	1.3	
✓ BMT	264	68	2.5	
		83	3.5	
		61	1.3	
		62	1.3	
		47	0.6	
		48	0.6	
		43	0.4	
		37	0.3	
✓ BMT	120	71	2.5	430
✓ DTB	259	76	3.2	
		71	1.8	
		69	2.2	
		69	2.4	
		49	0.8	
		66	1.3	

		S.L.	Wt. grams	tag
✓	BMT 404	63	2.1	
✓	OTB 8	70	2.3	
✓	BMT 281	56	1.4	
		54	0.6	
✓	BMT 271	71	2.6	
		69	3.0	
✓	BMT 159	58	1.0	426
✓	BMT 95	65	1.4	
✓	BMT 161	63	1.5	
		68	1.5	
✓	BMT 188	63	1.1	
		48	0.6	
		52	0.7	
		42	0.3	
✓	BMT 336	60	1.3	
		37	0.3	
✓	BMT 261	44	0.5	

		S.L	WT gms	tag
✓ BMT	179	74	2.9	
		102	5.6	
		70	2.5	
		71	2.7	
		111	6.7	
		69	2.4	
		61	1.6	
		70	2.6	
		63	1.5	
		45	0.8	
	No=48	47	0.7	
× BMT	120	68	2.1	
✓ BMT	192	80	4.8	0500 2068
✓ BMT	288	68	2.5	
		65	1.9	
		68	2.4	
		50	1.1	
		53	0.9	
✓ BMT	288	83	4.5	
✓ OTB	50	77	2.9	
✓ BMT	186	85	4.9	506
			0.4	

		SL.	WT gms.	tag
✓ BMT	294	56	1.2	429
✓ BMT	259	63	1.7	
		67	1.7	
		42	0.5	
✓ OTB	155	74	2.3	0500 2051
✓ BMT	290	79	3.2	428
✓ BMT	282	53	1.4	
✓ BMT	277	72	2.8	427
✓ BMT	291	60	1.5	
		71	2.8	
		67	1.7	
✓ OTB	112	71	2.2	0500 1817
✓ BMT	187	61	1.2	
		50	.9	
		68	2.0	
		58	1.1	
		67	1.8	
		52	1.0	
		54	0.8	
		47	0.8	

Paraliparis Rosaceous ?

	S.L.	wt. (gms)	
✓ BMT 187	289	160.6	
	263	114.3	
✓ BMT 286	321	510.8	433
✓ BMT 257	299	413.5	0500 2064
✓ BMT 269	285	194.2	421
✓ BMT 323	288	249.4	419
✓ BMT 280	281	320.8	0500 2065
✓ BMT 264	266	182.2	473
✓ BMT 254	254	152.8	417
✓ BMT 192	333	518.1	0560 2069
✓ BMT 324	361	482.9	420
✓ BMT 159	376	433.8	

~~P. m. Calidus~~

Poaceus

		S.L.	Wt. (gm)
✓ BMT	191	55	0.5
✓ BMT	282	39	0.2
		42	0.2

P. m. Calidus

✓ BMT	270	64	0.9
		44	0.4
		44	0.3
✓ BMT	270	63	0.9
✓ BMT	336	51	0.6
		48	0.6
✓ BMT	184		1.4

029

~~P. ruf. Cactidus~~
Isaacsi

	S.L.	Wt. (gms.)	
✓ BMT 263		1.1	481
✓ BMT 158		1.5	471
✓ BMT 332	35	0.2	
	54	0.8	
	44	0.3	
	49	0.5	
	40	0.2	
✓ BMT 280	63	0.9	
	54	0.5	
✓ BMT 254	64	1.2	
✓ BMT 186	67	0.7	
✓ BMT 318	63	1.8	
✓ BMT 195		1.2	480
✓ BMT 265	74	1.6	
✓ BMT 272	42	0.3	
	59	1.0	

~~Paraliparis mCalidus~~

P. rosaceus

	S.L.	Wt (gms.)	
✓ BMT 190		0.4	451
✓ BMT 89		0.5	470
✓ BMT 194		2.1	468
✓ BMT 95		1.0	477
✓ BMT 161		2,0	469
✓ BMT 89	54	0.7	
	75	1.5	
✓ BMT 188		0.9	472
✓ BMT 194		3.6	465
✓ BMT 291		0.8	466
✓ BMT 91		2.4	528
✓ BMT 229	61	0.9	
✓ BMT 276	49	0.2	
✓ BMT 229	82	2.5	467

CAREPROCTUS MELANURUS

		SL.	Wt (gms)	
+ OTB	209	108	10.7	
X OTB	567	128	18.6	
X OTB	628	134	34.1	
X BMT	338	116	17.2	
		168	46.6	
* OTB	423	240	232.2	0500 2070
X OTB	564	~~78~~	4.8	498
X OTB	557	175	67.2	499
X OTB559 BMT 285 OTB	559	~~[illegible]~~ 110	73.2	509
222 #510 #500 X OTB	120	138	26.8	
4 OTB	620	224	200.8	522
X BMT	349	179	87.6	497
X OT	52	312	425.7	408
X BMT	343	232	139	
BMT	285		161.1	#800

C. longifilis

		S.L.	Wt. (gms)	
✓	BMT 335		17.9	502
✓	OTB 185		0.9	0506 2034
check towel → ✓	OTB 259		14.7	0506 1819
✓	BMT 315		47.4	413
✓	BMT 288	109	14.3	
✓	OTB 47		29.5	0506 1823
✓	BMT 265		2.5	503
✓	BMT 161	43	0.5	
✓	BMT 265	61	0.6	
✓	BMT 163	131	14.8	
✓	BMT 294	66	2.8	
✓	BMT ~~336~~ #506 336	64	2.5	#505
✓	~~BMT~~ BMT 70	115	#2032 #505 15.7	2032

Careproctus longifilis

		S. Length	Wt. (gm.)	
✓ BMT	293	88	5.9	404
✓ OTB	112		3.9	OSOU 1821
✓ BMT	188	45	.6	
✓ BMT	69		17.0	OSUO 2018
✓ BMT	288	98	11.2	
✓ BMT	288		14.9	411
✓ BMT	187		3.9	414
✓ BMT	258	59	1.8	
✓ BMT	188		1.9	515
✓ BMT	264	56	1.2	
✓ BMT	187		14.1	412
Type ✓ BMT	159		16.4	410
✓ BMT	157	71	2.7	
		64	1.7	

Paraliparis latifrons

	S.L.	Wt. (gms)	
✓ BMT 268	38	0.3	
✓ BMT 335	34	0.3	
	31	0.2	
✓ BMT 93	75	1.8	OSOU 2024
	76	1.6	OSOU 2025
	81	3.9	OSOU 2026
→ ✓ BMT 195	79	1.9	525
✓ BMT 194	57	0.5	
	49	0.2	
✓ BMT 192	64	1.7	
	47	0.6	
	42	0.4	
	54	0.8	
	55	1.0	
	67	1.1	
	68	1.6	
	91	3.0	
✓ BMT 193	61	1.0	517
✓ BMT 158	66	1.5	474

P. latifrons

	S.L	WT.
✓ BMT 193	39	0.2
	47	0.5
	36	0.2
	29	0.1
	40	0.2
	39	0.4
	41	0.2
	47	0.5
	48	0.3
	61	0.7
	59	1.0
✓ BMT 8	43	0.5
	37	0.3
	49	0.6
	46	0.4
	45	0.3
	31	0.1
	32	0.2
	64	1.1
	46	0.6
	70	1.1
	33	0.2
	66	1.3
	69	1.6
	84	2.3
	78	3.3

P. latifrons

	length	wt. (gms)	
✓ BMT 89	76	1.9	490
✓ BMT 195		3.1	487
✓ BMT 192	85	3.1	488
✓ BMT 116	96	5.5	OSUO 2036
✓ BMT 89	85	3.8	475
✓ BMT 89	10 (minus tail)	0.2	
	29	0.1	
	36	0.3	
	51	0.5	
	53	0.5	
	40	0.2	
	68	1.2	
	54	0.9	
	83	1.9	
	59	0.6	
✓ BMT 192	50	0.6	
✓ BMT 195	51	0.6	489
✓ BMT 89	74	1.5	476

P. latifrons

	S.L.	Wt. (gms)	
✓ BMT 91	26	0.1	524
✓ BMT 192	58	1.1	486
✓ BMT 193	57	1.1	526
✓ BMT 95	61	0.8	
	74	1.4	
	90	3.3	
✓ BMT 195	32	0.1	
	43	0.3	
	44	0.4	
	39	0.3	
	47	0.5	
	37	0.6	
	49	0.5	
	47	0.6	
	69	1.0	
	82	2.1	
✓ BMT 113	88	2.7	496

P. latifrons

	S.L	Wt. (gms)
✓ BmT 7	41	0.3
	38	0.4
	51	0.4
	42	0.2
	61	1.3
	39	0.3
	52	0.5
	67	1.1
	62	1.0
	59	0.8
	72	1.2
	69	1.9
	68	1.1
	77	1.7

Specimen	Haul	st. length	wt
✓ Careproctus oregonensis	BMT 5	72	1.8
✓ "	BMT 314	41	0.3
✓ "	BMT 321	46	0.4
✓ "	BMT 317	57	0.5
✓ "	BMT 94	55	0.4
✓ P. intermedius	BMT 300	110	6.3
✓ C. filamentosus?	BMT 265	58	0.5
✓ C. oregonensis	BMT 256	121	9.5
463 ✓ C. filamentosus	BMT 270		15.8
✓ 533 P. caudatus	BMT 344	89	3.5

			0500
✓ Carpoctus crassum?		2348 gms.	2249
✓ Elasmodiscus cruciatus			
~~BMT~~ 569		5.2 gms	507

Parvilapis Interval

✓ BMT 291	150	10.5	418
✓ OTB 155	152	21.4	0500 2053 415
✓ BMT 120	—	9.9	523
✓ BMT 404	137	11.2	527
✓ BMT 291	107	3.7	485
✓ BMT 291	139	17.9	434
✓ BMT 288	121	6.7	445

C. filamentosis

	Mat #	C.L	Wt. gms	OSUO
✓	BMT 262	40	0.3	459
X	BMT 210	73	1.5	464
X	BMT 322	29	0.2	
X	BMT 288	46	0.2	452
X	BMT 259	65	0.9	450
X	BMT 266	60	0.6	OSUO 2250 460
	~~BMT 269~~	~~48~~	~~0.3~~	
X	BMT 192	92	3.4	443
	~~BMT 270~~	141	~~0.2~~	~~463~~
X	BMT 270	180	2.4	462
X	BMT 195	67	1.1	#449
		50	0.5	#456

Acanthocyclops - operculatus.

✓	BMT 190	22	0.5	
	2597	37	0.2	
✓	BMT 191	[illegible]	[illegible]	
	2605	[illegible]	0.6	
		[illegible]	0.3	
		53	0.4	
		[illegible]	0.3	
		[illegible]	0.3	
✓	BMT 192	59	1.0	
	2450	[illegible]	0.4	
		52	0.7	
		57	0.8	
✓	BMT 911	[illegible]	1.0	
	2688	47	[illegible]	
		[illegible]	0.2	
✓	[illegible] 13	50	2.2	
	2669	58	0.6	
		64	1.3	
		36	0.2	
✓	[illegible] 5	77	2.3	
	2819			
✓	BMT 356	34	0.1	
	2850			

Lengths per species

		S.L	W.t	#
✓	BNT 188 2792	66	1.4	
		91	2.2	
✓	BNT 195 2265	49	0.5	
		51	0.4	
		54	0.9	
		52	0.6	
		41	0.4	
		41	0.4	
		32	0.2	
		36	0.2	
		35	0.2	
		32	0.1	
		39	0.2	
✓	BNT 186 2816	49	0.7	
		45	0.5	
✓	BNT 264 ~2800	49	0.4	
✓	[illegible] 2532	54	0.7	
✓	BNT 271 2832	66	1.5	
✓	BNT 259 2665	51	0.5	
✓	BNT 186 2816	66	0.8	

Acanthalpsis operculans

			SL	Lt. gons	#
duke → ? ✓	BNT	363	54	0.9	
✓	BNT	269	13	0.4	
		2743			
✓	BNT	265	57	1.1	
		2750	43	0.4	
✓ yes	BNT	192		2.0	511
		2450			
✓	BNT	293		1.5	436
		2997			
✓	BNT	197		0.9	438
		2762			
✓	BNT	190		0.5	512
		2597		1.9	513
✓	BNT	272	73	2.4	
		2832	41	0.4	
✓	BNT	189	47	0.4	
		2760	51	0.9	
			45	0.4	
			52	0.4	
			38	0.1	

Acanthopagrus operculum

✓	BMT 194 1939-2122		1.8	OSUO 1920
✓	BMT 233 2940	69	2.0	
	DTS 259 2665		.2	514
✓	BMT 269 2795	57	0.3	
✓	BMT 291 1600fm		0.5	437

S. L. Wt

1	BMT 419	*Psychrolutes* sp	500 mm	6.7 Kg
	OTB 634	" "	535	6.5 Kg

Tanner crab beam trawls for which there is or may be fish information. Trawls for which there is complete info are circled ○.

CB line		AT line	
A	413	A	
B	352, 353, 369, 377, (393), 444, 455	B	
C	338, 340, 365, 394, (456)	C	
D	341, 354, 366, 379, 395, 415, 447, (457), (458)	D	
E	343, 367, 380, 416, 448, 459	E	
F	369, 381, (397), 417, 449, (461)	F	
G	418	G	
H	310, 462	H	(385)
I	372, 399, 451, 463	I	
J	348, (400), 419, 452	J	
K	346, 374, (401)	K	(386)
L	349, 375	L	(387)
M		M	(389)
N		N	(390)
O		O	
P	376	P	(391)
Q		Q	392
R		R	
S		S	
T		T	
U		U	
V		V	
W		W	
X		X	
Y		Y	
Z		Z	

[redacted]

Incomplete + Complete tanner copy BMTs

[redacted]

complete

~~BMT 382 (done)~~

~~BMT 383 (done)~~

BMT	385	inv. unsorted
"	386	inv. unsorted
"	387	" "
"	389	" "
"	390	" "
"	391	" "
"	393	done
"	456	done
"	457	done
"	458	done
~~"~~	~~459~~	~~inv. unsorted~~
"	461	inv. unsorted
~~"~~	~~463~~	
	400	done
	401	inv. unsorted
	397	" "

Usable Tanner crab burrs

	complete	Sta
385	inv. unsorted	AT-H
386	" "	AT-K
387	" "	AT-L
389	" "	AT-M2
390	" "	AT-N
391	" "	AT-P
393	done	CBT-310B
397	inv. unsorted	310F
400	done	310J
401	inv. unsorted	310K
456	done	310C
457	done	310D
458	done	310D-2
461	inv. unsorted	310F2

12/1/75

① = 5 gallon bucket

if trawl isn't on list, no inverts saved

Dave,

Beam Trawls Tanner Crab Project

✓ 338	① incomplete (disc)	[385	③ complete	[459	① ~~complete~~ no #5
✓ 340	② incomplete (disc.)	[386	① complete	[461	① complete
✓ 341	② incomplete (disc.)	[387	② "	[463	① ~~complete~~ no #5
343	② inc. (disc.)	[389	① "		
346	⑥ inc. (disc.)	[390	1 gallon "		
348	① inc. (disc.)	[391	③ "		
349	① inc. (disc.)	392	① inc (disc.)		
352	③ inc. (disc.)	[✓ 393	① complete		
✓ 353	④ inc. (disc.)	✓ 394	① inc. (disc)		
✓ 354	① inc. (disc)	395	① inc (disc.)		
✓ 364	① inc. (disc.)	[397	① complete		
✓ 365	① inc. (disc.)	✓ 399	① inc (disc.)		
367	① inc (disc.)	[✓ 400	? quant complete		
✓ 369	① inc. (disc.)	[401	1 gallon complete		
370	8 oz Shrimp only inc. (disc.)	417	① inc. (disc.)		
372	① inc. (disc.)	? 419	inc. (disc.)		
✓ 376	① inc. (disc.)	✓ 444	② inc ? (disc.)		
✓ 379	① inc. (disc.)	448	② inc. (disc.) ≈ 49 ~~stations~~		
380	① inc. (disc.)	449	② inc (disc) heat		
✓ 381	① inc. (disc.)	451	② inc. (disc.)		
✓ 366	inc. (disc.)	452	① inc. (disc.) ✓ = ~~station~~ Dartail		
		[✓ 456	complete		
		[✓ 457	complete		
		[✓ 458	complete		
		✓ 455	inc. (disc.)		

C. armatus	2612/556482	2758
C. filifer	1049/510704	1240
C. leptolepis	195/25579	332
C. acrolepis	321/196588	
C. pectoralis	33/28456	
C. cinereus	1/354	
C. yaquinae	1/202	
A. rostrata	206/112456	
P. grandis	33/19049	
	4451 / 1,449,870.00	

337
25
185
74
925
925
646
1896

GOOD BMT'S

ATQ	382
ATØ	383
ATH	385
ATK	386
AT L	387
AT M	389
AT N	390
AT P	391

CBT	310B	393
	310C	394
	310E	396
	310F	397
	310I	399
	310J	400
	310K	401
	310L	402

CP-1A	113, 194, 195	
CP-1B	90 ~~91~~ 192, 193	91 non grant
CP-1C	93, 117, 190, 191	
CP-1D	94, 95, 118, 187, 188	94 - 1580mm rail RA
CP-1E	97, 120, 185, 186	
CP-1F	411, 410	
CP-1WW	288, 289, 290, 291	
CP-1XX	292, 293, 294	
CP-2A	~~154~~, 155, 158 ~~256~~, 258, 259, 260	256 non grant; 154 hi chl no testing in H_2O
CP-2B	156, 157, 261, 262, 263	
CP-2C	159, 264, 265, 266	
CP-2D	160, 161, 162, 267, 268, 269	
CP-2E	163, 253, ~~255~~, 270, 271, 272	255 non grant
CP-3A	276, 277, 321, 323	
CP-3C	278, 280, 318, 319, 324	
CP-3D	332, 333, 334, 335, 336	
CP-3E	316, 317, 408, 359, 360, 407	
~~CP~~ 4E	328, 330	

1/ may not be P. grandis

* unident bivalve

OSU 1450

	C. armatus	C. filifer	C. leptolepis	C. acrolepis	C. pectoralis	C. cinereus	C. vaginae	A. rostrata (microlepis)	P. grandis	E. deani	A. fimbria	C. sp
BMT 256	32/11086	13/8920						1/729				
255	5/2141	2/675	1/425									
253	8/7727	2/1641	1/306									
252	11/1704	6/2900	1/81									
251	31/1184	14/4701						6/4124				
233	19/2789											
232	19/7864		1/2				1/202					
229	6/2181		1/4									
228	6/1488											
197										16/976	4/4324	
195	19/301	10/6772	4/85	1/31				9/6851				
194	9/73	5/3209		4/2715				12/7915				
193	16/405	32/18251	3/78					3/1097	2/1074			
192	48/1336	34/21694	10/861	1/37				12/4959	6/2517			
191	33/1792	12/4445	5/272					7/4555	2/577			
190	32/2519	15/8746	7/422					7/4955	5/4908			
188	60/2188	26/14513	8/709					2/2472				
187	59/9893	25/14780	15/1640								1/2	
186	55/14012	19/11141	5/250									
185	57/14902	29/17270	4/424					3/1531	1/1017			
163	53/12652	11/6263	1/29									
162	17/2710	11/6057										
161	10/2326	3/1706										
160	4/1092	3/1843										
159	40/7892	12/8980	9/614									
158	18/2565	8/4636	3/213					2/1831	1/1.5 1/			
157	26/3245	11/6566	1/170						2/742			
156	21/325	8/5016	2/124					1/2343				
155	20/4253	19/11830	2/271									
154	21/289	16/9783	2/378									
120	51/13115	29/15365	8/427	8/47				5/4377				
118	5/642	6/5008	3/225					2/998				
117	7/351	12/5901	2/154									
113	39/—	13/6237		1/2720				16/12209				
97	41/7692	26/14462	2/176									
95	30/5039	18/10968	1/423					5/2679	2/475			
94	23/1834	24/10484	8/447					1/710				
93	32/2463	23/11906	4/436					6/6049	1/331			
91		4/2814	1/5									
90		11/4138	1/6	1/31				4/1985				
89	27/208	7/3851	2/23					5/4172				
72		4/3588		2/3682				2/2623				
69	2/149							2/289				
26	11/— *	11/— *	2/165									
				18/4263			1/202	113/53778	22/11643	40/976	4/4324	

OSU 1450

	C. arvicolus	C. californicus	C. leptoleptis	C. acrolophi	C. pectoralis	C. cinereus	C. vaquinae	H. osborni	P. grandis	A. timbrina	E. deani	C. unidentata
324	28/4544	4/2327	3/367					1/925				
323	15/1650	8/5491							1/6			
321	21/4276	1/245	4/489					3/2492				
319	30/6558	7/4841										
318	30/4553	6/3818	4/206									
317	20/5071	7/4470										
316	16/4333	14/7904	1/269					1/1538				
315	22/6439	9/4765	2/380									
* 311				7/1803				2/184		5/—	2/—	
309	10/8658		2/51									
308	9/4258		2/168									
307	1/795		2/39									
306	12/9217											
304	4/8146		2/355									
303	11/2261		1/1									
302	14/2215		4/259									
300	8/3241		1/31									
299	10/3974		1/269									
298	4/4337		2/181									
294	24/9352	12/5963	2/41		1/4082							
293	25/6602	6/1740	6/625						1/1024			
292	21/7792	4/1733										
291	21/5205	27/10967	6/252									
290	7/2577	12/5702	3/315									
289	46/16314	32/17694	8/731									
288	104/35683	15/8184	6/190					1/1072	1/287			
280	26/2357	5/2182	4/180					1/1464	1/1979			
278	30/5269	6/2813	3/192									
277	18/3855	12/6470	2/216						1/909			
276	19/3744	9/4826	1/39									
272	13/2089	9/4843	8/708			1/354						
271	18/3099	9/4882	4/10									
270	29/4860	6/3724	4/11									1/2
269	47/15858	10/6326	2/246					2/1619	1/902			
268	23/5623	9/5230	5/350									
266	34/9383	15/8828	2/31						1/924			
265	49/8921	14/8868	4/267									
264	31/3788	15/8912	8/791					1/1241				
263	16/5866	16/9365	3/186					1/748				
262	26/4102	19/6262	3/440					1/382				
261	45/9546	14/7459	2/11									
260	4/908	6/3559						3/2027				
259	44/9703	24/11232	7/503									
258	29/5198	8/4266	3/310									
				7/1803	1/4082	1/354	/	17/13692	7/6031	5/	21/	

OSU 1450

		C. armatus	C. filiger	C. leptolepis	C. asciolepis	C. spectabilis	C. cinereus	C. cyaguinus	A. rostrata (micrologis)	P. grandis	E. deamii	A. fimbria	S. altivelis	C. sp.
OTB	63				2/1523	1/587			3/1464					
	61	5/1902	3/1880											
	53				4/2002									
	52				3/1539									
*	51				4/—*									
	50	19/3009	2/335											
*	49	38/6742	3/650*	3/277										
	48	2/473												
*	46				1/—*									
	42	4/913	3/1852	2/324	10/668									
*	41		10/—*		17/—*	1/—*			1/—*					
*	40-42		2/—*		6/188*	3/—*			11/—*					
	39	6/622												
*	38	6/—*												
*	31	8/—*		1/—*										
	30	5/1913	5/1645						2/1360					
	29	6/892												
	24	3/605	4/1698	1/79										
*	23	10/—*	1/—*	2/—*										
	20				1/221							1/386		
*	19	13/—*		3/—*										
*	18	14/—*	1/—*											
	7												3/258	
*	5	2/—*	3/—*										1/4	
	2 NK	22/14766		1/120										
	1 KK	62/25065		2/183	1/1363									
✓	OT 104	3/1283												
	52	13/7315												
	43				5/223	1/649								
	42				1/263									
	40				17/3726									
	29				17/5096									
	28				17/5672				1/363					
*	27				19/7739*	9/6669								
	24		5/2373		1/290									
*	22					2/—*								
	21				1/522									
✓	BM— 119	1/4		1/2										
	BMT 282 CSP.													3/5.0
	✓ 257	1/2												
	✓ 267	3/10												
	✓ 231	2/711												
	✓ 196	1/1												
12 not incl. any *			47/9783 12	15/983 12	129/23108 12	17/8905 12			18/3187 12			1/386	4/262	

OSU 1450

	C. armatus	C. fulleri	C. hyphoplis	C. laccidens	C. pectoralis	A. rostrata	P. glandula	E. dawsoni	A. limbata	S. altivelis	E. bathybius
CAB 1KK	62/25065		7/183	1/363							
2NK	23/14766		1/20								
5	2/—*	3/—*								1/4	
7										3/258	
18	11/—*	1/—*									
19	13/—*		3/—*								
20				1/221					1/386		
23	10/—*	1/—*	2/—*								
24	3/1605	4/1698	1/79								
29	6/892										
30	5/1913	5/1645				2/1360					
31	8/—*		1/—*								
38	6/—*										
39	6/622										
40-42		2/—*		6/188*	3/—*	11/—*					
41		17/—*		17/—*	1/—*	1/—*					
42	4/913	3/1852	2/324	10/668							
46				1/—*							
48	2/473										
49	38/6742	3/650*	3/277								
50	14/3009	2/335									
51				4/—*							
52				3/1539							
53				4/2002							
61	5/1902	3/1880									
63				2/1523	1/1587	3/1464					
64	10/3527	4/1612	5/546								
65				1/151							
66				3/521	4/3428						
75				1/558				1/95			
76	31/2684	6/2235	6/376								
77	33/8102	3/1157									
78	1/37	13/6028	1/458	3/6108		7/5255					
79	10/2331*	6/981*		2/13							
81	3/205*	1/601				3/3776					
87	2/463	2/895									
88	10/1603	4/2549				1/969					
89	1/159		4/1139	3/1959							
90	66/20081				3/2332						
93				37/21526	1/941	9/3843					
102						1/446					
103				1/2					2/2213		1/638
Σ #	330	76	31	100	13	39		1	3	4	1
Σ wt											

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		C. arnicalis	C. filitibia	C. leptotelpis	C. sacrolegnis	C. perchoralis	A. isostricta	P. grammodis	E. clearei	A. fluvibrevis	S. alascanus	E. baltimorius
OTB	104	3/1283										
other spp also	126								1/1062			
	132	4/267	1/466	1/100								
	154	23/4031	5/2392	5/330								
	155	20/3157*	23/4232*	10/748			4/411					
	170				19/12280		7/5899					
	172	9/1976	5/3389									
other spp also	221								3/2867	1/2098	1/414	
	223	1/459	1/576									
	224				22/13124							
——ick.	226				10/							
	240	1/2	1/2				1/7					
	245				2/208							
	258	12/3262	6/3019	3/398								
	283	12/271	9/5079	1/29	1/50							
	284-287	29/4231	13/5181	3/329	1/2163		2/3655					
	313				20/9272	4/4668						
	331	6/3352		1/161								
	334	4/2691		1/145								

CR2A	DATE	2B	DATE	2C	DATE	2D	DATE	2E	DATE
154	16 I 70	155	16 I 70	157	17 I 70	160	18 I 70	163	19 I 70
158	17 I 70	156	17 I 70	159	18 I 70	161	19 I 70	164	20 I 70
256	14 II 71	261	16 II 71	264	17 II 71	162	19 I 70	253	30 IX
257	15 II 71	262	17 II 71	265	18 II 71	267	18 II 71	254	30 IX
258	15 II 71	263	17 II 71	266	18 II 71	268	19 II 71	255	1 X
259	15 II 71					269	19 II 71	270	20 II
260	16 II 71							271	20 II 71
								272	20 II
CR3A	DATE	3B	DATE	3C	DATE	3D	DATE	3E	DATE
276	17 II 71			278	18 II 71	332	4 XI	281	19 II 71
277	17 II 71			279	18 II 71	333	4 XI	282	19 II 71
321	11 III 73			280	18 II 71	334	5 XI	315	2 II 72
322	12 III 73			318	3 II 72	335	5 XI	316	2 II 72
323	13 III 73			319	4 II 72	336	5 XI	317	3 II 72
				320	4 II 72			=	
				324	14 III 72				
CR1A	DATE	1B	DATE	1C		1D		1E	
88	14 VII	90	14 VIII	92	15 VII	94	16 VII	96	16 VII
89	14 VII	91	15 VIII	93	15 VII	95	16 VII	97	17 VII
112	2 X	114	4 X	116	5 X	118	5 X	119	6 X
113	3 X	115	4 X	117	5 X	187	17 III	120	6 X
194	20 III	192	19 III	189	18 III	188	17 III	185	16 III
195	20 III	193	19 III	190	18 III			186	16 III
				191	18 III				
1W		1X		4E					
288	14 III	292	16 VII	328	11 III				
289	15 VII	293	17 III	329	11 III				
290	15 VII	294	17 III	330	11 III				
291	15 VII			331	11 III				

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		C. armatus	C. filiser	C. leptolepis	C. acrolepis	C. pectoralis	C. civereus	C. yugumae	A. rostrata (microlepis)	P. glandis	E. deani	A. fimbria	S. lascanus	E. bathybius
BMT	24			5/30				2/80						
	10 DWD		1/27	10/3890	1/290			1/421						
	9 DWD		4/2704	29/10797	2/3810			5/7900						
	8 DWD	20/2427	26/5694	3/418	3/35			3/1731						1/2
	7 DWD	3/574	9/5140	1/5	3/29			4/2827						
	5 DWD	16/1600	16/8771	2/258				3/1927	1/365					
	3 DWD	1/5	2/1494					1/630						
*	2 DWD	7/893	15/8625	6/310*				1/360	1/443	1/102				
	1 DWD	24/2674	29/20731					2/1662	2/567		1/131			
OTB	334	4/2691		1/145										
	331	6/3352		1/161										
	313			20/7272	4/4668									
	284-287	29/4231	13/5181	3/329	1/2163			2/3655						
	283	12/1271	9/5079	1/29	1/50									
	258	13/3262	6/3019	3/398										
	245			3/208										
226	240	1/1.5	1/2					1/7						
	224			22/1324										
	223	1/459	1/576											
other spp also	221											3/2867	1/2098	1/414
	172	9/1976	5/3389											
	170			19/12280				2/5899						
	155	20/3154*	23/9232*	10/748				1/411						
	154	23/4031	5/2392	5/330										
	132	4/767	1/466	1/100										
other spp also	126											1/1062		
other spp also	103			1/2								3/2213		1/638
	102							1/446						
	93			37/21526	1/941			9/3843						
	90	6/2081			3/2332									
	89	1/59		4/1139	3/1959									
	88	10/1603	4/2549					1/969						
	87	2/463	2/895											
	81	2/208*	1/601					3/3776						
	79	10/2331*	6/981*		2/13									
	78	1/37	13/6028	1/438	3/3108			5/5255						
	77	33/8102	3/1157											
	76	31/7684	6/2235	6/376										
	75				1/558						1/95			
	66				3/1521	4/3428								
	65				1/151									
	64	10/2527	4/1612	5/546										
		12	13		12	12/5414		68	4/1249	4/1325	2/197	7/1793	1/2069	2/1052

*not total wt

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	C. armatus	C. silicea	C. leptoderi	C. acroleper	C. praedatrix	A. irrestricta	P. granulis	A. fimbria	Lycodes diapterus	Sebastolobus altivelis	Microstomus pacificus	Scaldonius (Radicellaria)
CBT SHOK BMT 401				1/<1000				1/4750	2/<1000	68/7000	32/2200		
CBT 3/0 L ~~402~~				3/<1000				1/2250	6/<1000	48/11500	28/26000		
CP-3-E ~~407~~	17/2236	9/6898	3/265				2/7896						
CP 3-E 408 = ~~404~~	10/5409	5/3501	1/184									1/4	
CP 1-F 410 = 406	34/7678	6/3677				1/68							
CP 1-F 411 = ~~407~~	35/7009	7/3350	2/120										
" ~~359~~	19/4037	16/13999	6/412										
" ~~360~~	8/1629	14/9082	2/297										
Σ#	123	58	14	4		1	2	2	8	116	60	1	
Σwt	27998	38507	3??	<7???		68	7896	7000	<2000	18500	28200	4	

L may not be P. grandis

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		C. annuals	C. silfer	C. lapidicola	C. canotype	C. pectoralis	A. rubida	P. grandis	A. simbrina	E. deani	C. paquinicola ?	Scyadonus pedicellaris	Micrositus	C. [illegible]	Lycosoides dispar
~~P-LXX~~	~~SHT~~ ~~273~~	25/6602	6/1740	5/625				1/1024							
"	~~274~~	24/9352	12/5923	2/41											
TP-6	~~298~~	4/4317		2/181											
"	~~299~~	10/3194		1/269											
"	~~300~~	8/2411		0/1											
TP-7	~~302~~	14/2225		4/259											
"	~~303~~	11/2261		1/1											
"	~~304~~	1/2176		2/355											
TP-8	~~306~~	12/9217													
"	~~307~~	1/495		2/39											
TP-9	~~308~~	9/4258		2/165											
"	~~309~~	10/8658		2/51											
NH-39	~~311~~				2/203		2/184		5/—	21/—					
CP 3-E	~~315~~	22/6439	9/4765	2/380											
"	~~316~~	16/5333	17/7006	2/269			1/1538								
"	~~317~~	29/8371	4/4030												
CP-3-C	~~318~~	30/4553	2/818	3/204											
"	~~319~~	36/6538	7/4841												
CP-3-A	~~321~~	21/4276	1/245	4/459			3/2492								
"	~~325~~	15/6500	3/5491					1/6							
CP-3-C	~~327~~	28/5594	4/7317	3/367			1/925								
CP-4-E	~~328~~	12/2573	6/4355	1/357											
"	~~329~~	5/540	2/1425	1/391											
CP-3-D	~~330~~	5/3192	1/1206				1/1750								
"	~~333~~	29/6775	6/2616												
"	~~334~~	2/424	3/1057												
"	~~chk 335~~	20/11201	0/1202	2/150											
"	~~336~~	24/6070	1/139	1/5			1/1608				1/4				
ATQ other spp	~~382~~								5/7500	27/4000			9/8300	45/61300	
AT-O	~~383~~									3/—*			1/1000	11/9250	
AT-H	385								1/750				6/2800	4/2000	
~~AT-K other spp~~	~~386~~								2/5500				4/4000	8/3000	3/—*
AT L	387								5/10000				4/1750	16/6500	
AT-M2	~~+spp~~ 389				11/300				1/3000	2/—*				6/11000	1/1000
AT-N	390				1/1000				3/4000	1/<1000			3/4500	13/22500	
AT-P other spp	391								3/7750				1/500	11/2500	
CBT-310B	393				5/1750				4/7500				4/5500	9/4008	6/2000
CBT-310C	~~+spp~~ 394				1/5									1/3	
CBT-310E	396				5/1000				1/1000	1/<1000				19/4300	4/<1000
CBT-310F	397				3/2500										
CBT-310I	~~+spp~~ 399				12/75200			1/20	3/9300				8/7500	52/11000	
CBT 310J	~~+spp~~ 400				1/<1000	6/1000			3/6000	3/<1000			34/25000	76/18600	3/<1000
Σ #		444	104	44	46	6	9	1	36	58	1	9	517	954	17
Σ wt		132479	65034	4499	83558	1000	7489	6	62300	<70000	4	8300	60850	168961	<3200

ll unident bivalve

* incomplete or absent wt data

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Site		C. annulus	C. fallax	C. hydrophana	C. cacheana	C. crebricostata	C. crebricostata	C. crebricostata	C. subglobosa	A. arctata	P. grandis	L. decora	A. fluctuata	C. sp.
DuO 1	~~1 DuO~~	~~2~~/~~220~~	~~23~~/~~5731~~						2/1662	2/567		1/131		
"	~~2 DuO~~	7/893	~~1~~/~~[illegible]~~		~~[illegible]~~				1/360	1/413	1/102			
DuO 2	~~2 DuO~~	1/5	2/1494						1/230					
DuO 4	~~5~~	~~[illegible]~~	~~[illegible]~~/1221	2/258					3/1927	1/365				
DuO 5	~~7 DuO~~	2/[illegible]16	9/5185	1/5	3/29				~~6~~/[illegible]					
"	~~2 DuO~~	~~23~~/[illegible]2	~~10~~/[illegible]3	3/418	~~2~~/36				2/231				1/2	
DuO 5	~~9 DuO~~		~~2~~/[illegible]64		~~22~~/[illegible]22	2/3810			~~8~~/[illegible]30					
"	~~[illegible]~~		1/27		~~4~~/[illegible]80	1/245			1/421					
N438	~~-4~~				5/30				2/80					
Y-65	~~2~~	~~1~~/[illegible]~~*~~	~~1~~/[illegible]~~*~~	~~[illegible]~~										
NAD 21	~~3~~	2/140							3/289					
THB 19	~~12~~		1/[illegible]70		2/[illegible]82				[illegible]/[illegible]3					
THB 19	~~13~~									1/439				
"	~~4~~	~~2~~/[illegible]21	~~[illegible]~~/[illegible]81	~~2~~/[illegible]2					5/4192					
CP-1-B	~~12~~		11/4138	1/6	1/31				~~4~~/[illegible]82					
"	-91		4/2841	1/5										
CP-1-C	93	~~32~~/2423	~~23~~/11916	~~4~~/[illegible]3					~~4~~/[illegible]49	1/331				
CP-1-D	94	~~22~~/[illegible]30	~~[illegible]~~/[illegible]69	2/[illegible]12					1/5710					
"	~~95~~	~~[illegible]~~/[illegible]30	~~15~~/[illegible]45	1/[illegible]24					~~5~~/3629	3/475				
CP-1-C	~~2~~	~~4~~/[illegible]642	~~23~~/[illegible]62	2/[illegible]56										
CP-1-A II	~~32~~	~~31~~/[illegible]	~~13~~/[illegible]9		1/2220				~~7~~/[illegible]208					
CP-1-C	~~116~~			1/1										
CP-1-C	~~[illegible]~~	3/351	~~12~~/5901	3/154										
CP-1-D	~~118~~	~~4~~/[illegible]92	~~5~~/[illegible]08	2/[illegible]2					2/998					
CP-1-E	~~119~~	1/4		1/2										
"	~~120~~	~~[illegible]~~/[illegible]75	~~20~~/[illegible]360	~~3~~/[illegible]2	2/47				~~5~~/[illegible]879					
TC-2-A	~~1~~	3/289	~~19~~/[illegible]283	~~[illegible]~~/[illegible]4										
CP-2-A	~~15~~	~~[illegible]~~/[illegible]3	~~11~~/11530	2/[illegible]31										
CP-2-B	~~16~~	~~3~~/[illegible]20	~~[illegible]~~/[illegible]43	~~[illegible]~~/[illegible]07					~~[illegible]~~/[illegible]93					
"	~~17~~	~~[illegible]~~/[illegible]10	~~[illegible]~~/[illegible]66	1/[illegible]76						2/[illegible]47				
CP-2-A	~~18~~	~~15~~/[illegible]22	~~[illegible]~~/[illegible]236	~~[illegible]~~/[illegible]13					~~[illegible]~~/[illegible]238	1/[illegible]15 II				
CP-2-C	~~19~~	~~[illegible]~~/[illegible]92	~~1~~/[illegible]880	~~[illegible]~~/[illegible]24										
CP-2-D	~~20~~	4/1092	~~[illegible]~~/[illegible]42											
"	~~21~~	~~[illegible]~~/[illegible]96	~~[illegible]~~/[illegible]3											
"	~~22~~	~~[illegible]~~/[illegible]12	~~[illegible]~~/[illegible]47											
CP-2-E	~~23~~	~~[illegible]~~/[illegible]1	11/6263	1/29										
CP-1-E	185	57/14902	29/17270	4/424					2/1531	1/1017				
"	186	55/14012	19/11141	5/250										
CP-1-D	~~187~~	59/6893	25/14480	15/1640									1/2	
"	~~188~~	60/12188	26/14513	8/709					2/2472					
CP-1-C	190	32/2519	15/8746	7/422					9/4455	5/4908				
"	~~191~~	33/1792	12/6995	5/272					7/4555	2/577				
	Σ#	822	528	109	66	3			96	19	1	1	2	
	Σwt	135175	191183	8687	21571	4100			71316	9866	102	131	4	

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		C. armatus	C. filifer	C. leptoblepis	C. acrolepis	C. pectoralis	C. cinereus	C. vaginalis	A. rostrata	P. grandis	E. diam	A. fimbria	C. vadosa
CP-1-B BHT	~~192~~	48/1336	39/21694	10/861	1/37				12/4959	6/2517			
"	~~193~~	16/405	32/18251	3/78					2/1097	2/1074			
CP-1-A	~~194~~	9/73	5/3209		4/2715				12/7915				
"	~~195~~	19/301	10/6772	4/85	1/31				9/6851				
THB-19	~~196~~	1/1											
THB-11	~~197~~										10/976	4/4324	
TP-1	~~228~~	6/1488											
"	~~229~~	6/2181		1/4									
TP-2	~~231~~	2/711											
TP-3	~~232~~	16/7864		1/2				1/202					
"	~~233~~	10/2789											
THB-19	~~251~~	31/1184	14/4701						6/4124				
NAD 21	~~252~~	11/1704	6/2900	1/81									
CP-2-E	~~253~~	8/7727	2/641	1/306									
"	~~255~~	5/2141	2/675	1/425									
CP-2-A	~~256~~	32/11086	13/8920						1/729				
"	~~257~~	1/2											
"	~~258~~	24/5198	8/4366	3/310									
"	~~259~~	44/9703	24/14232	7/503									
"	~~260~~	4/908	6/3559						3/2027				
CP-2-B	~~261~~	45/9546	14/7459	2/11									
"	~~262~~	26/4102	10/6262	3/440					1/382				
"	~~263~~	16/5866	16/9365	3/186					1/748				
CP-2-C	~~264~~	31/3788	15/8912	8/791					1/1241				
"	~~265~~	49/8921	14/8868	4/267									
"	~~266~~	34/9383	15/8828	2/31					1/924				
CP2-D	~~267~~	3/10											
"	~~268~~	23/5623	9/5230	5/350									
"	~~269~~	47/15858	10/6326	2/246					2/1619	1/902			
CP-2-E	~~270~~	24/4860	6/3724	4/11									1/2
"	~~271~~	18/3049	9/6882	4/10									
"	~~272~~	13/2089	9/4843	8/708		1/353							
CP-3-A	~~276~~	19/3744	9/4826	1/39									
"	~~277~~	18/3555	17/6470	1/216						1/909			
CP-3-C	~~278~~	30/5269	6/2813	3/192									
"	~~280~~	26/3357	5/2182	4/180					1/1464	1/1979			
CP-3-E	~~282~~												3/5
82-1-WW	~~288~~	104/35683	15/8184	6/410					1/1072	1/287			
"	~~289~~	46/16214	32/21699	8/721									
"	~~290~~	1/5577	12/5152	3/315									
"	~~291~~	21/5205	27/10967	6/212									
CP-1-XX	~~292~~	29/9197	4/2283										
	ct	914	410	109	6		1	1	53	12	16	4	4
	sut	29014	12580	7781	2783		353	202	35152	7668	976	4324	7

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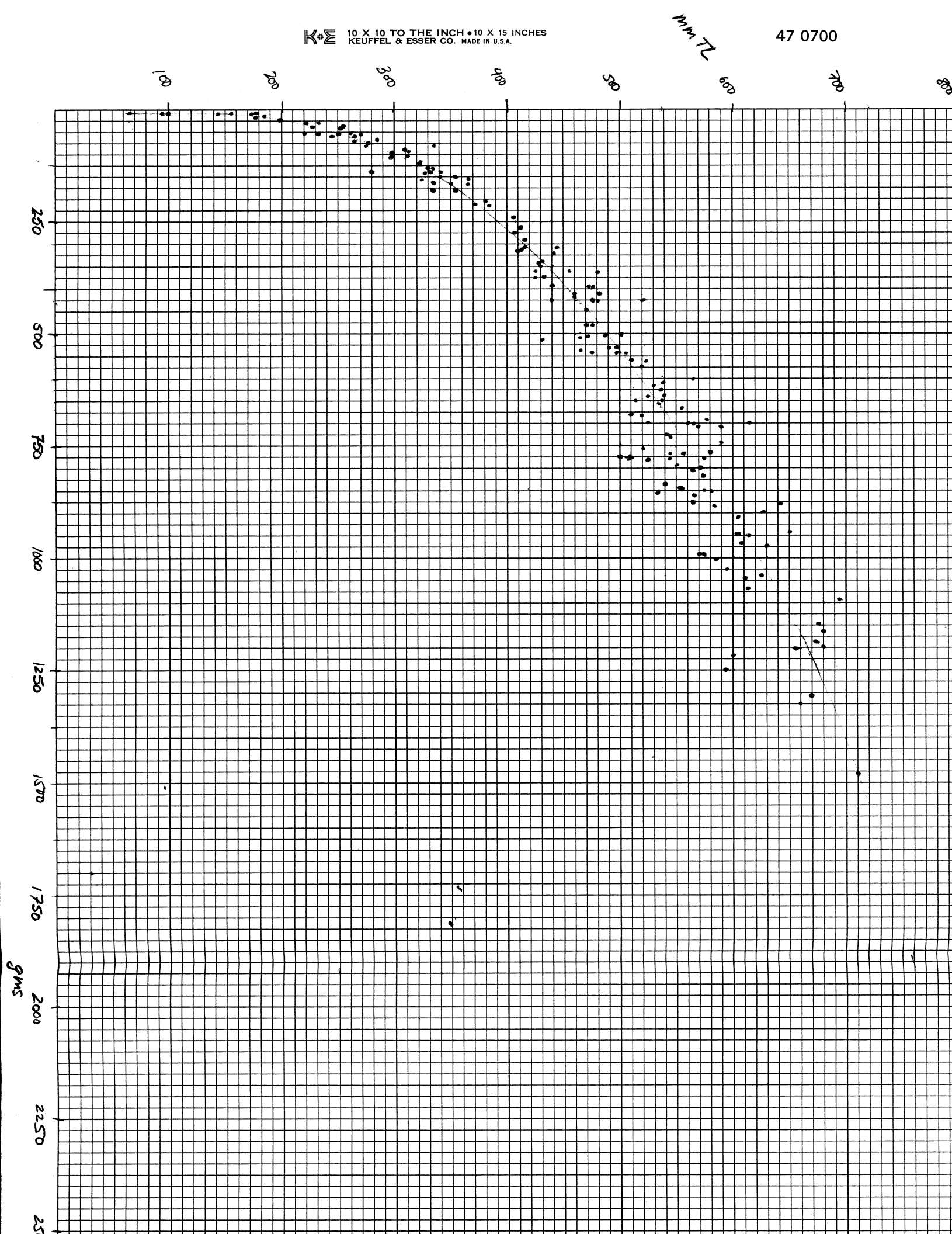
		C. acronales	C. stylifer	C. leptodoras	C. sacculoides	C. spectabilis	C. serenus	A. contracta	P. glaucidis	C. vinquinae?	Scrudonus pholicalveris	D. bacchicus assc.
BMT 116				1/1								
73									1/439			
OTB 226					10/							
BMT	328	12/2873	6/4355	1/357								
	330	4/570	2/1925	1/391								
	332	15/3752	4/2146					1/750				
	333	29/6775	6/2616									
	334	6/727	2/1057									
	335	40/11202	9/11202	2/15								
	336			1/5						1/4		
	403	12/3236	9/4898	3/265					1/646			
	404	16/5409	6/3501	1/184							1/4	1/2
	406	34/7618	6/3677					1/618				
	407	35/7009	7/3510	3/120								
	458	19/5037	10/5999	6/412								
	460	8/1224	5/9082	3/392								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A. rostrata ♀

OTB/BMT	SL	body wt	ovary wt	# ovaries											
BMT 72	534	1894	178.5	2											
BMT 113	517	1332	70.5	1	♂										
BMT 156	610	2343	18.7	1											
BMT 195	602	1857	38.1	2											
BMT DWD 3	423	630	6.5	2											
BMT DWD 7	480	1073	8.3	2											
BMT 158	547	1294	17.1	2											
BMT 185	475	890	9.5	2											
BMT 120	489	1025	9.4	2											
BMT DWD 9	471	881	6.2	2											
OTB 64	465	841	9.4	2											
BMT 120	442	776	7.4	2											
BMT 120	447	798	8.1	2											
BMT DWD 8	479	750	5.7	2											
BMT DWD 9	513	1151	7.6	2											
BMT 192	533	1082	9.2	1											
OTB 78	470	679	8.8	2											
OTB 40-42	466	—	24.9	2											
OTB 78	561	1269	17.4	2											
OTB 81	580	1633	18.2	2											
OTB 81	517	1172	12.6	2											
BMT 120	461	859	9.6	2											
BMT DWD 7	419	731	7.2	2											
BMT DWD 9	491	957	7.3	2											
OTB-284-287	552	1931	23.6	2											
OTB 81	478	971	9.5	2											
BMT 95	475	975	9.7	2											
BMT 280	622	1464	15.3	2											
BMT 77	466	729	7.5	2											

BMT'S + OTB'S

TRAWL #	♂	♀	—		TRAWL	♂	♀	—				♂ Σ	♀	OSU 1450
DUD1		2		BM	340			2				62	123	30
2	1				399			1						
3		1			410			1						
5	2	1												
7	1	3				43	100	14						
8	2	1												
9	3	5												
10	1			OTB	30		1	1						
					4042	3	3	6						
BMT 72		2			63	2	1							
89	1	4			78	1	7							
90	1	3			81		3							
93		6			88		1							
94		1			93	5	2	2						
95		5			102		1							
113	2	14			155	1								
118		2			170	5	2							
120	1	4			240			1						
156		1			284	1	1	3						
158	1	1			286	1		2						
185		2			284-87		1	1						
188		2				19	23	16						
190	2	7												
191	1	4												
192	10	2												
193		1												
194	7	5												
195	3	6												
251	4	2												
256		1												
260		3												
262		1												
263		1												
264		1												
269		2												
280		1												
287			3											
288		1												
311			2											
316		1												
321			3											
324		1												
332			1											
336			1											

leptolepis

OSU 1450

Trawl #	♀	♂	?
OT 1		2	
OTB 2		1	
OTB 23	1		1
OTB 24	1		
OTB 42		2	
OTB 49	1		2
OTB 76	3	2	1
OTB 78	1		
chk OTB 87	3	1	
OTB 132		1	
OTB 155	5	2	3
chk OTB 245	3		
OTB 283		1	
OTB 284-287	1		1
OTB 286	1		
OTB 331		1	
OTB 334	1		
BMT 5	2		
BMT 8	1		2

pectoralis

OSU 1450

Trawl #	♀	♂	?
OT 27	4	5	
OT 43		1	
OTB 41		1	
OTB 63	1		
OTB 64	3	1	1
OTB 66	1	3	
OTB 90	2	1	
OTB 93	1		
OTB 313	3	1	
BMT 9	1	1	
BMT 10		1	

Armatus

OSU 1450

Trawl #	♀	♂	?
OT 1 KK	9	33	
OT 104	3		
OTB 1	18	2	
OTB 2	3	16	
OTB 23	5		5
OTB 24	3		
OTB 30	4		1
OTB 42		4	
OTB 49	19	10	10
OTB 50	2	3	
OTB 61	3	2	
OTB 64	8		
OTB 76	13	14	2
OTB 77	21	7	5
OTB 79	6	3	
OTB 81	1		1
OTB 87		2	
OTB 88	5	3	2
OTB 89	1		
OTB 90	3	3	
OTB 132	1	2	1
OTB 132	8	13	3
OTB 155	13	6	1
OTB 172	6	2	1
OTB 223	1		
OTB 245	9	4	
OTB 283	5	3	3
OTB 284-287	16	6	5
OTB 331	1	5	
OTB 334		4	
BMT 1	15	5	3
BMT 2	5	2	
BMT 3			1
BMT 5	9	6	1
BMT 7	3		
BMT 8	8	7	5
OT 2 KN			3

acrolepis

OSU 1450

Transect #	♀	♂	?
OT 1	1		
OT 21		1	
OT 24	1		
OT 27	5	14	
OT 28	9	6	2
OT 29	6	4	7
OT 40	4	12	1
OT 42	1		
OT 43		1	4
OT 52	6	6	
OTB 20	1		
OTB 40	4	1	
OTB 41	7	6	4
OTB 53		4	
OTB 63	2		
OTB 66	2	1	
OTB 75		1	
OTB 78	3		
OTB 89	1	2	
OTB 93	15	23	
OTB 170	12	7	
OTB 224	13	9	
OTB 245	1	1	
OTB 283		1	
OTB 284-287	1		
OTB 313	8	9	4
BMT 7			3
BMT 8			3
BMT 9	10	13	
BMT 10	5	5	
OTB 242			5
OTB 226			10

filifera

OSU 1450

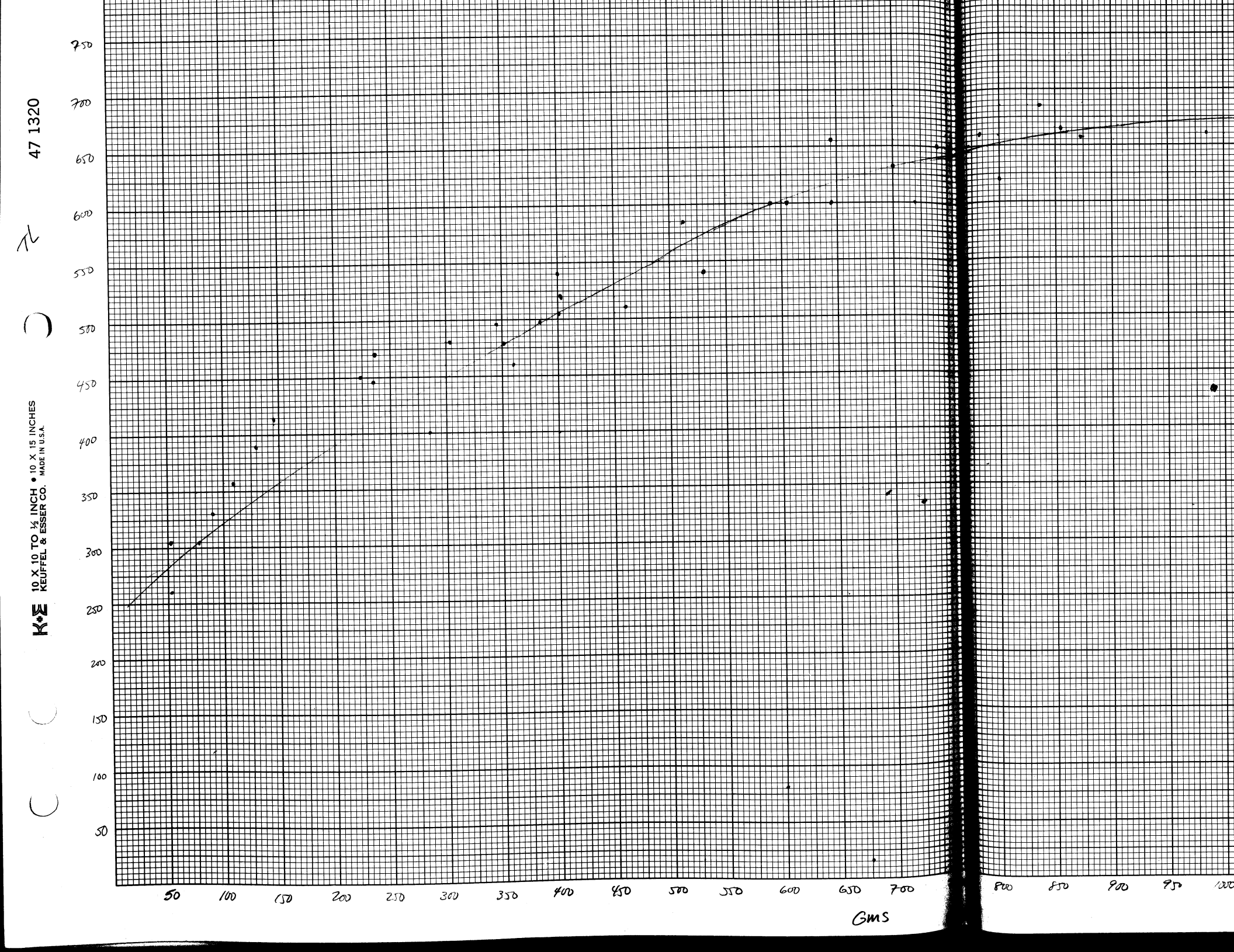
Trawl #	♀	♂	?
OT 24	3	2	
OTB 23		1	
OTB 24		1	3
OTB 30		5	
OTB 41		7	3
OTB 42	2	1	
OTB 49	1	1	1
OTB 61	1	2	
OTB 64	1	3	
OTB 76	3	3	
OTB 77		3	
OTB 78	4	9	
OTB 79	3	2	1
OTB 81	1		
OTB 87	1	1	
OTB 88	2	2	
OTB 132		1	
OTB 154	2	3	
OTB 155	7	13	3
OTB 172	4	1	
OTB 223		1	
OTB 258	3	3	
OTB 283	3	6	
OTB 284-287	6	6	
OTB 286	1		
BMT 1	27	3	
BMT 2	8	7	
BMT 3	1	1	
BMT 5	12	4	
BMT 7	6	3	
BMT 8	18	9	
BMT 9		4	
BMT 10	1		

MT 552

OSU 1450

C. fulika

1/600	L	600
	W	–
	S	–



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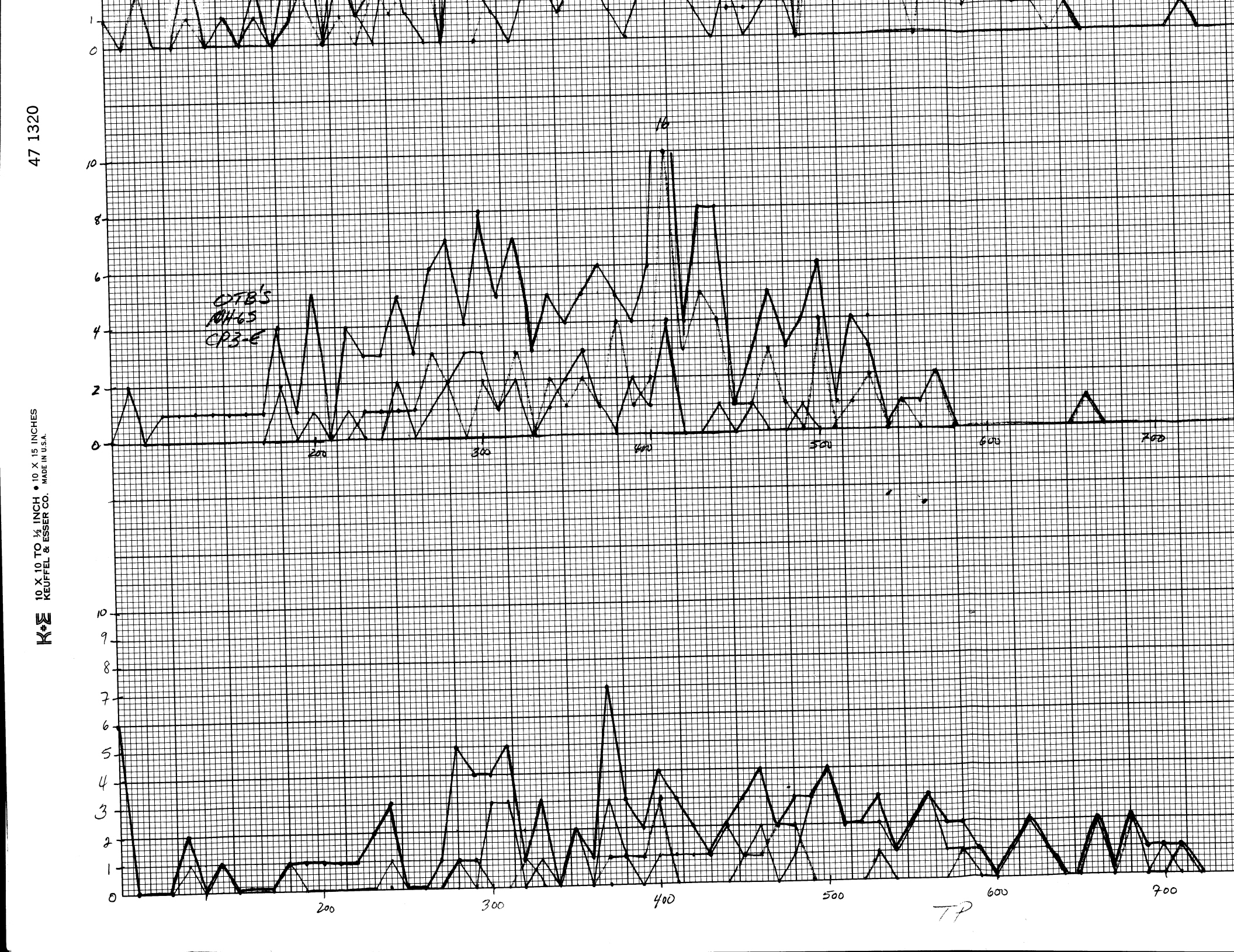
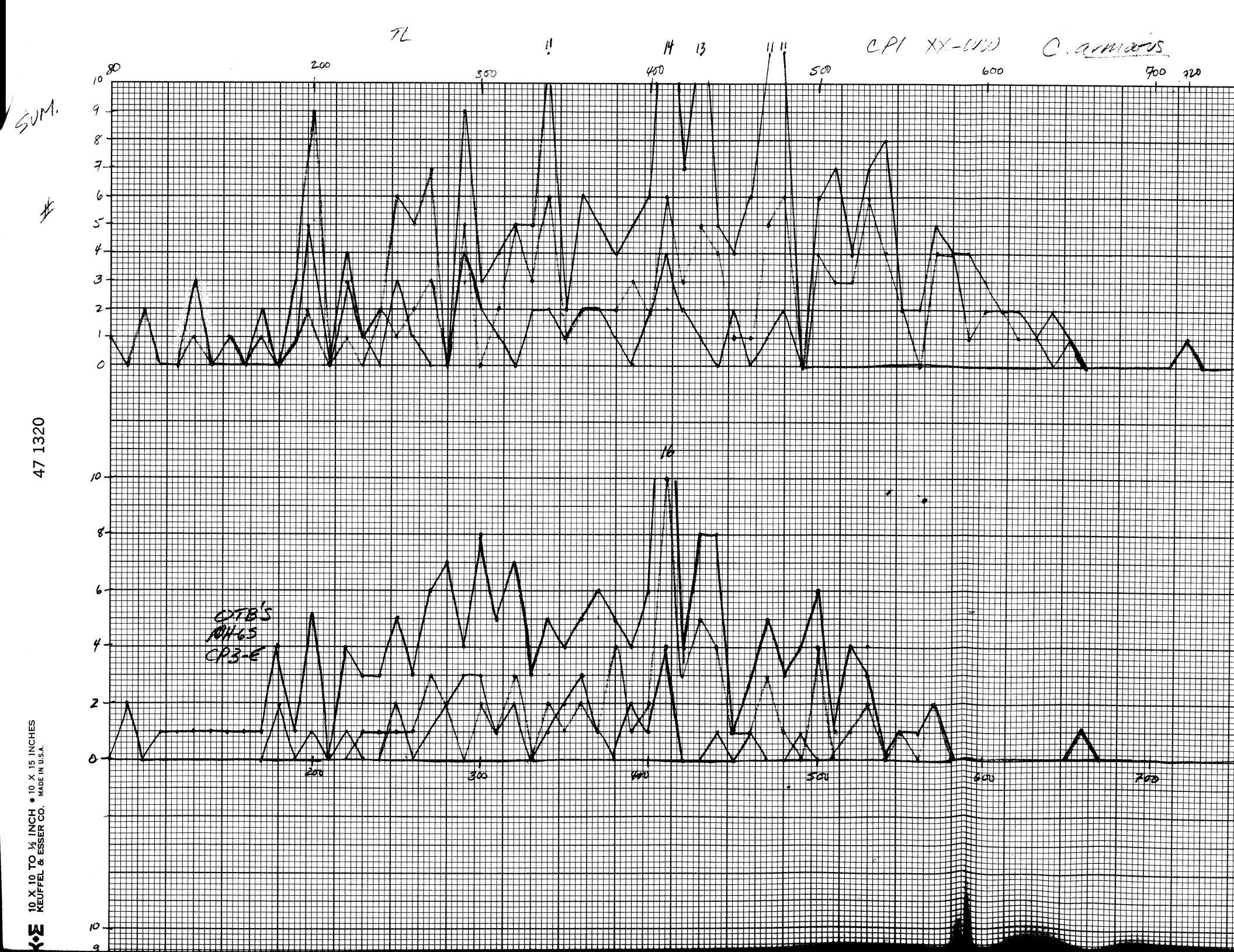
K&E 10 X 10 TO ½ INCH • 10 X 15 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.



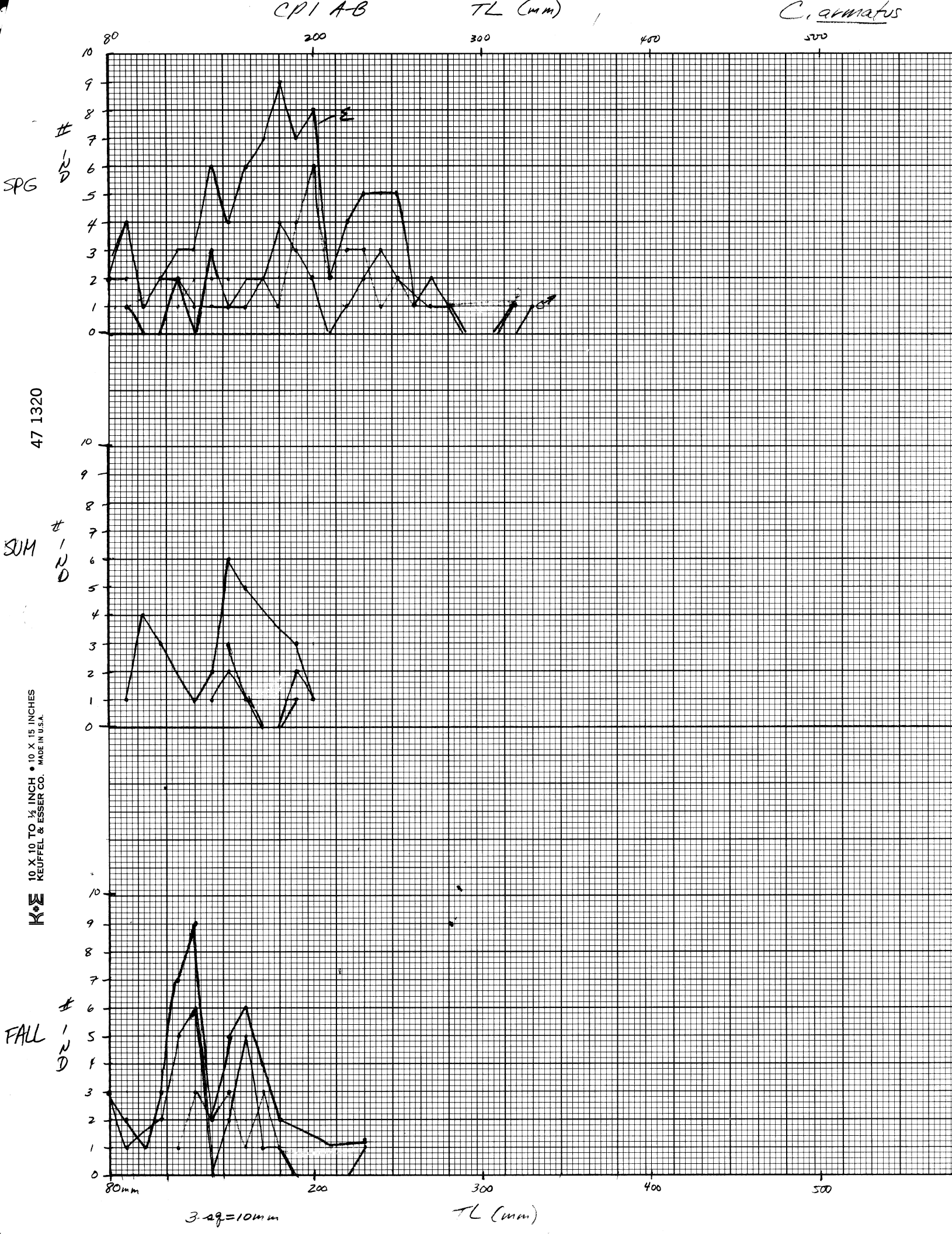
47 1320
10 X 10 TO ½ INCH • 10 X 15 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

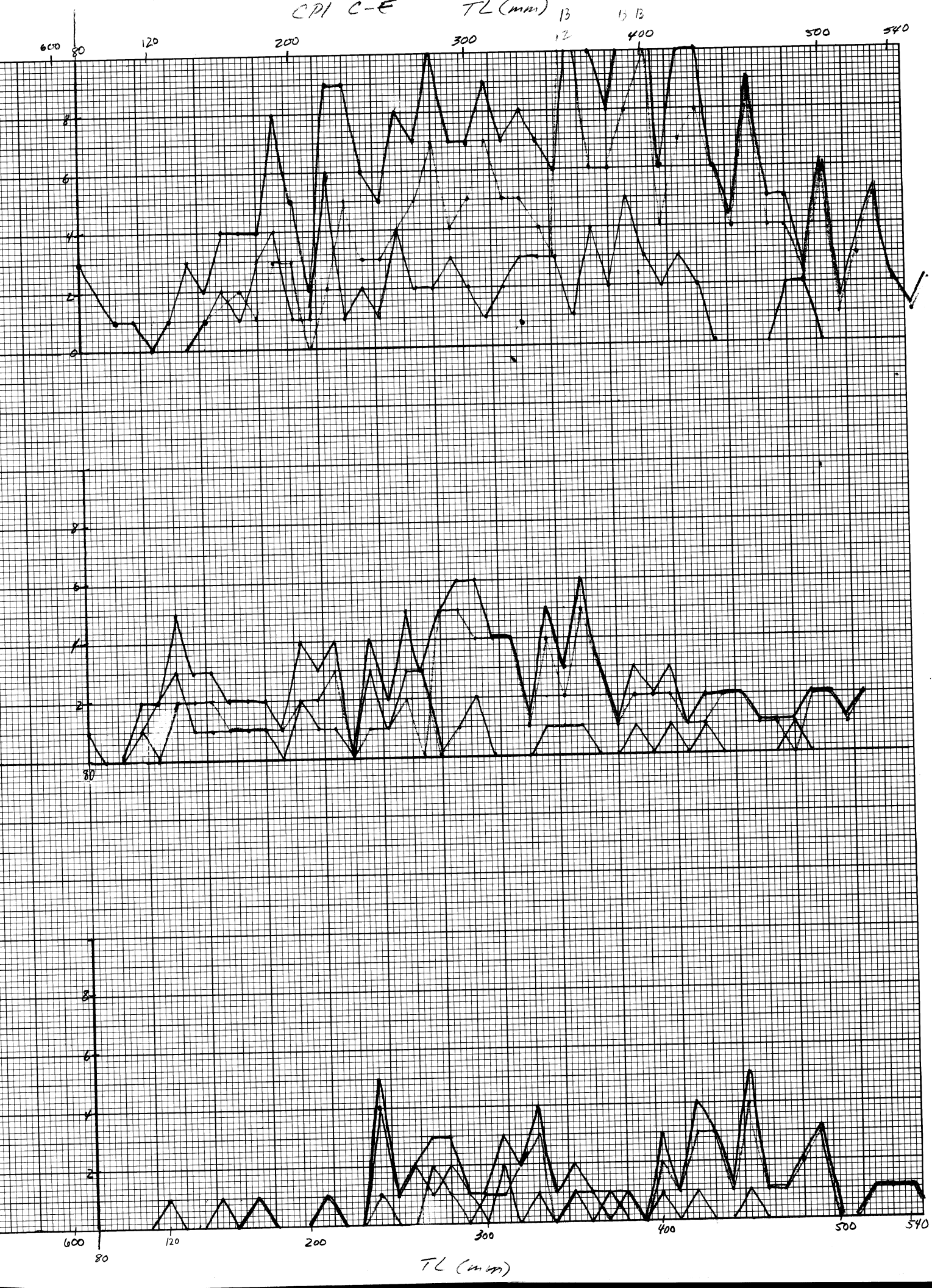

SUM.
#
47 1320
80
200
300
400
500
600
700
720
CPI XX-(VV)
C. annulus
CPTB's
MH65
CP3-E
10 X 10 TO ½ INCH • 10 X 15 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

CPI A-B

TL (mm)

C. armatus




CPI C-E
TL (mm)
600
80
120
200
300
400
500
540
0
2
4
6
8
TL (mm)

CP2 line

BMT's

✓ Winter (Dec, Jan, Feb): 154-162, 256-~~262~~, ~~264~~

✓ Fall (~~Sept~~, Oct, Nov): 253-255

CP3 line

✓ Winter: 315-320

✓ Spring: 321-324, 276-282

✓ Fall: 332-336

✓

CP1 A-B

✓ Spring: 192-195

Summer: 88-91

Fall: 112-115

✓ CP1 C-E

✓ Spring: 185-191

✓ Summer: 92-97

✓ Fall: 116-120

✓ CP1 X-W

Summer: 288-294

TP

XII 72	296-310
VII 70	228-233

✓ CP 4

Spring: 328-331

1) test OTB's

2) check for bias (age)

3) if necessary N-S BMT by cruise

192 ½
193
194

CP1-A B SPG C. armatus

	192 ♂	192 ♀	193 ♂	193 ♀	194 ♂	194 ♀	195 ♂	195 ♀	No sex ↓		Σ ♂	Σ ♀	NS OSU 1450	Σ
<80									//				2	2
81-90							/		///		/		3	4
91-100									/				1	1
110								//				2		2
120	/						/		/		2		1	3
130		/							//			/	2	3
140	/		/				/	/	//		3	/	2	6
150		/	/						//		/	/	2	4
160		/	/					/	///		/	2	3	6
170		/	/				/	/	///		2	2	3	7
180	///						/	/	////		4	/	4	9
190	//	///	/					/			3	4		7
200		///				/	//	//			2	6		8
210		/						/				2		2
220	/	///									/	3		4
230	//	//						/			2	3		5
240	/	/	//						/		3	/	/	5
250	//	//							/		2	2	/	5
260		/										/		1
270	/			/							/	/		2
280		/										/		1
290		/										/		1
300														
310														
320				/								/		1
330	/										/			1
340														
350														
360														
370														
380														
390														
400														
410														
420														
430														
440														
450														
460														
470														
480														
490														
500														
510														

CPI A-B SUMMER C. armatus

	89 ♂	89 ♀	90 ♂	90 ♀	91 ♂	91 ♀	NS.	Σ ♂	Σ ♀	Σ NS	Σ OSU 1450
<80											
81–90							1			1	1
91–100							////			4	4
110							///			3	3
120											
130							1			1	1
140	1						1	1		1	2
150	//	///					1	2	3	1	6
160	1	1					///	1	1	3	5
170											
180											
190	//	1						2	1		3
200											
210	1							1			1
220											
230											
240											
250											
260											
270											
280											
290											
300											
310											
320											
330											
340											
350											
360											
370											
380											
390											
400											
410											
420											
430											
440											
450											
460											
470											
480											
490											
500											
510											

CPI A-B FALL C. carinatus

	112		113		114		115				E			
	♂	♀	♂	♀	♂	♀	♂	♀	NS		♂	♀	NS	OSU 1450
<80			III								3			3
81-90			I						I		I		I	2
91-100									I				I	I
110			II						I		2		I	3
120			~~IIII~~	I					I		5	I	I	7
130			I ~~IIII~~	III							6	3		9
140				II								2		2
150			II	III							2	3		5
160			~~IIII~~	I							5	I		6
170			I	III							I	3		4
180			I	I							I	I		2
190														
200														
210			I								I			I
220														
230				I								I		I
240														
250														
260														
270														
280														
290														
300														
310														
320														
330														
340														
350														
360														
370														
380														
390														
400														
410														
420														
430														
440														
450														
460														
470														
480														
490														
500														
510														
→ 600-610				I								I		

CP / C-E SPG C. armatus

	185		186		187		188		190		191		E	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♀	OSU 1450 NJS
<80														3
81-90														
91-100														1
110														1
120														
130														1
140														3
150					1							1	1	
160					2									2
170		1							1			1	2	1
180	2										1	1	1	
190						1			3	2	1		3	1
200						1			1	1		1	3	1
210											1	1		1
220					1	1	1		1		3	1	2	1
230								1		1	1	3	5	3
240	1					1				1	1	1	3	1
250			1			2		1					3	1
260	3	1				1	1	1		1			4	
270		2				2	2					1	5	
280		2		1	1	1		1	1	2			7	1
290	1		1		1			1				3	4	
300	1	3	1	1		1							5	
310						3	1	3		1			7	1
320			1				1	4		1			5	
330		1	1	2	1		1	3				1	5	
340	1	1			1	2			1	1			4	
350		1		2	1	1	1			1		3	3	
360	1	3		2				4		2			12	
370	1	1	2	3	1	1				1			6	
380	1		1	2		2		2					6	
390	3	3		1	1	4	1						8	
400				3	1	1	2	3		2		1	10	
410	1	1	1	2		1							4	
420		3	1			1	1	3	1				7	
430		2	2	4		1		1					8	
440		2				1		3					6	
450		1		1		2							4	
460		2		3		2		2					9	
470		1		1		2	1						4	
480	1	2		1		1							4	
490				1		1							2	
500		1		3		1		1					6	
570		1											1	

CPI C–E SPG C. armatus

	185		186		187		188		190			E		
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	NS	♂	♀	OSU 1450 NS
520				II				I					3	
530		III		I				I					5	
540		I						I					2	
550						I							I	
560		I						I					2	
570														
580														
590														
600														

CPI-CE SUM Comments

	93		94		95		97		E			
	♂	♀	♂	♀	♂	♀	♂	♀	NS	♂	♀	NS OSU 140
<80									1			1
81-90												
91-100												
110	1					1				1	1	2
120	1		1							2		2
130	11		1	1		1				3	2	5
140			1	1		1				1	2	3
150			1	11						1	2	3
160	1	1								1	1	2
170					1	1				1	1	2
180			1	1						1	1	2
190				1							1	1
200	1			1		1	1			2	2	4
210	1	1		1						1	2	3
220		111	1							1	3	4
230												
240	11	1					1			3	1	4
250		1					1			1	1	2
260							111	11		3	2	5
270					1		11			3		3
280		1				111		1			5	5
290		11			1	1		11		1	5	6
300	1		1			111		1		2	4	6
310		11				1		1			4	4
320		1				1		11			4	4
330						1					1	1
340		1		1		1	1	1		1	4	5
350		1				1	1			1	2	3
360				1		111	1	1		1	5	6
370		11					1				3	3
380								1			1	1
390		1				1	1			1	2	3
400		1		1							2	2
410							1	11		1	2	3
420								1			1	1
430						1	1			1	1	2
440		1						1			2	2
450								11			2	2
460								1			1	1
470						1					1	1
480					1					1		1
490						11					2	2
500								11			2	2
510				1							1	1

CPI C-E FALL C. armatus

see next p.

	117		118		120				E					
	♂	♀	♂	♀	♂	♀	NS		♂	♀	NS	E		
<80														
81-90														
91-100														
110														
120							1				1	1		
130														
140														
150							1				1	1		
160														
170	1								1			1		
180														
190							1				1	1		
200														
210	1								1			1		
220														
230														
240	1				///	1			4	1		5		
250					1				1			1		
260					//				2			2		
270					1	//			1	2		3		
280	1			1	1				2	1		3		
290					1				1			1		
300						1				1		1		
310		1			1	1			2	1		3		
320						//				2		2		
330		1			1	//			1	3		4		
340							1				1	1		
350					1	1			1	1		2		
360				1						1		1		
370					1				1			1		
380						1	1			1	1	2		
390														
400					1	//			1	2		3		
40						1				1		1		
420					1	///			1	3		4		
430						///				3		3		
440						1				1		1		
450					1	////			1	4		5		
460						1				1		1		
470						1				1		1		
480						//				2		2		
490						///				3		3		
500														
510														

OSU 1450

②

CPI C-E FALL C. annulus

120

					♂	♀	NS	E						
520						1		1						
530						1		1						
40						1		1						
50														
60														
70														
80														
90														
600														
10														
20														
30														
40														
50														
60														
70														
80														
90														
700														
10														
20														
30														
40														
50														
60														
70														
80														
90														
800														

GW-WX SUM Carnatus

GW-WX

2926-3600m

288 289 290 294 293.

	♂	♀	♂	♀			♂	♀	♂	♀	NS	♂	♀	Σ OSU 1450
<80											1			1
81-90														
91-100											II			2
110														
120														
130		1									II		1	3
140														
150	1											1		1
160														
170									1		1	1		2
180														
190	1									1	1	1	1	3
200	////	1		1					1		II	5	2	9
210														
220	///									1		3	1	4
230			1									1		1
240		1		1									2	2
250	1	1							11		II	3	1	6
260		II	1								II	1	2	5
270		1		II							////		3	7
280														
290	II	////	1						1	1		4	5	9
300			1						1		1	2		3
310	1	1								1	1	1	2	4
320		////		1									5	5
330	II			1						II		2	3	5
340		II	II	////							///	2	6	11
350			1	1								1	1	2
360	1	1	1							1	II	2	2	6
370	II			II							1	2	2	5
380		II	1								1	1	2	4
390		1		II							1		3	5
400	II	1									II	2	2	6
410	1	1 ///	II						1		////	4	6	14
420	II	II								1	II	2	3	7
430	1	II		///							/// II	1	5	13
440		1		///							1		4	5
450	1	1							1		1	2	1	4
460		1									///		1	6
470	1	///		1							////	1	5	11
480	II	///								1	///	2	6	11
490														
500		II								II	II		4	6
510		///									////		3	7

CP1-WX
C. armatus SVM.

	288		289		290		294		293					
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	NS ♂		♀	Σ
520		1		II							1		3	4
530		IIII		II							1		6	7
540		II		1						1	IIII		4	8
550		II											2	2
560											II			2
570		1		II						1	1		4	5
580		III											4	4
590		1									III		1	4
600		II									1		2	3
610				II									2	2
620		1									1		1	2
630		1											1	1
640											II			2
650										1			1	1
660														
670														
680														
690														
700														
710														
720		1											1	1
950				1									1	1

Y=

NH= Newport Hydro line

NAO = Newport Anchor Dredge

THB = Tillamook Head Benthic

CP = Cascadia Plain

TP = Tufts Plain

DWD = Deep Water Dump

CBT = Coos Bay Transect

CBL = Cape Blanco Line

NAD 21 ≈ NH 65

NAD 8 ≈ NH-23

AT= Astoria Transect

SAMPLE	STA	DEPTH	DATE	ON BOTTOM		DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM		TIME	COUNT	
BMT 1	ND 6N	150M	7/24/64	44 43.9N	124 29.8W	1171M	826LT	.99879
		450M	Y6707D	44 44.5	124 29.6	20MN	825RT	
		COMMENTS						
BMT 2	ND11	800M	7/25/67	44 33.4N	124 55.9W	1348M	2258LT	.93344
		3000M	Y6707D	44 32.7	124 55.7	20MN	2419RT	
		COMMENTS						
BMT 3	ND11	800M	10/30/67	44 36.7N	124 56.7W	1335M	2420LT	.02438
		2400M	Y6710D	44 37.3	124 56.3	30MN	59RT	
		COMMENTS						
BMT 4	ND11	770M	10/30/67	44 34.3N	124 54.8W	1824M	3819LT	.51479
		2400M	Y6710D	44 33.4	124 55.2	30MN	1966RT	
		COMMENTS						
BMT 5	ND 8	200M	10/30/67	44 38.5N	124 36.0W	668M	650LT	.95385
		600M	Y6710D	44 38.8	124 36.2	10MN	620RT	
		COMMENTS						
BMT 6	ND 8	200M	10/30/67	44 38.6N	124 36.2W	926M	51LT	.09733
		600M	Y6710D	44 39.1	124 36.2	10MN	524RT	
		COMMENTS						
BMT 7	ND 6N	150M	10/31/67	44 42.8N	124 31.2W	0M	650LT	.79365
		650M	Y6710D	NA 0	NA 0	05MN	819RT	
		COMMENTS						
BMT 8	ND 6N	150M	10/31/67	44 43.7N	124 29.9W	0M	297LT	.89899
		650M	Y6710D	NA 0	NA 0	05MN	267RT	
		COMMENTS						
BMT 9	ND 4N	100M	10/31/67	44 43.2N	124 18.2W	764M	510LT	.53922
		350M	Y6710D	44 43.6	124 18.3	10MN	275RT	
		COMMENTS						
BMT 10	ND 4N	100M	10/31/67	44 44.1N	124 18.5W	262M	555LT	.32973
		350M	Y6710D	44 44.2	124 18.6	10MN	183RT	
		COMMENTS						
BMT 11	ND 2	50M	10/31/67	44 37.8N	124 10.1W	1677M	6847LT	.98715
		200M	Y6710D	44 38.7	124 10.2	30MN	6759RT	
		COMMENTS						
BMT 12	TH 8	200M	1/11/68	NA	ON NA	OW	0M	0LT2.00000
		NA M	Y6801C	NA 0	NA 0	NA MN	0RT	
		COMMENTS NONQUANT PELAGIC						
BMT 13	ND 2	50M	7/13/68	44 39.5N	124 8.8W	2253M	911LT	.99232
		250M	Y6807C	44 40.7	124 9.0	20MN	904RT	
		COMMENTS						
BMT 14	ND 2	50M	7/13/68	44 40.5N	124 9.2W	1171M	740LT	.98930
		250M	Y6807C	44 39.9	124 9.0	30MN	748RT	
		COMMENTS						
BMT 15	ND 2	50M	7/13/68	44 39.9N	124 9.0W	1527M	706LT	.97592
		250M	Y6807C	44 40.7	124 9.2	20MN	689RT	
		COMMENTS						
BMT 16	ND 4N	100M	7/13/68	44 43.9N	124 8.4W	20032M	1034LT	.99903
		550M	Y6807C	44 44.5	124 19.2	15MN	1033RT	
		COMMENTS						
BMT 17	ND 4N	100M	7/13/68	44 45.4N	124 19.3W	0M	576LT	.56250
		600M	Y6807C	NA 0	NA 0	20MN	324RT	
		COMMENTS						
BMT 18	ND 6N	150M	7/13/68	44 43.7N	124 29.3W	1310M	796LT	.95352
		650M	Y6807C	44 43.0	124 29.4	20MN	759RT	
		COMMENTS						
BMT 19	ND 6N	150M	7/13/68	44 43.2N	124 29.4W	1127M	949LT	.89192
		650M	Y6807C	44 43.8	124 29.3	20MN	1064RT	
		COMMENTS						
BMT 20	ND 8	200M	7/14/68	44 36.9N	124 35.9W	1677M	654LT	.91437
		800M	Y6807C	44 36.0	124 35.8	20MN	598RT	
		COMMENTS						

SAMPLE	STA	DEPTH	DATE	ON BOTTOM	DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM	TIME	COUNT	
BMT 21	ND 8	200M	7/14/68	44 35.5N 124 35.8W	4112M	822LT	.97857
		850M	Y6807C	44 37.7 124 35.5	10MN	840RT	
		COMMENTS		LOST NET			
BMT 22	ND 8	200M	7/14/68	44 40.0N 124 34.2W	764M	974LT	.97303
		850M	Y6807C	44 39.6 124 34.3	10MN	1001RT	
		COMMENTS					
BMT 23	ND 8	200M	7/14/68	44 38.3N 124 34.6W	1335M	1865LT	.99893
		850M	Y6807C	44 37.9 124 34.0	10MN	1867RT	
		COMMENTS					
BMT 24	ND11	819M	7/14/68	44 38.8N 124 56.5W	12844M	1661LT	.88445
		3200M	Y6807C	44 31.9 124 55.8	20MN	1878RT	
		COMMENTS					
BMT 25	ND11	800M	7/14/68	44 33.1N 124 55.7W	0M	325LT	.96615
		3200M	Y6807C	NA 0 NA 0	20MN	314RT	
		COMMENTS		PELAGIC			
BMT 26	ND11	2900M	7/16/68	44 25.2N 125 37.2W	4079M	0LT	0
		5600M	Y6807C	44 26.9 125 35.8	65MN	907RT	
		COMMENTS					
BMT 27	SG 2	199M	8/13/68	45 38.8N 124 35.1W	0M	604LT	.74752
		850M	C6808E	NA 0 NA 0	45MN	808RT	
		COMMENTS					
BMT 28	SG 2	220M	8/13/68	44 39.7N 124 36.0W	414M	426LT	.92609
		NA M	C6808E	44 39.9 124 35.9	8MN	460RT	
		COMMENTS					
BMT 29	SG 4	150M	8/15/68	44 28.6N 124 41.5W	2071M	0LT	0
		NA M	C6808E	44 29.7 124 41.3	30MN	0RT	
		COMMENTS		LOST NET			
BMT 30	SG 7	95M	8/17/68	44 57.3N 124 17.4W	0M	601LT	.98669
		450M	C6808E	NA 0 NA 0	15MN	593RT	
		COMMENTS					
BMT 31	SG 7	95M	8/16/68	43 57.2N 124 18.6W	2095M	724LT	.99862
		500M	C6808E	43 58.0 124 17.8	20MN	725RT	
		COMMENTS					
BMT 32	SG 8	200M	8/20/68	43 55.6N 124 34.7W	0M	1897LT	.99685
		1000M	C6808E	NA 0 NA 0	30MN	1903RT	
		COMMENTS					
BMT 33	SG 8	192M	8/20/68	43 56.6N 124 36.6W	0M	598LT	.96656
		800M	C6808E	NA 0 124 36.6	5MN	578RT	
		COMMENTS					
BMT 34	SG 6	143M	8/21/68	44 .5N 124 35.0W	1171M	449LT	1.00000
		400M	C6808E	44 .7 124 35.6	15MN	449RT	
		COMMENTS					
BMT 35	SG 6	145M	8/21/68	44 .7N 124 35.5W	1747M	565LT	.97246
		500M	C6808E	44 1.5 124 35.0	15MN	581RT	
		COMMENTS					
BMT 36	SG 5	100M	8/22/68	44 14.4N 124 28.5W	0M	539LT	.97645
		400M	C6808E	NA 0 NA 0	20MN	552RT	
		COMMENTS					
BMT 37	SG 5	102M	8/22/68	NA ON NA OW	0M	1055LT	.95735
		400M	C6808E	44 15.6 124 29.0	20MN	1102RT	
		COMMENTS					
BMT 38	SG 2	185M	10/23/68	44 39.3N 124 36.9W	1824M	0LT	0
		NA M	C6810C	44 38.9 124 36.0	10MN	560RT	
		COMMENTS					
BMT 39	SG 2	183M	10/23/68	44 39.3N 124 34.7W	668M	67LT	.74627
		800M	C6810C	44 39.0 124 34.9	10MN	50RT	
		COMMENTS					
BMT 40	SG22	80M	10/23/68	44 14.2N 124 16.8W	1127M	0LT	0
		400M	C6810C	44 14.8 124 16.9	10MN	28RT	
		COMMENTS					

SAMPLE	STA	DEPTH	DATE	ON BOTTOM	DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM	TIME	COUNT	
BMT 41	SG22	75M	10/23/68	44 15.0N 124 16.8W	1080M	53LT	.86792
		NA M	C6810C	44 14.5 124 17.1	20MN	46RT	
		COMMENTS					
BMT 42							
NO DATA							
BMT 43	SG 7	100M	10/23/68	43 58.1N 124 18.1W	1824M	156LT	.83974
		550M	C6810C	43 58.5 124 19.0	10MN	131RT	
		COMMENTS					
BMT 44	SG 7	100M	10/23/68	43 58.4N 124 18.0W	2893M	170LT	.96045
		550M	C6810C	43 57.4 124 16.8	10MN	177RT	
		COMMENTS					
BMT 45	SG23	104M	10/24/68	43 48.5N 124 17.9W	926M	117LT	.52137
		550M	C6810C	43 48.0 124 17.9	10MN	61RT	
		COMMENTS					
BMT 46	SG23	104M	10/24/68	43 48.0N 124 18.0W	1861M	87LT	1.00000
		550M	C6810C	43 49.0 124 17.9	20MN	87RT	
		COMMENTS					
BMT 47	SG 8	185M	10/27/68	43 55.3N 124 34.8W	4359M	86LT	.93023
		800M	C6810C	43 53.0 124 34.3	10MN	80RT	
		COMMENTS NONQUANT					
BMT 48	SG 8	186M	10/27/68	43 55.9N 124 34.3W	1656M	13LT	.26000
		800M	C6810C	43 56.3 124 35.1	10MN	50RT	
		COMMENTS					
BMT 49	SG 6	144M	10/28/68	44 1.4N 124 35.2W	2492M	81LT	.60000
		NA M	C6810C	44 2.3 124 36.2	10MN	135RT	
		COMMENTS					
BMT 50	SG 6	131M	10/28/68	44 3.5N 124 36.5W	414M	61LT	.50833
		800M	Y6810C	44 3.3 124 36.4	10MN	120RT	
		COMMENTS					
BMT 51	SG1K	110M	10/28/68	44 8.5N 124 25.3W	10964 8M	47LT	.26257
		NA M	Y6810C	44 9.3 125 24.5	15MN	179RT	
		COMMENTS					
BMT 52	SG	20M	1/ 8/69	NA ON NA OW	OM	79LT	.80612
		110M	C6901C	NA 0 NA 0	30MN	98RT	
		COMMENTS					
BMT 53	ES	17M	1/ 8/69	45 15.5N 124 59.4W	OM	11LT	.11000
		NA M	C6901A	NA 0 NA 0	45MN	100RT	
		COMMENTS					
BMT 54	ES	17M	1/ 8/69	45 15.5N 124 59.4W	OM	2LT	.02857
		NA M	C6901A	NA 0 NA 0	30MN	70RT	
		COMMENTS					
BMT 55	ES	17M	1/ 8/69	45 15.5N 124 59.4W	OM	2LT	.02857
		NA M	C6901A	NA 0 NA 0	45MN	70RT	
		COMMENTS					
BMT 56	ES	17M	1/ 8/69	45 15.5N 124 59.4W	OM	498LT	.42203
		110M	C6901A	NA 0 NA 0	30MN	1180RT	
		COMMENTS					
BMT 57	ES	17M	1/ 8/69	45 15.5N 124 59.4W	OM	314LT	.76585
		110M	C6901A	NA 0 NA 0	15MN	410RT	
		COMMENTS					
BMT 58	ES	17M	1/ 9/69	45 15.5N 124 59.4W	OM	432LT	0
		110M	C6901A	NA 0 NA 0	30MN	0RT	
		COMMENTS					
BMT 59	SG 2	200M	1/24/69	44 40.0N 124 36.7W	1310M	90LT	0
		700M	C6901C	44 40.5 124 36.2	10MN	0RT	
		COMMENTS					
BMT 60	SG	73M	1/25/69	44 15.0N 124 16.9W	586M	60LT	.50000
		NA M	C6901C	44 15.3 124 17.0	15MN	120RT	
		COMMENTS NONQUANT					

SAMPLE	STA	DEPTH	DATE	ON BOTTOM	OFF BOTTOM	DIST	WHEEL	RATIO
		WIRE	CRUISE			TIME	COUNT	
BMT 61	SG22	73M	1/25/69	44 14.8N 124 17.0W		741M	77LT	.45029
		350M	C6901C	44 14.4 124 17.0		30MN	171RT	
		COMMENTS						
BMT 62	SG15	100M	1/25/69	44 9.8N 124 25.8W		2492M	63LT	.57798
		350M	T6901C	44 10.7 124 26.8		20MN	109RT	
		COMMENTS		MALFUNCT				
BMT 63	SG15	100M	1/25/69	44 9.7N 124 26.4W		3240M	1293LT	.79505
		450M	C6901C	44 8.8 124 24.9		30MN	1028RT	
		COMMENTS						
BMT 64	SG 6	146M	1/25/69	44 .8N 124 35.0W		741M	352LT	.87129
		700M	C6901C	44 1.2 124 35.0		20MN	404RT	
		COMMENTS						
BMT 65	SG 6	150M	1/25/69	43 59.5N 124 34.9W		2619M	279LT	.95222
		700M	C6901C	43 58.5 124 33.9		20MN	293RT	
		COMMENTS						
BMT 66	SG 8	200M	1/27/69	43 55.2N 124 33.6W		1348M	248LT	.24031
		NA M	C6901C	43 55.9 124 33.8		20MN	1032RT	
		COMMENTS NONQUANT						
BMT 67	SG 8	200M	1/28/69	43 55.2N 124 34.7W		2112M	466LT	.38866
		800M	C6901C	43 54.3 124 34.0		20MN	1199RT	
		COMMENTS						
BMT 68								
NO DATA								
BMT 69	ND21	2830M	3/28/69	44 44.7N 125 37.3W		3676M	2100LT	.23762
		NA M	C6903G	44 43.2 125 36.0		120MN	499RT	
		COMMENTS						
BMT 70	ND21	2830M	3/29/69	44 38.8N 125 32.6W		4453M	2291LT	.96707
		NA M	C6903G	44 39.5 125 30.3		120MN	2369RT	
		COMMENTS						
BMT 71	C	2485M	3/29/69	45 32.0N 125 35.1W		7595M	25LT	.12000
		NA M	C6903G	45 36.1 125 35.0		120MN	3RT	
		COMMENTS NONQUANT PELAGIC						
BMT 72	TH19	2195M	3/30/69	45 56.1N 125 41.8W		6321M	1629LT	.50460
		4600M	C6903G	45 59.0 125 40.0		120MN	822RT	
		COMMENTS						
BMT 73	TH19	2305M	3/30/69	45 58.9N 125 45.0W		4585M	1754LT	.77714
		4600M	C6903G	45 57.2 125 46.8		120MN	2257RT	
		COMMENTS						
BMT 74	SG 2	200M	4/24/69	44 39.2N 124 32.6W		4141M	381LT	.92029
		NA M	C6904E	44 39.6 124 34.8		20MN	414RT	
		COMMENTS						
BMT 75	SG 2	200M	4/24/69	44 38.7N 124 35.0W		4630M	26LT	.26804
		NA M	C6904E	44 41.2 124 35.0		25MN	97RT	
		COMMENTS						
BMT 76	SG22	75M	4/25/69	44 14.4N 124 17.7W		1861M	456LT	.88716
		300M	C6904E	44 13.4 124 17.8		15MN	514RT	
		COMMENTS						
BMT 77	SG22	75M	4/25/69	44 13.9N 124 17.4W		1493M	522LT	.77448
		300M	C6904E	44 14.7 124 17.3		40MN	674RT	
		COMMENTS						
BMT 78	SG15	95M	4/25/69	44 9.3N 124 24.1W		1824M	523LT	.95985
		NA M	C6904E	44 8.9 124 25.0		30MN	502RT	
		COMMENTS						
BMT 79	SG15	102M	4/25/69	44 9.2N 124 24.2W		2753M	1038LT	.76782
		NA M	C6904E	44 8.2 124 25.3		30MN	797RT	
		COMMENTS						
BMT 80	SG 6	150M	4/25/69	44 1.7N 124 32.8W		2928M	515LT	.51346
		NA M	C6904E	44 1.2 124 34.3		30MN	1003RT	
		COMMENTS						

SAMPLE	STA	DEPTH / WIRE / CRUISE	DATE	ON BOTTOM / OFF BOTTOM	DIST / TIME	WHEEL COUNT	RATIO
BMT 81	SG 6	150M	4/25/69	44 1.0N 124 34.9W	3015M	877LT	.99886
		NA M C6904E	44 .7 124 33.3	20MN	878RT		
		COMMENTS					
BMT 82	SG 8	226M	4/26/69	43 54.8N 124 37.3W	1707M	483LT	.89279
		700M C6904E	43 55.0 124 36.4	15MN	541RT		
		COMMENTS					
BMT 83	SG 8	223M	4/26/69	43 56.3N 124 37.3W	1493M	1533LT	.91389
		900M C6904E	43 56.7 124 36.6	15MN	1401RT		
		COMMENTS					
BMT 84	SG 7	100M	4/26/69	43 57.4N 124 18.2W	370M	428LT	.93246
		NA M C6904E	43 57.4 124 18.0	10MN	459RT		
		COMMENTS					
BMT 85	SG 7	100M	4/26/69	43 57.3N 124 18.1W	1861M	657LT	.99697
		NA M C6904E	43 57.4 124 19.1	20MN	659RT		
		COMMENTS					
BMT 86	223	102M	4/26/69	43 50.2N 124 17.9W	1310M	492LT	.81457
		NA M C6904E	43 49.5 124 17.8	15MN	604RT		
		COMMENTS					
BMT 87	223	102M	4/26/69	43 49.0N 124 18.5W	1667M	649LT	.93837
		NA M C6904E	43 49.0 124 19.4	15MN	609RT		
		COMMENTS					
BMT 88	CP1A	2200M	7/14/69	45 50.0N 120 29.8W	551409M	0LT	0
		4400M Y6907C	45 45.3 125 27.5	120MN	3RT		
		COMMENTS NONQUANT PELAGIC					
BMT 89	CP1A	2225M	7/14/69	45 43.8N 125 26.8W	2291M	722LT	.64637
		4400M Y6907C	45 45.0 125 26.5	60MN	1117RT		
		COMMENTS					
BMT 90	CP1B	2283M	7/14/69	45 37.5N 125 36.4W	10213M	499LT	.99601
		4400M Y6907C	45 32.0 125 36.0	90MN	501RT		
		COMMENTS					
BMT 91	CP1B	2483M	7/15/69	45 29.2N 125 36.1W	13822M	1732LT	.86255
		4800M Y6907C	45 31.5 125 29.0	90MN	2008RT		
		COMMENTS NONQUANT MALFUNCT					
BMT 92	CP1C	2359 M	7/15/69	45 17.0N 125 33.9W	10767M	17LT	.34694
		4800M Y6907C	45 11.8 125 36.5	120MN	49RT		
		COMMENTS NONQUANT					
BMT 93	CP1C	2669M	7/15/69	45 9.3N 125 38.3W	2291M	921LT	.80017
		5200M Y6907C	45 10.5 125 38.0	120MN	1151RT		
		COMMENTS DAMAGED					
BMT 94	CP1D	2688M	7/16/69	44 58.8N 125 34.0W	5159M	1631LT	.93194
		5400M Y6907C	44 56.2 125 33.0	120MN	1520RT		
		COMMENTS					
BMT 95	CP1D	2706M	7/16/69	44 55.0N 125 35.0W	4178M	1560LT	.84783
		5200M Y6907C	44 57.2 125 35.5	120MN	1840RT		
		COMMENTS					
BMT 96	CP1E	2786M	7/16/69	44 39.7N 125 36.3W	7327M	54LT	.83333
		5400M Y6907C	44 36.0 125 34.9	120MN	45RT		
		COMMENTS NONQUANT					
BMT 97	CP1E	2862M	7/17/69	44 34.7N 125 39.4W	3800M	839LT	.68415
		5400M Y6907C	44 36.2 125 40.8	120MN	574RT		
		COMMENTS MALFUNCT					
BMT 98	SG 2	176M	7/25/69	44 38.9N 124 35.1W	944M	385LT	.50525
		800M C6907C	44 39.0 124 35.6	20MN	762RT		
		COMMENTS					
BMT 99	SG 2	234M	7/25/69	44 38.6N 124 35.6W	1889M	81LT	.26910
		NA M C6907C	44 38.4 124 34.6	20MN	301RT		
		COMMENTS					
BMT100	SG22	75M	7/26/69	44 15.2N 124 18.0W	1446M	485LT	.07010
		300M C6907C	44 15.7 124 18.6	14MN	34RT		
		COMMENTS					

SAMPLE	STA	DEPTH / WIRE	DATE / CRUISE	ON BOTTOM / OFF BOTTOM	DIST / TIME	WHEEL COUNT	RATIO
BMT101	SG22	75M	7/26/69	44 15.3N 124 18.2W	997M	435LT	.77931
		300M	C6907D	44 14.8 124 18.0	13MN	339RT	
		COMMENTS					
BMT102	SG15	100M	7/26/69	44 9.2N 124 24.5W	926M	429LT	.83626
		400M	C6907D	44 8.7 124 24.5	13MN	513RT	
		COMMENTS					
BMT103	SG15	100M	7/26/69	44 9.0N 124 24.5W	1186M	753LT	.97610
		400M	C6907D	44 9.4 124 25.0	22MN	735RT	
		COMMENTS					
BMT104	SG 6	146M	7/26/69	44 1.0N 124 35.7W	2168M	642LT	.92241
		NA M	C6907D	43 59.9 124 35.3	21MN	696RT	
		COMMENTS					
BMT105	SG 6	146M	7/26/69	44 .5N 124 36.0W	1127M	644LT	.45771
		NA M	C6907D	43 59.9 124 36.1	23MN	1407RT	
		COMMENTS					
BMT106	SG 8	190M	7/26/69	43 55.3N 124 35.8W	1080M	786LT	.84607
		NA M	C6907D	43 54.8 124 35.5	23MN	929RT	
		COMMENTS					
BMT107	SG 8	190M	7/26/69	43 56.1N 124 35.6W	944M	800LT	.49906
		NA M	C6907D	43 56.6 124 35.5	19MN	1603RT	
		COMMENTS					
BMT108	SG 7	99M	7/27/69	43 58.2N 124 17.7W	1757M	789LT	.97287
		NA M	C6907D	43 59.1 124 18.0	20MN	811RT	
		COMMENTS					
BMT109	SG 7	99M	7/27/69	43 58.9N 124 18.0W	1527M	867LT	.54908
		NA M	C6907D	43 58.1 124 17.8	20MN	1579RT	
		COMMENTS					
BMT110	SG23	102M	7/27/69	43 49.4N 124 18.0W	2652M	235LT	.85145
		400M	C6907D	43 50.7 124 18.6	20MN	276RT	
		COMMENTS					
BMT111	SG23	110M	7/27/69	43 49.3N 124 19.2W	1824M	638LT	.91799
		400M	C6907D	43 48.4 124 18.8	20MN	695RT	
		COMMENTS					
BMT112	CP1A	2195M	10/ 2/69	45 49.9N 125 32.0W	5004M	3520LT	.07756
		4400M	Y6910A	45 52.6 125 31.9	120MN	273RT	
		COMMENTS		DAMAGED			
BMT113	CP1A	2156M	10/ 3/69	46 3.2N 125 35.2W	224573M	2724LT	.60866
		4409M	Y6910A	46 7.0 123 34.0	120MN	1658RT	
		COMMENTS					
BMT114	CP1B	2300M	10/ 4/69	45 35.5N 125 36.1W	8499M	2LT	.40000
		4100M	Y6910A	45 40.0 125 37.0	120MN	5RT	
		COMMENTS	NONQUANT	PELAGIC			
BMT115	CP1B	2195M	10/ 4/69	45 48.3N 125 38.4W	7289M	2903LT	.82919
		4400M	Y6910A	45 50.1 125 41.9	120MN	3501RT	
		COMMENTS					
BMT116	CP1C	2500M	10/ 5/69	45 23.6N 125 37.0W	6248M	2462LT	.82341
		4900M	Y6910A	45 20.3 125 37.7	120MN	2990RT	
		COMMENTS					
BMT117	CP1C	2633M	10/ 5/69	45 18.2N 125 40.2W	6759M	1348LT	.78190
		4900M	Y6910A	45 21.8 125 39.6	120MN	1724RT	
		COMMENTS					
BMT118	CP1D	2652M	10/ 5/69	45 3.4N 125 35.1W	5215M	2899LT	.18351
		5300M	Y6910A	45 .6 125 34.8	120MN	532RT	
		COMMENTS					
BMT119	CP1E	2779M	10/ 6/69	44 42.5N 125 35.6W	5166M	3792LT	.95733
		5400M	Y6910A	44 39.8 125 36.3	120MN	3961RT	
		COMMENTS					
BMT120	CP1E	2825M	10/ 6/69	44 41.7N 125 33.5W	3339M	4061LT	.97667
		5400M	Y6910A	44 43.6 125 32.5	90MN	4158RT	
		COMMENTS					

SAMPLE	STA	DEPTH	DATE	ON BOTTOM		DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM		TIME	COUNT	
BMT121	OFC3	86M	10/11/69	45 54.5N	124 10.7W	1571M	236LT	.04739
		NA M	C6910C	45 55.1	124 11.3	14MN	498RT	
		COMMENTS		DISCARD				
BMT122	OFC4	124M	10/11/69	45 55.0N	124 16.0W	1582M	15LT	.53571
		500M	C6910C	45 55.3	124 16.8	13MN	28RT	
		COMMENTS		DISCARD				
BMT123	OFC5	146M	10/11/69	45 54.7N	124 21.8W	3066M	103LT	.39806
		600M	C6910C	45 55.4	124 23.3	18MN	41RT	
		COMMENTS		DISCARD				
BMT124	OFC6	154M	10/11/69	45 55.3N	124 27.2W	370M	361LT	0
		600M	C6910C	45 55.5	124 27.2	12MN	0RT	
		COMMENTS		DISCARD				
BMT125	OF15	153M	10/11/69	45 50.9N	124 26.8W	1048M	440LT	0
		600M	C6910C	45 51.3	124 27.2	15MN	0RT	
		COMMENTS		DISCARD				
BMT126	OF14	148M	10/11/69	45 51.1N	124 22.3W	926M	427LT	0
		NA M	C6910C	45 51.6	124 22.3	15MN	0RT	
		COMMENTS		DISCARD				
BMT127	OFC3	86M	10/11/69	45 54.3N	124 9.1W	1186M	428LT	0
		NA M	C6910C	45 54.7	124 9.6	11MN	0RT	
		COMMENTS						
BMT128	OFC4	117M	10/11/69	45 54.6N	124 14.9W	1242M	411LT	0
		450M	C6910C	45 54.9	124 15.5	12MN	0RT	
		COMMENTS						
BMT129	OFC5	140M	10/11/69	45 54.9N	124 21.3W	1582M	308LT	0
		560M	C6910C	45 55.2	124 22.1	13MN	0RT	
		COMMENTS						
BMT130	OFC6	154M	10/12/69	45 54.8N	124 27.1W	1048M	439LT	0
		600M	C6910C	45 55.2	124 27.5	13MN	0RT	
		COMMENTS						
BMT131	OF15	156M	10/12/69	45 50.8N	124 26.5W	1446M	288LT	0
		NA M	C6910C	45 51.4	124 27.0	13MN	0RT	
		COMMENTS						
BMT132	OF15	154M	10/12/69	45 50.9N	124 22.6W	1571M	251LT	0
		600M	C6910C	45 51.5	124 23.2	13MN	0RT	
		COMMENTS						
BMT133	OF15	132M	10/12/69	45 50.9N	124 16.6W	1335M	173LT	0
		500M	C6910C	45 51.3	124 17.2	12MN	0RT	
		COMMENTS						
BMT134	OF15	110M	10/12/69	45 58.8N	124 15.7W	828M	202LT	0
		450M	C6910C	45 59.2	124 15.9	8MN	0RT	
		COMMENTS						
BMT135	OF11	140M	10/12/69	45 58.8N	124 21.7W	1080M	372LT	0
		560M	C6910C	45 59.3	124 22.0	15MN	0RT	
		COMMENTS						
BMT136	OF12	150M	10/12/69	45 59.4N	124 26.6W	1335M	86LT	0
		NA M	C6910C	46 0	124 27.0	13MN	0RT	
		COMMENTS						
BMT137	OF13	M	10/12/69	0N	0W	0M	332LT	0
		M	C6910C	0	0	MN	0RT	
		COMMENTS		I				
BMT138	SG22	75M	11/ 1/69	44 14.2N	124 16.7W	1656M	671LT	.67362
		NA M	C6911A	44 15.0	124 17.1	15MN	452RT	
		COMMENTS						
BMT139	SG22	75M	11/ 1/69	44 14.9N	124 17.7W	1707M	596LT	.98993
		NA M	C6911A	44 14.0	124 17.5	15MN	590RT	
		COMMENTS						
BMT140	SG15	100M	11/ 1/69	44 10.0N	124 25.1W	944M	535LT	.98505
		NA M	C6911A	44 10.5	124 25.2	15MN	527RT	
		COMMENTS						

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT141	SG15	97M	11/ 2/69	44	10.3N	124	25.7W	1242M	369LT	.55656
		NA M	C6911A	44	9.7	124	26.0	NAMN	663RT	
		COMMENTS								
BMT142	SG 6	142M	11/ 2/69	44	1.4N	124	35.3W	2003M	349LT	.55751
		500M	C6911A	44	.8	124	36.2	15MN	626RT	
		COMMENTS								
BMT143	SG 6	140M	11/ 2/69	44	.8N	124	36.1W	1335M	669LT	0
		NA M	C6911A	44	1.2	124	35.5	NAMN	0RT	
		COMMENTS								
BMT144	SG 8	200M	11/ 2/69	43	56.4N	124	36.6W	997M	732LT	.85246
		NA M	C6911A	43	55.9	124	36.4	18MN	624RT	
		COMMENTS								
BMT145	SG 8	200M	11/ 2/69	43	56.3N	124	36.5W	1582M	587LT	.89608
		NA M	C6911A	43	56.6	124	37.3	15MN	526RT	
		COMMENTS								
BMT146	SG23	100M	11/ 2/69	43	48.9N	124	17.5W	1667M	0LT	0
		NA M	C6911A	43	48.0	124	17.5	16MN	1400RT	
		COMMENTS								
BMT147	SG23	100M	11/ 2/69	43	48.3N	124	17.4W	1677M	555LT	.89516
		NA M	C6911A	43	49.2	124	17.5	15MN	620RT	
		COMMENTS								
BMT148	SG 7	100M	11/ 3/69	43	58.3N	124	18.0W	1111M	1LT	.11111
		300M	C6911A	43	58.9	124	18.0	12MN	9RT	
		COMMENTS								
BMT149	SG 7	99M	11/ 3/69	43	58.5N	124	18.0W	1296M	568LT	.96271
		400M	C6911A	43	57.8	124	18.0	13MN	590RT	
		COMMENTS								
BMT150	SG 7	99M	11/ 3/69	43	57.0N	124	18.1W	1111M	540LT	.97122
		400M	C6911A	43	56.4	124	18.1	14MN	556RT	
		COMMENTS								
BMT151	SG 2	200M	11/ 3/69	44	39.3N	124	35.8W	1171M	167LT	.30812
		800M	C6911A	44	39.9	124	36.0	11MN	542RT	
		COMMENTS								
BMT152	SG 2	199M	11/ 3/69	44	39.0N	124	35.9W	741M	630LT	.98571
		NA M	C6911A	44	38.6	124	35.9	19MN	621RT	
		COMMENTS								
BMT153	SG 2	199M	11/ 3/69	44	38.9N	124	35.9W	2046M	360LT	.68053
		NA M	C6911A	44	40.0	124	36.0	15MN	529RT	
		COMMENTS								
BMT154	CP2A	2666M	1/16/70	45	53.1N	126	39.0W	6915M	26LT	.00957
		5200M	Y7001B	45	51.8	126	42.5	120MN	2717RT	
		COMMENTS								
BMT155	CP2B	2675M	1/16/70	45	46.0N	126	43.0W	3038M	29LT	.76316
		5500M	Y7001B	45	45.0	126	41.7	120MN	38RT	
		COMMENTS								
BMT156	CP2B	2661M	1/17/70	45	35.0N	126	20.5W	7636M	2021LT	.25433
		5400M	Y7001B	45	34.0	126	16.5	134MN	514RT	
		COMMENTS								
BMT157	CP2C	2606M	1/17/70	45	27.8N	126	17.4W	6830M	9LT	.00340
		5400M	Y7001B	45	27.0	126	21.0	124MN	2645RT	
		COMMENTS								
BMT158	CP2A	2651M	1/17/70	45	50.4N	126	29.0W	8497M	163LT	.09304
		5400M	Y7001B	45	46.1	126	27.4	120MN	1752RT	
		COMMENTS								
BMT159	CP2C	2721M	1/18/70	45	17.0N	126	38.8W	6335M	2008LT	.75489
		5600M	Y7001B	45	16.1	126	42.1	120MN	2660RT	
		COMMENTS								
BMT160	CP2D	2784M	1/18/70	45	10.8N	126	43.0W	0M	367LT	.97347
		5176M	Y7001B	NA	0	NA	0	NA MN	377RT	
		COMMENTS								

SAMPLE	STA	DEPTH / DATE / ON BOTTOM			DIST / TIME	WHEEL COUNT	RATIO
		WIRE / CRUISE / OFF BOTTOM					
BMT161	CP2D	2770M 1/19/70	44 55.0N	126 29.9W	6386M	23LT	.00748
		5601M Y7001B	44 52.0	126 31.6	115MN	3075RT	
		COMMENTS MALFUNCT					
BMT162	CP2D	2774M 1/19/70	44 54.4N	126 35.0W	6469M	1962LT	0
		5700M Y7001B	44 53.0	126 31.8	120MN	0RT	
		COMMENTS MALFUNCT					
BMT163	CP2E	2787M 1/19/70	44 45.2N	126 30.1W	6469M	2635LT	.76621
		5700M Y7001B	44 42.0	126 31.5	120MN	3439RT	
		COMMENTS					
BMT164	CP2E	2813M 1/20/70	44 36.6N	126 25.2W	8182M	0LT	0
		6785M Y7001B	44 36.2	126 20.8	120MN	0RT	
		COMMENTS NONQUANT LOST NET					
BMT165	SG 8	200M 2/ 3/70	43 55.6N	124 36.4W	764M	477LT	.98554
		NA M C7002A	43 56.0	124 36.5	14MN	484RT	
		COMMENTS					
BMT166	SG 8	200M 2/ 3/70	43 55.7N	124 36.3W	1482M	128LT	.87075
		NA M C7002A	43 54.9	124 36.3	13MN	147RT	
		COMMENTS					
BMT167	SG 7	99M 2/ 3/70	43 58.0N	124 17.9W	1757M	350LT	.81143
		NA M C7002A	43 58.9	124 18.2	12MN	284RT	
		COMMENTS					
BMT168	SG 7	99M 2/ 3/70	43 58.1N	124 18.2W	1934M	33LT	.93939
		NA M C7002A	43 57.1	124 17.9	15MN	31RT	
		COMMENTS					
BMT169	SG23	99M 2/ 3/70	43 48.3N	124 17.6W	944M	447LT	.91051
		NA M C7002A	43 47.8	124 17.5	13MN	407RT	
		COMMENTS					
BMT170	SG23	99M 2/ 3/70	43 47.8N	124 17.9W	1310M	294LT	.62245
		400M C7002A	43 48.5	124 17.8	13MN	183RT	
		COMMENTS					
BMT171	SG 6	150M 2/ 4/70	44 .9N	124 37.1W	944M	672LT	.87649
		600M C7002A	44 1.4	124 37.0	16MN	589RT	
		COMMENTS					
BMT172	SG 6	150M 2/ 4/70	44 .9N	124 36.6W	1707M	379LT	.82322
		600M C7002A	44 .2	124 37.2	13MN	312RT	
		COMMENTS					
BMT173	SG15	100M 2/ 4/70	44 8.2N	124 25.2W	1582M	391LT	.81841
		400M C7002A	44 9.0	124 24.9	15MN	320RT	
		COMMENTS					
BMT174	SG15	100M 2/ 4/70	44 8.5N	124 24.8W	1111M	128LT	.57813
		NA M C7002A	44 7.9	124 24.8	15MN	74RT	
		COMMENTS					
BMT175	SG22	75M 2/ 4/70	44 15.0N	124 17.5W	764M	123LT	.60976
		NA M C7002A	44 15.4	124 17.4	16MN	75RT	
		COMMENTS					
BMT176	SG22	75M 2/ 4/70	44 15.0N	124 17.5W	1111M	11LT	.91667
		NA M C7002A	44 14.4	124 17.5	13MN	12RT	
		COMMENTS					
BMT177	SG 2	200M 2/ 4/70	44 39.7N	124 35.9W	1080M	396LT	.97537
		NA M C7002A	44 40.2	124 36.2	15MN	406RT	
		COMMENTS					
BMT178	SG 2	200M 2/ 5/70	44 40.5N	124 37.0W	1127M	755LT	.97925
		NA M C7002A	44 39.9	124 36.9	17MN	771RT	
		COMMENTS					
BMT 179							
NO DATA							
BMT180	SG 2	207M 2/ 5/70	44 40.4N	124 36.0W	1335M	0LT	0
		NA M C7002A	44 39.8	124 36.4	15MN	0RT	
		COMMENTS					

SAMPLE	STA	DEPTH	DATE	ON BOTTOM	OFF BOTTOM	DIST	WHEEL	RATIO
		WIRE	CRUISE			TIME	COUNT	
BMT181	ND 8	204M	3/15/70	44 38.2N 124 37.0W		524M	526LT	.97407
		NA M	Y7003B	44 38.0 124 37.2		10MN	540RT	
		COMMENTS						
BMT182	ND10	620M	3/15/70	44 38.2N 124 53.0W		1493M	1105LT	.85249
		NA M	Y7003B	44 37.8 124 52.3		20MN	942RT	
		COMMENTS						
BMT183	ND11	1000M	3/15/70	44 35.1N 124 58.4W		1527M	1813LT	.30502
		NA M	Y7003B	44 34.3 124 58.2		30MN	553RT	
		COMMENTS						
BMT184	ND21	2875M	3/16/70	44 39.0N 125 34.5W		7394M	2668LT	.53786
		NA M	Y7003B	44 40.5 125 38.2		120MN	1435RT	
		COMMENTS						
BMT185	CP1E	2816M	3/16/70	44 37.6N 125 39.9W		2291M	1325LT	.71777
		5400M	Y7003B	44 37.3 125 41.1		120MN	1846RT	
		COMMENTS						
BMT186	CP1E	2816M	3/16/70	44 35.6N 125 35.2W		6626M	1798LT	.80773
		NA M	Y7003B	44 34.0 125 32.0		120MN	2226RT	
		COMMENTS						
BMT187	CP1D	2760M	3/17/70	44 56.1N 125 39.8W		3937M	625LT	.54443
		5400M	Y7003B	44 54.7 125 41.4		120MN	1148RT	
		COMMENTS						
BMT188	CP1D	2790M	3/17/70	44 58.5N 125 44.3W		7244M	1909LT	.81967
		5400M	Y7003B	44 58.8 125 40.4		120MN	2329RT	
		COMMENTS						
BMT189	CP1C	2560M	3/18/70	45 18.0N 125 43.2W		10843M	2LT	.01942
		5400M	Y7003B	45 17.2 125 49.0		120MN	103RT	
		COMMENTS		PELAGIC				
BMT190	CP1C	2597M	3/18/70	45 19.5N 125 47.4W		5768M	2560LT	.66680
		5450M	Y7003B	45 19.8 125 44.3		120MN	1707RT	
		COMMENTS						
BMT191	CP1C	2605M	3/18/70	45 18.0N 125 47.2W		7734M	2215LT	.49300
		5200M	Y7003B	45 16.8 125 51.2		120MN	1092RT	
		COMMENTS		MALFUNCT				
BMT192	CP1B	2450M	3/19/70	45 36.6N 125 48.5W		8681M	2996LT	.61482
		NA M	Y7003B	45 39.2 125 44.6		120MN	1842RT	
		COMMENTS		MALFUNCT				
BMT193	CP1B	2425M	3/19/70	45 38.7N 125 48.5W		16349M	2370LT	.97571
		5000M	Y7003B	45 39.4 125 57.3		120MN	2429RT	
		COMMENTS						
BMT194	CP1A	2030M	3/20/70	45 55.5N 125 38.8W		10186M	1754LT	.81581
		NA M	Y7003B	45 55.5 125 33.3		120MN	2150RT	
		COMMENTS						
BMT195	CP1A	2265M	3/20/70	45 57.8N 125 44.2W		7282M	1632LT	.89474
		4200M	Y7003B	45 57.3 125 48.1		120MN	1824RT	
		COMMENTS						
BMT196	TH19	2250M	3/20/70	45 57.2N 125 42.7W		12497M	0LT	0
		4200M	Y7003B	45 56.4 125 36.0		120MN	2RT	
		COMMENTS		PELAGIC				
BMT197	~~CP1A~~ TH11	800M	3/20/70	45 57.9N 124 53.5W		35003M	1946LT	.96004
		3200M	Y7003B	45 39.0 124 53.6		21MN	2027RT	
		COMMENTS	NONGUANT	MALFUNCT				
BMT198	TH 8	200M	3/21/70	45 51.7N 124 38.5W		524M	788LT	.98350
		800M	Y7003B	45 51.9 124 38.3		10MN	775RT	
		COMMENTS						
BMT199	OF13	130M	4/28/70	45 50.8N 124 16.5W		1080M	569LT	.97364
		530M	C7004B	45 51.1 124 17.0		16MN	554RT	
		COMMENTS						
BMT200	OF14	146M	4/28/70	45 50.6N 124 22.2W		786M	519LT	.91137
		550M	C7004B	45 50.9 124 22.5		15MN	473RT	
		COMMENTS						

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT201	OF15	157M	4/28/70	45	50.7N	124	26.7W	828M	390LT	.93976
		450M	C7004B	45	51.1	124	26.5	13MN	415RT	
		COMMENTS								
BMT202	OF 6	157M	4/28/70	45	54.9N	124	27.8W	828M	420LT	.89762
		450M	C7004B	45	55.3	124	27.6	13MN	377RT	
		COMMENTS								
BMT203	OF 5	144M	4/28/70	45	55.5N	124	21.7W	556M	292LT	.96233
		NA M	C7004B	45	55.8	124	21.7	10MN	281RT	
		COMMENTS								
BMT204	OF13	132M	4/28/70	45	50.9N	124	16.6W	1656M	549LT	.97513
		520M	C7004B	45	51.7	124	17.0	14MN	563RT	
		COMMENTS								
BMT205	OF14	146M	4/28/70	45	50.7N	124	22.1W	926M	499LT	.94589
		580M	C7004B	45	51.2	124	22.1	15MN	472RT	
		COMMENTS								
BMT206	OF15	155M	4/28/70	45	51.0N	124	26.8W	668M	502LT	.65936
		620M	C7004B	45	51.2	124	27.1	13MN	331RT	
		COMMENTS								
BMT207	OF 6	151M	4/29/70	45	55.3N	124	27.0W	1127M	465LT	.71828
		NA M	C7004B	45	55.9	124	27.1	15MN	334RT	
		COMMENTS								
BMT208	OF 5	150M	4/29/70	45	54.9N	124	20.5W	1446M	542LT	0
		NA M	C7004B	45	55.5	124	20.0	15MN	0RT	
		COMMENTS								
BMT209	OF 4	117M	4/29/70	45	56.5N	124	13.9W	3297M	28LT	0
		NA M	C7004B	45	57.9	124	15.0	21MN	0RT	
		COMMENTS								
BMT210	OF 4	119M	4/29/70	45	54.2N	124	14.4W	1969M	3LT	.60000
		NA M	C7004B	45	55.0	124	13.7	15MN	5RT	
		COMMENTS								
BMT211	OF 6	150M	4/30/70	45	55.8N	124	26.8W	2168M	450LT	.96222
		NA M	C7004B	45	56.9	124	26.4	14MN	433RT	
		COMMENTS								
BMT212	OF 5	150M	4/30/70	45	54.8N	124	21.6W	1493M	397LT	0
		250M	C7004B	45	55.5	124	22.0	15MN	0RT	
		COMMENTS								
BMT213	OF 4	120M	4/30/70	45	55.0N	124	15.4W	1348M	182LT	0
		360M	C7004B	45	55.7	124	15.6	16MN	0RT	
		COMMENTS								
BMT214	SG22	75M	5/16/70	44	14.7N	124	16.9W	764M	625LT	.91520
		NA M	C7005D	44	15.1	124	17.0	14MN	572RT	
		COMMENTS								
BMT215	SG22	75M	2/16/70	44	15.2N	124	17.1W	1677M	313LT	.94562
		NA M	Y7005C	44	14.3	124	17.2	15MN	331RT	
		COMMENTS								
BMT216	SG 7	101M	5/16/70	43	57.7N	124	17.8W	1127M	556LT	.95862
		NA M	Y7005D	43	58.3	124	17.9	16MN	580RT	
		COMMENTS								
BMT217	SG 7	101M	5/16/70	43	57.7N	124	17.9W	1171M	440LT	.89613
		NA M	Y7005C	43	57.1	124	17.7	14MN	491RT	
		COMMENTS								
BMT218	SG23	100M	5/17/70	43	48.6N	124	18.0W	1335M	341LT	.94722
		NA M	Y7005D	43	49.0	124	18.6	16MN	360RT	
		COMMENTS								
BMT219	SG23	100M	5/17/70	43	49.0N	124	18.4W	1969M	338LT	.92604
		NA M	Y7005D	43	48.2	124	17.7	16MN	313RT	
		COMMENTS								
BMT220	SG 8	220M	5/17/70	44	56.4N	124	35.8W	828M	463LT	.84335
		NA M	Y7005C	44	56.8	124	36.0	18MN	549RT	
		COMMENTS								

SAMPLE	STA	DEPTH / WIRE	DATE / CRUISE	ON BOTTOM				OFF BOTTOM				DIST / TIME	WHEEL / COUNT	RATIO
BMT221	SG 8	200M	5/17/70	44	57.8N	124	36.5W	44	57.2	124	36.1	1335M 18MN	578LT 353RT	.61073
		NA M	Y7005D											
		COMMENTS												
BMT222	SG 6	150M	5/17/70	44	1.2N	124	36.1W	44	1.7	124	36.1	926M 15MN	510LT 2RT	.00392
		NA M	Y7005D											
		COMMENTS												
BMT223	SG 6	150M	5/17/70	44	1.6N	124	35.5W	44	2.1	124	35.5	926M 14MN	348LT 324RT	.93103
		NA M	Y7005D											
		COMMENTS												
BMT224	SG 2	205M	5/19/70	44	39.9N	124	36.2W	44	40.7	124	36.4	1527M 15MN	699LT 736RT	.94973
		NA M	Y7005C											
		COMMENTS												
BMT225	SG 2	225M	5/19/70	44	40.7N	124	36.8W	44	39.8	124	37.0	1707M 14MN	370LT 384RT	.96354
		NA M	Y7005C											
		COMMENTS												
BMT226	SG15	100M	5/20/70	44	8.4N	124	24.6W	44	8.0	124	24.4	828M 13MN	483LT 932RT	.51824
		NA M	Y7005D											
		COMMENTS												
BMT227	SG15	100M	5/20/70	44	7.8N	124	24.4W	44	8.1	124	24.2	668M 18MN	576LT 0RT	0
		NA M	Y7005D											
		COMMENTS												
BMT228	TP 1	3354M	5/30/70	44	46.3N	131	25.6W	44	45.2	131	22.0	6971M 120MN	3015LT 2614RT	.86700
		6500M	Y7005C											
		COMMENTS												
BMT229	TP 1	3358M	5/31/70	44	52.9N	131	25.1W	44	55.9	131	25.6	5633M 120MN	2377LT 2407RT	.98754
		6500M	Y7005C											
		COMMENTS												
BMT230	TP 2	3655M	6/ 1/70	44	27.0N	132	14.0W	44	24.6	132	12.9	5669M 120MN	3076LT 2834RT	.92133
		7000M	Y7005C											
		COMMENTS												
BMT231	TP 2	3655M	6/ 1/70	44	30.4N	132	11.4W	44	32.4	132	11.8	3777M 105MN	2529LT 1641RT	.64887
		7000M	Y7005C											
		COMMENTS						DAMAGED						
BMT232	TP 3	3724M	6/ 3/70	44	40.2N	133	35.7W	44	39.5	133	38.8	5886M 120MN	2735LT 3349RT	.81666
		7500M	Y7005C											
		COMMENTS												
BMT233	TP 3	3687M	6/ 4/70	44	40.7N	133	28.1W	44	40.9	133	24.5	6677M 120MN	2918LT 3514RT	.83039
		7500M	Y7005C											
		COMMENTS						DAMAGED						
BMT234	SG 2	200M	8/16/70	44	39.7N	124	36.1W	44	40.0	124	36.1	556M 55MN	580LT 792RT	.73232
		7500M	Y7008D											
		COMMENTS												
BMT235	SG 2	200M	8/16/70	44	38.7N	124	36.2W	44	37.9	124	36.6	1656M 15MN	357LT 489RT	.73006
		NA M	Y7008D											
		COMMENTS												
BMT236	SG 7	100M	8/17/70	43	56.5N	124	18.8W	43	57.0	124	18.5	1080M 15MN	354LT 194RT	.54802
		NA M	Y7008D											
		COMMENTS												
BMT237	SG 7	100M	8/17/70	43	56.4N	124	18.4W	43	55.8	124	18.4	1111M 15MN	472LT 967RT	.48811
		NA M	Y7008D											
		COMMENTS												
BMT238	SG15	100M	8/17/70	44	8.8N	124	25.0W	44	9.4	124	24.9	1127M 15MN	575LT 621RT	.92593
		NA M	Y7008D											
		COMMENTS												
BMT239	SG15	100M	8/17/70	44	8.8N	124	24.4W	44	8.5	124	24.3	586M 15MN	384LT 540RT	.71111
		NA M	Y7008D											
		COMMENTS												
BMT240	SG22	75M	8/17/70	45	14.5N	124	16.9W	45	15.0	124	17.1	997M NAMN	153LT 272RT	.56250
		NA M	Y7008D											
		COMMENTS												

SAMPLE	STA	DEPTH / WIRE / CRUISE	DATE / OFF BOTTOM	ON BOTTOM	DIST / TIME	WHEEL / COUNT	RATIO
BMT241	SG22	75M	8/17/70	44 15.1N 124 17.0W	2112M	152LT	.55882
		NA M	Y7008D	44 14.0 124 16.7	13MN	272RT	
		COMMENTS					
BMT242	SG23	100M	8/17/70	43 48.9N 124 17.6W	1410M	603LT	.95522
		NA M	Y7008D	43 48.2 124 17.9	13MN	576RT	
		COMMENTS					
BMT243	SG23	100M	8/17/70	43 48.2N 124 18.5W	926M	295LT	.77836
		NA M	Y7008C	43 48.6 124 18.8	15MN	379RT	
		COMMENTS					
BMT244	SG 8	200M	8/18/70	43 56.5N 124 37.9W	764M	418LT	.95434
		NA M	Y7008D	43 56.9 124 38.0	15MN	438RT	
		COMMENTS					
BMT245	SG 8	200M	8/18/70	43 56.1N 124 37.8W	1242M	325LT	.92857
		NA M	Y7008D	43 55.5 124 37.5	15MN	350RT	
		COMMENTS					
BMT246	SG 6	149M	8/18/70	44 .5N 124 35.8W	1310M	562LT	.90569
		NA M	Y7008D	43 59.8 124 35.7	15MN	509RT	
		COMMENTS					
BMT247	SG 6	150M	8/18/70	44 .9N 124 35.3W	17595M	339LT	.93388
		NA M	Y7008D	44 10.4 124 35.4	15MN	363RT	
		COMMENTS					
BMT248	TH 2	50M	9/25/70	45 54.2N 124 1.9W	1861M	937LT	.99469
		250M	C7009D	45 53.2 124 1.8	21MN	942RT	
		COMMENTS					
BMT249	TH 8	200M	9/26/70	45 52.5N 124 38.4W	556M	514LT	.87549
		NA M	C7009C	45 52.8 124 38.4	12MN	450RT	
		COMMENTS					
BMT250	TH11	732M	9/26/70	45 52.5N 124 55.0W	2071M	0LT	0
		NA M	C7009D	45 53.0 124 54.0	20MN	0RT	
		COMMENTS NONQUANT DAMAGED					
BMT251	19	2377M	9/27/70	45 57.6N 125 51.2W	6291M	687LT	.29384
		4500M	C7009C	45 55.3 125 53.7	120MN	2338RT	
		COMMENTS DAMAGED					
BMT252	ND21	2800M	9/30/70	44 46.7N 125 41.8W	5506M	1342LT	.90387
		5000M	C7009D	44 44.7 125 44.0	120MN	1213RT	
		COMMENTS					
BMT253	CP2E	2816M	9/30/70	44 39.7N 126 39.6W	19120M	24LT	0
		5000M	C7009C	44 39.0 126 49.9	120MN	0RT	
		COMMENTS NONQUANT PELAGIC					
BMT254	CP2E	2816M	9/30/70	44 39.8N 126 44.9W	6329M	1500LT	.88810
		5000M	C7009C	44 38.6 126 41.7	120MN	1689RT	
		COMMENTS					
BMT255	CP2E	2816M	10/ 1/70	44 44.1N 126 45.9W	9915M	1691LT	.98029
		5000M	Y7009C	44 39.6 126 48.8	120MN	1725RT	
		COMMENTS NONQUANT					
BMT256	CP2A	2743M	2/14/71	45 57.5N 126 37.9W	10226M	0LT	0
		5400M	Y7102B	46 .7 126 42.4	120MN	3352RT	
		COMMENTS NONQUANT DAMAGED					
BMT257	CP2A	2706M	2/15/71	46 2.2N 126 33.5W	9260M	1467LT	.79512
		5400M	Y7102B	46 2.2 126 28.5	120MN	1845RT	
		COMMENTS NONQUANT MALFUNCT					
BMT258	CP2A	2670M	2/15/71	45 56.3N 126 35.7W	7011M	2612LT	.17956
		5400M	Y7102B	45 55.5 126 39.4	120MN	469RT	
		COMMENTS					
BMT259	CP2A	2665M	2/15/71	45 46.9N 126 35.5W	4969M	3100LT	.94282
		5400M	Y7102B	45 45.7 126 33.1	120MN	3288RT	
		COMMENTS					
BMT260	CP2A	2650M	2/16/71	45 50.7N 126 29.2W	7613M	1560LT	.96538
		5400M	Y7102B	45 54.8 126 29.5	120MN	1506RT	
		COMMENTS					

SAMPLE	STA	DEPTH / DATE	ON BOTTOM / OFF BOTTOM	DIST / TIME	WHEEL COUNT	RATIO
BMT261	CP2B	2670M 2/16/71	45 38.5N 126 41.5W	8551M	3066LT	.99478
		5400M Y7102B	45 38.9 126 46.1	120MN	3050RT	
		COMMENTS				
BMT262	CP2B	2721M 2/17/71	45 38.2N 126 47.9W	7787M	3006LT	.99601
		5400M Y7102B	45 38.4 126 43.7	120MN	2994RT	
		COMMENTS				
BMT263	CP2B	2730M 2/17/71	45 36.4N 126 42.6W	8336M	3037LT	.53375
		5400M Y7102B	45 36.5 126 47.1	120MN	1621RT	
		COMMENTS				
BMT264	CP2C	2750M 2/17/71	45 20.6N 126 35.7W	7429M	3224LT	.90943
		5400M Y7102B	45 20.9 126 39.7	120MN	2932RT	
		COMMENTS				
BMT265	CP2C	2750M 2/18/71	45 18.7N 126 34.4W	13262M	3134LT	.85737
		5400M Y7102B	45 18.5 126 28.6	120MN	2687RT	
		COMMENTS				
BMT266	CP2C	2710M 2/18/71	45 18.0N 126 26.4W	7816M	2697LT	.94142
		5400M Y7102B	45 17.0 126 30.5	120MN	2539RT	
		COMMENTS				
BMT267	CP2D	2795M 2/18/71	44 58.1N 126 35.8W	9632M	2943LT	.52260
		5400M Y7102B	44 58.2 126 41.0	120MN	1538RT	
		COMMENTS				
BMT268	CP2D	2770M 2/19/71	44 59.3N 126 39.6W	8176M	3198LT	.44559
		5400M Y7102B	44 58.3 126 35.3	120MN	1425RT	
		COMMENTS				
BMT269	CP2D	NA M 2/19/71	44 57.3N 126 37.3W	10084M	2826LT	.58740
		5400M Y7102B	44 58.0 126 42.7	120MN	1660RT	
		COMMENTS				
BMT270	CP2E	2850M 2/20/71	44 38.5N 126 40.6W	5199M	2934LT	.94751
		5400M Y7102B	44 38.3 126 43.4	120MN	2780RT	
		COMMENTS				
BMT271	CP2E	2832M 2/20/71	44 39.1N 126 43.6W	6482M	2386LT	.82272
		5400M Y7102B	44 39.1 126 40.1	120MN	1963RT	
		COMMENTS				
BMT272	CP2E	2832M 2/20/71	44 40.0N 126 46.6W	6677M	2902LT	.93005
		5400M Y7102B	44 39.8 126 50.2	120MN	2699RT	
		COMMENTS				
BMT273	SHRP	160M 4/27/71	44 48.9N 124 28.1W	1186M	789LT	.93373
		NA M Y7104C	44 49.4 124 27.7	10MN	845RT	
		COMMENTS				
BMT274	SHRP	155M 4/27/71	44 48.7N 124 26.7W	2632M	213LT	.81609
		NA M Y7104C	44 49.8 124 25.8	11MN	261RT	
		COMMENTS				
BMT275	SHRP	160M 4/28/71	44 49.8N 124 27.1W	926M	587LT	.88271
		NA M Y7104C	44 50.2 124 27.4	17MN	665RT	
		COMMENTS				
BMT276	CP3A	2761M 5/17/71	45 56.3N 127 36.6W	7774M	2378LT	.95579
		5400M Y7105B	45 57.2 127 40.7	120MN	2488RT	
		COMMENTS				
BMT277	CP3A	2765M 5/17/71	45 55.3N 127 35.0W	6649M	2661LT	.97259
		5400M Y7105B	45 54.5 127 31.5	120MN	2736RT	
		COMMENTS				
BMT278	CP3C	2811M 5/18/71	45 23.4N 127 36.9W	8142M	2964LT	.98077
		5400M Y7105B	45 24.7 127 41.1	120MN	2907RT	
		COMMENTS				
BMT279	CP3C	2798M 5/18/71	45 22.7N 127 36.3W	8318M	1902LT	.98107
		5400M Y7105B	45 21.8 127 31.9	120MN	1866RT	
		COMMENTS NONGUANT MALFUNCT				
BMT280	CP3C	2800M 5/18/71	45 21.5N 127 33.0W	10193M	2873LT	.95440
		5400M Y7105B	45 21.7 127 38.5	120MN	2742RT	
		COMMENTS				

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT281	CP3E	2816M	5/19/71	44	38.8N	127	36.8W	8385M	2275LT	.97099
		5400M	Y7105B	44	38.3	127	41.3	90MN	2209RT	
		COMMENTS								
BMT282	CP3E	2816M	5/19/71	44	37.6N	127	33.4W	7244M	1970LT	.96616
		5400M	Y7105B	44	37.3	127	29.5	100MN	2039RT	
		COMMENTS								
BMT283	ND 8	200M	3/ 7/72	44	40.2N	124	35.8W	764M	557LT	.87253
		800M	C7203B	44	40.6	124	35.9	15MN	486RT	
		COMMENTS								
BMT284	ND 8	200M	3/ 7/72	44	40.0N	124	35.4W	764M	607LT	.88468
		800M	C7203B	44	40.4	124	35.3	10MN	537RT	
		COMMENTS								
BMT285	ND 8	200M	3/ 7/72	44	40.0N	124	35.1W	944M	577LT	.98267
		800M	C7203B	44	40.5	124	35.0	10MN	567RT	
		COMMENTS								
BMT286	ND21	2758M	3/ 8/72	44	49.6N	125	33.0W	4645M	1946LT	.82169
		5400M	C7203B	44	51.9	125	32.0	120MN	1599RT	
		COMMENTS								
BMT287	ND21	2743M	3/ 8/72	44	50.0N	125	38.0W	4685M	2654LT	0
		5400M	C7203B	44	47.6	125	38.8	120MN	0RT	
		COMMENTS								
BMT288	CP1W	2940M	6/14/72	44	5.3N	125	23.6W	4714M	2606LT	.98637
		5400M	Y7206B	44	7.1	125	21.8	120MN	2642RT	
		COMMENTS								
BMT289	CP1W	2938M	6/15/72	44	4.2N	125	24.1W	4987M	3036LT	.99242
		5400M	Y7206B	44	1.6	125	23.4	90MN	3013RT	
		COMMENTS								
BMT290	CP1W	2938M	6/15/72	44	4.9N	125	24.5W	5556M	1059LT	.83475
		5400M	Y7206B	44	7.9	125	24.5	90MN	884RT	
		COMMENTS								
BMT291	CP1W	2938M	6/15/72	44	5.0N	125	24.0W	3704M	2337LT	.99658
		5400M	Y7206B	44	3.0	125	24.0	90MN	2329RT	
		COMMENTS								
BMT292	CP1X	2992M	6/16/72	43	44.7N	125	26.0W	4359M	322LT	.13696
		5400M	Y7206B	43	47.0	125	26.5	90MN	2351RT	
		COMMENTS								
BMT293	CP1X	2997M	6/17/72	43	34.2N	125	29.6W	12292M	2648LT	.91579
		5400M	Y7206B	43	40.8	125	30.3	90MN	2425RT	
		COMMENTS								
BMT294	CP1X	3000M	6/17/72	43	44.0N	125	26.0W	5926M	3053LT	.93515
		5400M	Y7206B	43	47.2	125	26.0	120MN	2855RT	
		COMMENTS								
BMT295	CP1XX	1640M	6/17/72	43	43.1N	125	27.1W	8041M	6LT	0
		5400M	Y7206B	43	38.8	125	27.7	NA MN	0RT	
		COMMENTS NONQUANT PELAGIC								
BMT296	TP 5	NA M	10/ 4/72	45	0N	131	25.0W	5264M	35LT	.10355
		6600M	Y7210A	45	1.8	131	22.8	120MN	338RT	
		COMMENTS		LOST NET						
BMT297	TP 5	NA M	10/ 4/72	44	52.5N	131	36.8W	2222M	3175LT	.89039
		6600M	Y7210A	44	53.7	131	36.8	136MN	2827RT	
		COMMENTS								
BMT298	TP 6	3585M	10/ 5/72	44	59.0N	132	12.0W	4819M	3167LT	.93590
		7200M	Y7210A	45	1.6	132	12.1	120MN	2964RT	
		COMMENTS								
BMT299	TP 6	3580M	10/ 6/72	44	58.6N	132	11.5W	6667M	3217LT	.94451
		7200M	Y7210A	44	55.0	132	11.5	120MN	3406RT	
		COMMENTS								
BMT300	TP 6	3585M	10/ 6/72	44	57.4N	132	14.7W	2784M	3325LT	.99699
		7000M	Y7210A	44	58.9	132	14.8	120MN	3315RT	
		COMMENTS								

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT301	TP 6	3585M	10/ 6/72	44	56.1N	132	14.0W	4066M	3374LT	.90093
		7091M	Y7210A	44	54.2	132	15.1	120MN	3745RT	
		COMMENTS								
BMT302	TP 7	NA M	10/ 7/72	44	58.6N	133	14.2W	110220M	3159LT	.91618
		7500M	Y7210A	44	57.3	132	14.7	90MN	3448RT	
		COMMENTS								
BMT303	TP 7	3700M	10/ 7/72	45	4.3N	133	10.9W	2963M	3753LT	.54836
		NA M	Y7210A	45	5.9	133	10.9	120MN	2058RT	
		COMMENTS								
BMT304	TP 7	3700M	10/ 8/72	45	5.9N	133	11.0W	3054M	196LT	.05563
		7000M	Y7210A	45	4.3	133	11.4	120MN	3523RT	
		COMMENTS								
BMT305	TP 8	3900M	10/ 9/72	45	5.0N	134	42.8W	2408M	3199LT	.99626
		7200M	Y7210A	45	5.5	134	44.0	60MN	3211RT	
		COMMENTS								
BMT306	TP 8	3900M	10/ 9/72	45	3.3N	134	43.4W	6429M	2920LT	.97171
		7400M	Y7210A	45	.7	134	41.1	120MN	3005RT	
		COMMENTS								
BMT307	TP 8	3900M	10/10/72	45	1.8N	134	44.2W	6875M	1230LT	.99675
		NA M	Y7210A	45	5.1	134	45.9	72MN	1226RT	
		COMMENTS								
BMT308	TP 9	3932M	10/10/72	45	1.1N	135	12.0W	6114M	3252LT	.97104
		7800M	Y7210A	45	1.2	135	15.3	120MN	3349RT	
		COMMENTS								
BMT309	TP 9	3990M	10/11/72	45	.3N	135	22.7W	6335M	3543LT	0
		7800M	Y7210A	45	3.6	135	23.6	120MN	0RT	
		COMMENTS								
BMT310	TP 9	3990M	10/11/72	45	1.1N	135	22.0W	7862M	2937LT	.80158
		7800M	Y7210A	45	5.2	135	23.1	180MN	3664RT	
		COMMENTS								
BMT311	NH39	950M	10/22/72	44	40.0N	124	58.2W	2778M	2468LT	.70300
		NA M	Y7210A	44	41.2	124	59.1	32MN	1735RT	
		COMMENTS								
BMT312	NH39	950M	10/22/72	44	39.0N	124	59.9W	0M	1127LT	.48101
		3000M	Y7210A	44	39.0	124	59.9	6MN	2343RT	
		COMMENTS		PELAGIC						
BMT313	NH39	970M	10/23/72	44	37.4N	125	.3W	0M	1083LT	.88049
		3000M	Y7210A	NA	0	NA	0	NA MN	1230RT	
		COMMENTS								
BMT314	NH23	200M	10/23/72	NA	0N	NA	0W	0M	799LT	.96381
		800M	Y7210A	NA	0	NA	0	NA MN	829RT	
		COMMENTS								
BMT315	CP3E	2803M	2/ 2/72	44	44.4N	127	28.6W	2046M	3941LT	.96830
		5400M	Y7301F	44	45.5	127	28.5	115MN	4070RT	
		COMMENTS	NONGUANT	DAMAGED						
BMT316	CP3E	2749M	2/ 2/72	44	43.6N	127	26.5W	3937M	2804LT	.99608
		5400M	Y7301F	44	45.2	127	25.1	120MN	2793RT	
		COMMENTS								
BMT317	CP3E	2818M	2/ 3/72	44	43.1N	127	29.3W	5525M	3904LT	.49225
		5400M	Y7301F	44	46.0	127	28.6	122MN	7931RT	
		COMMENTS								
BMT318	CP3C	2783M	2/ 3/72	45	27.1N	127	27.8W	5136M	3695LT	.99275
		5400M	Y7301F	45	29.6	127	29.0	150MN	3722RT	
		COMMENTS								
BMT319	CP3C	2780M	2/ 4/72	45	27.5N	127	26.3W	3170M	2887LT	.99449
		5400M	Y7301F	45	25.8	127	26.1	120MN	2903RT	
		COMMENTS								
BMT320	CP3C	2780M	2/ 4/72	45	33.5N	127	24.0W	3709M	0LT	0
		5770M	Y7301F	45	33.6	127	26.0	84MN	3RT	
		COMMENTS	NONGUANT	PELAGIC						

SAMPLE	STA	DEPTH	DATE	ON BOTTOM				DIST	WHEEL	RATIO
		WIRE	CRUISE	OFF BOTTOM				TIME	COUNT	
BMT321	CP3A	2763M	3/11/73	45	56.6N	127	31.6W	5303M	2901LT	.96507
		5400M	Y7303A	45	57.8	127	34.2	120MN	3006RT	
		COMMENTS								
BMT322	CP3A	2740M	3/12/73	46	1.4N	127	31.0W	7223M	4010LT	.97354
		5400M	Y7303A	46	5.0	127	32.5	120MN	4119RT	
		COMMENTS								
BMT323	CP3A	2763M	3/13/73	45	56.0N	127	37.1W	7408M	3149LT	.99270
		5400M	Y7303A	45	56.0	127	41.1	100MN	3126RT	
		COMMENTS								
BMT324	CP3C	2809M	3/14/73	45	13.2N	127	32.0W	4987M	3289LT	.98966
		5400M	Y7303A	45	10.7	127	33.0	120MN	3255RT	
		COMMENTS								
BMT325	ND 8	200M	3/15/73	44	40.7N	124	35.5W	185M	0LT	0
		800M	Y7303A	44	40.6	124	35.5	12MN	0RT	
		COMMENTS		DISCARD						
BMT326	ND11	800M	3/15/73	NA	0N	NA	0W	0M	2320LT	.93621
		3000M	Y7303A	44	42.1	124	57.7	30MN	2172RT	
		COMMENTS		DISCARD						
BMT327	ND 4	100M	3/15/73	44	43.0N	124	13.7W	1493M	1270LT	.94705
		NA M	Y7303A	44	42.2	124	13.6	32MN	1341RT	
		COMMENTS		DISCARD						
BMT328	CP4E	2780M	11/ 3/73	44	42.0N	128	23.5W	4141M	0LT	0
		5400M	C7310B	44	44.0	128	22.5	120MN	3432RT	
		COMMENTS								
BMT329	CP4E	2776M	11/ 3/73	44	43.0N	128	21.0W	8282M	79LT	.36709
		5400M	C7310B	44	47.0	128	19.0	120MN	29RT	
		COMMENTS	NONGUANT	PELAGIC						
BMT330	CP4E	2794M	11/ 3/73	44	40.0N	128	25.5W	2071M	365LT	.38624
		4300M	C7310B	44	41.0	128	26.0	60MN	945RT	
		COMMENTS								
BMT331	CP4E	2820M	11/ 3/73	44	34.5N	128	21.5W	7091M	3234LT	.82313
		5400M	C7310B	44	31.6	128	19.0	110MN	2662RT	
		COMMENTS								
BMT332	CP3D	2826M	11/ 4/73	44	55.0N	127	28.5W	6677M	2479LT	.87877
		5400M	C7310B	44	52.0	127	26.5	120MN	2821RT	
		COMMENTS								
BMT333	CP3D	2838M	11/ 4/73	44	53.0N	127	27.3W	5883M	2121LT	.98514
		4500M	C7310B	44	54.5	127	30.1	120MN	2153RT	
		COMMENTS								
BMT334	CP3D	2838M	11/ 5/73	45	1.2N	127	32.0W	5623M	2335LT	.98565
		4300M	C7310B	45	4.1	127	32.9	120MN	2369RT	
		COMMENTS								
BMT335	CP3D	2884M	11/ 5/73	45	.7N	127	28.8W	3405M	1945LT	.95476
		4500M	C7310B	44	59.0	127	29.5	120MN	1857RT	
		COMMENTS								
BMT336	CP3D	2850M	11/ 5/73	45	.2N	127	30.0W	6677M	2608LT	.95552
		4500M	C7310B	45	3.2	127	32.0	165MN	2492RT	
		COMMENTS								
0		M	0/ 0/ 0		ON		0W	0M	0LT	2.00000
		M			0		0	MN	0RT	
		COMMENTS								

ERROR IN BCD IN CALLED FROM 77162 UNCHECKED ECF LUN 10

ABNORMAL TERMINATION OF FORTRAN EXECUTION

D. Cascadia Plain Transect Lines

Station	Distance from shore	Position		Depth (m)
		Lat.	Long.	
CP-1-A	65 mi.	45°56.0	125°35.0	1975
B	65 mi.	45°39.1	125°34.8	2233
C	65 mi.	45°19.1	125°34.1	2560
D	65 mi.	44°59.1	125°35.0	2706
E	65 mi.	44°38.6	125°34.8	2816
CP-2-A	105 mi.	45°55.5	126°31.5	2713
B	105 mi.	45°39.0	126°30.9	2669
C	105 mi.	45°19.3	126°31.0	2719
D	105 mi.	44°59.1	126°30.0	2820
E	105 mi.	44°39.0	126°30.0	2816
CP-3-A	145 mi.	45°54.7	127°26.1	2765
B	145 mi.	45°39.0	127°26.5	----
C	145 mi.	45°19.2	127°27.0	2889
D	145 mi.	44°59.1	127°28.0	----
E	145 mi.	44°39.1	127°28.2	2833
CP-4-E		44° 39.1	128° 23.0	2785

E. Tuft's Abyssal Plain Stations

TP-1	305 m.	44°38.5	131°11.5	3389
TP-2	350 m.	44°38.8	132°10.6	3655
TP-3	400	44°41.0	133°24.5	3784
TP-4	450	44°39.1	134°39.5	3909

F. Continental Slope Base Stations

CP-1-WW	44° 04.8	125° 23.8	2940
CP-1-XX	43° 44.5	126° 27.4	2995

NAO	10	44° 39.1	124°54.0
	11	44° 39.1	124°57.6
	11B	44°29.6	125°06.2
	13	44°39.1	125°10.0
	14	44° 39.1	125°11.0
	15	44°39.1	125°11.7
	20	44°39.1	125°20.5
	21	44°39.1	125°35.0
	22	44°39.1	126°03.0
	22A	44°39.1	126°16.2
	23	44°39.1	126°30.0
	24	44° 39.1	126°59.1
	25	44°39.1	127°28.2
	26	44°39.1	127°54.3
3T	310		
	310C	43°28.0	124°50.0
	310D2	43°28.0	124°51.6
	310 E	43°28.0	124°52.7
	310F2	43°28.0	124°535
	310 I	43°21.2	124°47.0
CP	1A		
	1B		
	1C		
	1D		
	1E		
	1F		
	1W		
	1X		

BENTHOS STATIONS

A. Newport Line

Station Number (NAD)	Distance From Shore (mi)	(km)	Position Latitude		Longitude		Depth (M)
1	1.7	3.1	44°	39.1	124°	05.9	25
1N.	1.5	2.8	44°	44.5	124°	05.3	25
2	4.8	8.9	44°	39.1	124°	09.8	50
2N	2.9	5.4	44°	44.0	124°	08.0	50
3N	8.0	14.8	44°	44.0	124°	14.9	75
4N	10.9	20.2	44°	44.0	124°	18.2	100
5N	11.1	20.5	44°	44.0	124°	26.0	125
6N	19.5	36.1	44°	44.0	124°	29.8	150
7N	22.2	41.1	44°	39.1	124°	33.3	175
8	23.6	43.7	44°	39.1	124°	36.0	200
9	33.8	62.5	44°	39.1	124°	50.7	400
10	36.5	67.5	44°	39.1	124°	54.0	600
11	39.2	72.5	44°	39.1	124°	57.6	800
11B	44.9	83.1	44°	29.6	125°	06.2	1250
11A	46.6	86.2	44°	39.1	125°	06.7	800
12	47.4	87.7	44°	39.1	125°	09.1	1000
13	48.0	88.8	44°	39.1	125°	10.0	1200
14	48.8	90.3	44°	39.1	125°	11.0	1400
15	49.2	91.0	44°	39.1	125°	11.7	1600
16	49.5	91.6	44°	39.1	125°	12.1	1800
17	51.5	95.3	44°	39.1	125°	14.9	2000
17A	53.8	94.5	44°	39.1	125°	19.5	2000
18	----	----	44°	39.6	125°	17.2	2200
19	----	----	44°	39.6	125°	18.7	2400
20	55.1	101.9	44°	39.1	125°	20.5	2600
20A	59.2	109.5	44°	39.1	125°	26.8	2850
21	65.0	120.3	44°	39.1	125°	35.0	2810
22	85.0	157.3	44°	39.1	126°	03.0	2850
22A	95.0	175.8	44°	39.1	126°	16.2	2860
23	105.0	194.3	44°	39.1	126°	30.0	2810
24	125.0	231.3	44°	39.1	126°	59.1	2810
25	145.0	268.3	44°	39.1	127°	28.2	2690
26	165.0	305.3	44°	39.1	127°	54.3	2610

SEA GRANT PROJECT

Station 2	Cruise #	Date of each BMT
BMT 27	C6808E	8/13/68
28	C6808E	8/13/68
38	C6810C	10/23/68
39	C6810C	10/23/68
59	C6901C	1/24/69
74	C6904E	4/24/69
75	C6904E	4/24/69
98	C6907D	7/25/69
99	C6907D	7/25/69
151	C6911A	11/03/69
152	C6911A	11/03/69
177	C7002A	2/04/70
178	C7002A	2/05/70
224	C7005D	5/19/70
225	C7005D	5/19/70
234	C7008D	8/16/70
235	C7008D	8/16/70

Station 4		
BMT 29	C6808E	8/15/68

Station 5		
36	C6808E	8/22/68
37	C6808E	8/22/68

Station 6		
34	C6808E	8/21/68
35	C6808E	8/21/68
49	C6810C	10/28/68
50	C6810C	10/28/68
64	C6901C	1/26/69
65	C6901C	1/26/69
80	C6904E	4/25/69
104	C6907D	7/26/69
105	C6907D	7/26/69
143	C6911A	11/02/69
171	C7002A	2/04/70
172	C7002A	2/04/70
222	C7005D	5/17/70
223	C7005D	5/17/70
246	C7008D	8/18/70
247	C7008D	8/18/70

Station 7	Cruise #	Date of each BMT
BMT 30	C6808E	8/17/68
31	C6808E	8/17/68
43	C6810C	10/23/68
44	C6810C	10/24/68
84	C6904E	4/26/69
85	C6907E	7/27/69
108	C6907D	7/27/69
109	C6907D	7/27/69
148	C6911A	11/03/69
149	C6911A	11/03/69
150	C6911A	11/03/70
167	C7002A	2/03/70
216	C7005D	5/16/70
217	C7005D	5/16/70
236	C7008D	8/17/70
237	C7008D	8/17/70

Station 8		
BMT 32	C6808E	8/20/68
33	C6808E	8/20/68
47	C6810C	10/27/68
48	C6810C	10/27/68
66	C6901C	1/27/69
67	C6901C	1/28/69
82	C6904E	4/26/69
83	C6904E	4/26/69
106	C6907D	7/26/69
107	C6907D	7/26/69
144	C6911A	11/02/69
145	C6911A	11/02/69
165	C7002A	2/03/70
166	C7002A	2/03/70
220	C7005D	5/17/70
221	C7005D	5/17/70
244	C7008D	8/18/70
245	C7008D	8/18/70

Station 15		
BMT 51	C6810C	10/28/68
62	C6901C	1/25/69
63	C6901C	1/25/69
78	C6904E	4/25/69
79	C6904E	4/25/69

Station 15	Cruise #	Date of each BMT
BMT 102	C6907D	7/26/69
141	C6911A	11/02/69
226	C7005D	5/20/70
227	C7005D	5/20/70
238	C7008D	8/17/70
239	C7008D	8/17/70

Station 22		
BMT 41	C6810C	10/23/68
61	C6901C	1/25/69
77	C6904C	4/25/69
100	C6907D	7/26/69
215	C7005D	5/16/70
240	C7008D	8/17/70
241	C7008D	8/17/70

Station 23		
BMT 45	C6810C	10/24/68
46	C6810C	10/24/68
86	C6904E	4/26/69
87	C6904E	4/26/69
110	C6907D	7/27/69
111	C6907D	7/27/69
146	C6911A	11/02/69
147	C6911A	11/02/69
169	C7002A	2/03/70
170	C7002A	2/03/70
218	C7005D	5/17/70
219	C7005D	5/17/70
242	C7008D	8/17/70
243	C7008D	8/17/70

Station		Depth	Track-line Positions			
1	CBT-310-A	500m	43°29.4'N	124°41.2'W	43°26.8'N	124°47.0'W
2	CBT-310-B	530m	43 25.7	124 48.0	43 30.8	124 48.0
3	CBT-310-C	550m	43 26.0	124 50.0	43 30.0	124 50.0
4	CBT-310-D	600m	43 26.0	124 51.6	43 30.0	124 51.6
5	CBT-310-E	650m	43 26.0	124 52.3	43 30.0	124 53.1
6	CBT-310-F	700m	43 26.0	124 53.0	43 30.0	124 54.0
7	CBT-310-V	800m	43 27.2	124 56.6	43 33.7	124 56.4
8	CBT-310-W	1000m	43 27.6	124 57.2	43 34.2	124 57.0
9	CBT-310-X	1000m	43 28.2	124 57.8	43 33.5	124 57.6
10	CBT-310-Y	1100m	43 27.0	124 57.0	43 33.3	125 00.0
11	CBT-310-Z	1200m	43 28.9	125 08.6	43 30.3	124 55.7
12	CBT-310-Z'	1500m	43 27.0	125 08.8	43 33.5	125 12.0
13	CBT-310-G	500m	43 17.1	124 46.3	43 21.1	124 45.8
14	CBT-310-H	550m	43 18.0	124 46.7	43 21.5	124 46.2
15	CBT-310-I	600m	43 19.4	124 47.7	43 23.0	124 46.3
16	CBT-310-J	600m	43 22.2	124 50.3	43 23.7	124 54.6
17	CBT-310-K	650m	43 21.6	124 49.7	43 22.7	124 54.0
18	CBT-310-L	700m	43 21.0	124 50.5	43 23.7	124 54.5
19	CBT-310-M	750m	43 21.0	124 53.3	43 21.2	124 58.5
20	CBT-310-N	700m	43 20.2	124 55.7	43 20.7	124 50.7
21	CBT-310-O	650m	43 20.5	124 49.8	43 19.7	124 54.5
22	CBT-310-P	600m	43 19.1	124 54.6	43 20.1	124 49.8
23	CBT-310-Q	800m	43 23.0	124 56.1	43 27.2	124 56.4
24	CBT-310-R	1000m	43 16.0	125 04.8	43 18.2	125 03.0
25	CBT-310-S	1200m	43 19.8	125 02.9	43 23.5	125 04.8
26	CBT-310-T	1600m	43 18.8	125 10.2	43 23.5	125 09.5
27	CBT-310-U	2000m	43 20.2	125 11.8	43 22.8	125 16.0

CBT = Coos Bay

CBL = Cape Blanco

A + B = Astoria

MID PTS

310 S 43°21.6N 125°03.8W
T 43°21.2N 125°09.8W
U 43°21.5N 125°13.9W

MID —PTS

CBT 310 A — 43°28.1N 124°44.1W
310 B — 43°28.2N 124°48.0W
310 C — 43°28.0N 124°50.0W
D — 43°28.0N 124°51.6W
E — 43°28.0N 124°52.7W
F — 43°28.0N 124°53.5W
V — 43°30.4N 124°56.5W
W — 43°30.9N 124°57.1W
X — 43°30.8N 124°57.7W
Y — 43°30.2N 124°58.5W
Z — 43°29.6N 125°02.2W
Z' — 43°30.2N 125°10.0W
G — 43°19.1N 124°46.1W
H — 43°19.8N 124°46.4W
I — 43°21.2N 124°46.9W
J — 43°23.0N 124°52.4W
K — 43°22.1N 124°51.8W
L — 43°22.4N 124°52.5
M — 43°21.1N 124°55.9
N — 43°20.4N 124°53.2W
O — 43°20.1N 124°52.2W
P — 43°19.6N 124°52.2W
Q — 43°25.1N 124°56.2W
R — 43°17.1N 125°03.9W

TRACKLINES:

Cape Blanco

Station	Depth	Trackline Positions			
CBL-A	300m	42°37.2'N	124°42.6'W	- 42°34.2'N	124°43.5'W
CBL-B	350m	42 37.2	124 42.4	- 42 34.4	124 44.8
CBL-C	400m	42 36.2	124 44.2	- 42 33.7	124 46.2
CBL-D	450m	42 34.5	124 46.7	- 42 31.8	124 48.2
CBL-E	550m	42 36.8	124 45.2	- 42 34.3	124 47.8
CBL-F	650m	42 36.2	124 47.1	- 42 33.3	124 49.8
CBL-G	750m	42 37.0	124 47.2	- 42 33.8	124 50.0
CBL-H	300m	42 52.8	124 53.4	- 42 50.5	124 50.8
CBL-I	350m	42 50.7	124 52.8	- 42 47.9	124 54.5
CBL-J	1000m	42 59.8	125 00.3	- 42 45.9	124 58.8
CBL-K	1150m	43 00.5	125 02.7	- 42 56.5	125 01.2

Coos Bay

Station	Depth	Trackline Positions			
CBT-310-A	500m	43°29.4'N	124°41.2'W	- 43°26.8'N	124°47.0'W
CBT-310-B	530m	43 25.7	124 48.0	- 43 30.8	124 48.0
CBT-310-C	550m	43 26.0	124 50.0	- 43 30.0	124 50.0
CBT-310-D	600m	43 26.0	124 51.6	- 43 30.0	124 51.6
CBT-310-E	650m	43 26.0	124 52.3	- 43 30.0	124 53.1
CBT-310-F	700m	43 26.0	124 53.0	- 43 30.0	124 54.0
CBT-310-V	800m	43 27.2	124 56.6	- 43 33.7	124 56.4
CBT-310-W	1000m	43 27.6	124 57.2	- 43 34.2	124 57.0
CBT-310-X	1000m	43 28.2	124 57.8	- 43 33.5	124 57.6
CBT-310-Y	1100m	43 27.0	124 57.0	- 43 33.3	125 00.0
CBT-310-Z	1200m	43 28.9	125 08.6	- 43 30.3	124 55.7
CBT-310-Z'	1500m	43 27.0	125 08.8	- 43 33.5	125 12.0
CBT-310-G	500m	43 17.1	124 46.3	- 43 21.1	124 45.8
CBT-310-H	550m	43 18.0	124 46.7	- 43 21.5	124 46.2
CBT-310-I	600m	43 19.4	124 47.7	- 43 23.0	124 46.3
CBT-310-J	600m	43 22.2	124 50.3	- 43 23.7	124 54.6
CBT-310-K	650m	43 21.6	124 49.7	- 43 22.7	124 54.0
CBT-310-L	700m	43 21.0	124 50.5	- 43 23.7	124 54.5
CBT-310-M	750m	43 21.0	124 53.3	- 43 21.2	124 58.5
CBT-310-N	700m	43 20.2	124 55.7	- 43 20.7	124 50.7
CBT-310-O	650m	43 20.5	124 49.8	- 43 19.7	124 54.5
CBT-310-P	600m	43 19.1	124 54.6	- 43 20.1	124 49.8
CBT-310-Q	800m	43 23.0	124 56.1	- 43 27.2	124 56.4
CBT-310-R	1000m	43 16.0	125 04.8	- 43 18.2	125 03.0
CBT-310-S	1200m	43 19.8	125 02.9	- 43 23.5	125 04.8
CBT-310-T	1600m	43 18.8	125 10.2	- 43 23.5	125 09.5
CBT-310-U	2000m	43 20.2	125 11.8	- 43 22.8	125 16.0

Station	Depth (Meters)	Mid Point of Transect	
AT-A	92.5	46°08'	124°13'
B	139	46°05'	124°31'
C	185	46°04'	124°39'
D	231	46°02'	124°42'
E	278	46°01'	124°43'
F	324	46°00'	124°43'
G	370	46°00'	124°44'
H	416	45°58'	124°45'
I	463	45°59'	124°45'
J	509	45°57'	124°45'
K	555	45°59'	124°47'
L	601	45°57'	124°47'
M	648	45°57'	124°49'
N	694	45°57'	124°51'
O	740	45°57'	124°53'
P	786	45°53'	124°47'
Q	833	45°52'	124°52'
R	925	45°52'	124°53'
S	1110	46°02'	124°55'
T	1202	45°45'	124.54'
U	1388	45°43'	124°55'
V	1480	45°36'	124°54'
W	1573	46°02'	125°05'
Y	1665	45°50'	125°11'
Z	1943	45°42'	125°13'

Existing topographic maps indicate the bottom contours lie north - south. We will trawl north to south or south to north and use the listed coordinates as a mid point of the trawl.

no inverts saved : /
[redacted] : no fish records at all

Tanner Crab Beam Trawls

#	Sta.	Date	L	R	Comments
[redacted]					
338	310C	3 VII 74	1871	1921	kept all inv. + sm. fish
[redacted]					
340	C-3	4 VII 74	1611	1636	no fish kept, some records on sheet
341	D-1	4 VII 74	2163	585	" "
[redacted]					
343	E	5 VII 74	1520	530	no fish kept, some records on sheet
[redacted]					
[redacted]					
346	K	"	1277	780	no fish kept, some records on sheet
[redacted]					
348	J-3	6 VII 74	740	16	no fish kept, some records on sheet
349	L	"	254	—	no fish kept, "
[redacted]					
351	P-2	"	1326	1496	no fish kept, few records on sheet
352	B	"	1021	1338	no fish kept, records on sheet
353	B	7 VII 74	2132	2337	" "
354	D	"	1716	1868	" "
[redacted]					
364	B	3 VII 74	911	922	no fish kept
365	C	"	1165	1245	"
366	D	4 VII 74	522	815	no fish kept, records on sheet
367	E	"	1009	1146	" "
[redacted]					
369	F	"	1485	1443	some fish kept

#	Sta	Date	L	R	Comments
370	310H	4 VII 74	1675	1687	no fish kept, some records on sheet
[redacted]		"			no sample
372	310 I	5 VII 74	1084	1172	no fish kept
[redacted]		"	1013	1078	
~~374~~	K	"	1938	2021	no fish kept, some records on sheet
~~375~~	L	"	1978	2061	" "
376	P	"			no fish kept
~~377~~	B	6 VII 74	1797	1799	no fish kept, some records on sheet
[redacted]					
379	D	"	1635	1666	"
380	E	"	1743	1851	"
381 381	F	"	890	887	2 lipards kept
[redacted]		12 VIII 74			
[redacted]					"
[redacted]					
385	AT-H	13 VIII 74	1232	1191	fish recorded 4 P, no fish kept
386	AT-K	"	1253	1144	" "
387	AT-L	"	1281	1221	" "
[redacted]		"			
389	AT M 2	"	850	1073	fish recorded 4 P + some saved
390	AT N	"	517	2199	fish recorded 4P
391	AT P	"	—	1248	"
392	AT-Q	"			poor haul - saved
393 393	310 B	14 VIII 74	992	1009	fish recorded 4P
394	C	"	1240	1206	?
395	D	15 VIII 74	1133	1212	some fish saved, some rec. on sheet
[redacted]					

—	Sta.	Date	L	R	Comments
397	310F	15 VIII 74	1971	1992	no fish kept
[illegible]	"	"	[illegible]	[illegible]	[illegible]
399	I	"	1574	1179	some fish kept with insects; zoarcid
400	J	"	2134	2223	no fish kept
401	K	16 VIII 74	2287	2401	"
[illegible]	[illegible]	"	[illegible]	[illegible]	?
[illegible]	[illegible]	"	[illegible]	[illegible]	no fish kept
[illegible]	CBL-A	16 IX 74	778	06	no fish kept, some records on sheet
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	no sample
415	CBL-D2	"	730	772	no fish kept, some records on sheet
416	E	"	965	1394	" "
417	F	"	—	03	no fish kept
418	G	"	—	—	no fish kept, some records on sheet
419	J	"	1150	698	kept", large strange fish"
444	CBL B	10 I 75	1145	Last	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	no sample
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	no fish kept
447	D	"	1622	1689	2 lipards saved; fish rec. on sheet
448	E	"	1572	1428	no fish kept, some records on sheet
449	F	"	1376	741	" "
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
451	I	"	1440	1546	no fish kept, some records on sheet
452	J	"	1641	2153	fish (some) saved, records on sheet
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	no fish kept
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
455	310-B	6 III 75	1446	1161	no fish saved

#	Sta.	Date	L	R	Comments
456	310-C	26 III 75	1643	1745	no fish kept
457	D	"	2000	2030	"
458	D-2	"	1251	1949	some fish kept (16 oz)
459	E	27 III 75	2441	2592	" (32 oz, frozen bag)
[redacted]					
461	F-2	"	1853	1859	some fish kept (2-32 oz)
~~462~~	H	"	1379	1398	nothing kept, some record on sheet
463	I	"	1870	1867	no fish kept

CP-2 A-E

≠ WW C. arnata

	256		258		259-60		261		262		263		NJSU 1450
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	
80<													//
81-90													
91-100													/
110													/
120													//
130													
140													
150							/						/
160							/						
170													
180										/			
190									/				/
200													/
210				/					/				/
220							/						
230					/		/		/				
240	/								/				
250			/	/			/		/				
260					//	/							
270	/	/							/	/			
280	/				///	/	/		/	/		//	
290	/	/		//			/						/
300		/							/	/		/	
310		/		//	//	/	//	/		/			
320				//									
330		/		/	///	////	/	///	/				
340		/								/			
350		/	/	/		///		////	/				
360		/		/	/	//				//		///	
370		/				//		///		//			
380				/		//		/					/
390				/		///		//					
400	/					//		///					
410	/	/				/		//					
420		/		/	/	//		/		/			
430		/		/		/							
440		/					/	/					
450		//						/				/	
460				/		/		/		/			
470						/		/		/			
480		//		/					/			//	
490				/									
500		/				//				/			
510			/			/		//		/		//	

CP2 A-E

71 WIN C. armatus

	264		265		266		268		269		270-2		US OSU 1450
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	
<80													///
81-90													/
91-100													//
110													////
120													//
130										/			//
140													//
150			/										//
160													/
170													/
180			///								/		//
190				/									///
200	/				///	/							//
210									/				/
220	/			/	/			/					///
230	///	/	/						/		/		/
240			/		/		/	/					
250			/					/	//				
260	/			/	//							//	
270	/		//			/					/	/	
280								/					
290		/		/	/		/	/			/	/	
300													
310			/							/			
320				/			//	/		/	///	/	
330		/	//	//		/						/	
340		/	/	//	/	//				/	/		
350		/		//		//				//	/	/	
360	/				/				/		//		
370		/		/						///	//		
380		//						/	/		//		
390				//	/	/	/						
400		/		/						/	/	//	
410				////					/	/	/		
420						/	/	/	//	//		/	
430				//				//	/	/			
440				/					/	/	//		
450		/				/					//		
460		//		/		/		/		/			
470				/		/				/		/	
480						//			//		/	/	
490			/			/		/		/		/	
500				/			/						
510				/		/				/		//	

CP-2 A-E

'71 WIN. C. carnatus

	256		258		259-260		261		262		263			
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	N	USU 1450
520		II												
530														
540						/		/				/		
550														
560														
570						/								
580														
590														
600														
610								/						
620														
630				/										
640														
650														
660														
670											/			
680														
690														
700														
710														
720														
730														
740														
750														
760														
770		1												

CP2 A-E

171 WIN C. armatus

	264		265		266		268		269		270		NSOSU 1450	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀		
520						/				////				
530		/				///				/				
540						/								
550								/				/		
560												/		
570										/		/		
580										/				
590						/		/						
600														
610														
620														
630														
640														
650														
660										/				
670														
680										/				

CP2 A-E

'70 WIN C. armatus

	154		155		156		157		158		159-60		NS OSU 1450
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	
<80													////
81-90													//
91-100													///
110													/
120					/					/			///
130													//
140			/						/	/			/
150													
160									/		/		
170											/		
180													
190	/						/		/				
200							/					/	
210	/	/					//	/					
220								/			/		
230						/			/			/	
240											/		
250	/						/		/			/	
260	/							/					
270					/	/	/		/			/	
280		/									/	/	
290			//				/	/				/	
300			//			/		/			//		
310						//		/				/	
320		/	//			/					/	//	
330	//	/				/		/		/			
340	/	//			//	//		/					
350				/		/						/	
360								//			//	/	
370		///		/		/		/			/		
380			/								/	/	
390								/			/		
400		/										/	
410	/										/	/	
420						/						//	
430				/									
440								//				/	
450				//								/	
460								/				/	
470				/		/		/				/	
480				//								/	
490						/				/			
500				/		/							
510												/	

CJ2 A-E

170 mm C. aurata

	157 ♂	157 ♀	159 ♂	159 ♀
520		1		
530				
540		1		
550		1		
560				
570				
580				
590				
600				
610				1
620		1		11
630				
640				
650				

OSU 1450

CP2 A-E

7OWIN C. armatus

OSU 1450

	161 ♂	161 ♀	162 ♂	162 ♀	163 ♂	163 ♀
<80						
81-90						
91-100						
110						
120						
130						1
140						
150			1			
160						1
170			1			
180						
190			1		1	
200						
210			1			
220					2	
230					1	
240						
250					1	
260						
270					1	
280				2	2	1
290					1	1
300		1			1	1
310			1	1	1	1
320			1			
330		1				1
340	2					3
350						1
360		1				
390	1					
380						
390				1	1	
400						
410						
420		1		1		3
430		2		1		2
440				1	1	1
450				1		
460						2
470						
480	1					3
490						
500				1		1
570				1		1

ECP2 A-E

C. armatus

	'70 WIN				'71 WIN				E				
	♂	♀	NS		♂	♀	NS		♂	♀	NS	E	OSU 1450
<80			4				5				9	9	
81-90			2				1				3	3	
91-100			3				3				6	6	
110			1				5				6	6	
120	1		3				4		1		7	8	
130		1	3			1	2			2	4	6	
140	2	1	1				2		2	1	3	6	
150	1				2		3		3		3	6	
160	2	1			1		1		3	1	1	5	
170	2						1		2		1	3	
180					4	1	2		4	1	2	7	
190	4	1			1	1	4		5	2	4	11	
200	1	1			4	1	3		5	2	3	10	
210	4	2			2	1	2		6	3	2	11	
220	3	1			3	2	3		6	3	3	12	
230	2	2			9	1	1		11	3	1	15	
240	1				5	1			6	1		7	
250	4	1			6	2			10	3		13	
260	1	1			5	4			6	5		11	
270	4	2			6	4			10	6		16	
280	3	5			6	5			9	10		19	
290	4	3			5	7	1		9	10	1	20	
300	5	5			1	3			6	8		14	
310	2	6			5	7			7	13		20	
320	4	4			5	6			9	10		19	
330	2	6			7	14			9	20		29	
340	5	8			4	8			9	16		25	
350		6			3	17			3	23		26	
360	2	5			6	9			8	14		22	
370	3	7			2	13			5	20		25	
380	2	3			3	7	1		5	10	1	16	
390	2	4			2	10			4	14		18	
400		3			2	10			2	13		15	
410	2	2			3	9			5	11		16	
420		8			4	11			4	19		23	
430		6			1	8			1	14		15	
440	1	5			4	4			5	9		14	
450		5			2	6			2	4		13	
460		5				11				16		16	
470		5				7				12		12	
480	1	7			4	8			5	15		20	
490		3			1	5			1	8		9	
500		4			1	5			1	9		10	
510		3			1	12			1	15		16	

ECP2 A-E
C. armatus

Σ

	70 WIN				71 WIN				Σ				OSU 1450
	♂	♀	NS		♂	♀	NS		♂	♀	NS	Σ	
520		1				17				8		8	
530						5				5		5	
540						4				4		4	
550						2				2		2	
560						1				1		1	
570						3				3		3	
580						1				1		1	
590						2				2		2	
600													
610						1				1		1	
620													
630						1				1		1	
640													
650													
660						1				1		1	
670					1				1			1	
680						1				1		1	
690													
700													

CP2 A-E

FALL C. armatus

213-255

OSU 1450

	♂	♀												
<80														
81-90														
91-100														
110														
120														
130														
140														
150														
160														
170														
180														
190														
200														
210														
220														
230														
240														
250														
260														
270														
280		1												
290														
300														
310														
320														
330														
340	1													
350														
360	1	1												
370														
380														
390	1													
400														
410	1													
420														
430														
440														
450	1	1												
460	1													
470														
480														
490	1	1												
500														
510		1												

CP3 A-E

WIN C. armatus

	315-16		317		318		319				Σ			
	♂	♀	♂	♀	♂	♀	♂	♀			NS	♂	♀	OSU Σ
<80														
81-90														
91-100														
110														
120											1			1
130														
140														
150											1			1
160														
170											II			2
180											II			2
190								1			1		1	2
200											1			1
210											II			2
220											III			3
230											IIII			5
240											IIII			4
250											III			3
260						1	1	II			1	1	3	5
270											1			1
280								1			IIII		1	6
290								1			IIII		1	6
300		1				1	1					1	2	3
310				1	II	1					1	2	2	5
320								1			III		1	4
330						1		1					2	2
340					1							1		1
350				1									1	1
360							1	1				1	1	2
370				1				1			1		2	3
380		1											1	1
390			1									1		1
400		III		II				1					6	6
410		1					1	1				1	2	3
420		II				1							3	3
430		1											1	1
440														
450		1											1	1
460			1									1		1
470														
480		II		1		1	1					1	4	5
490		1						1					2	2
500						1							1	1
510		1		II									3	3

CR3 A-E

WIN. C. armatus

	315-16 ♂	315-16 ♀	317 ♂	317 ♀	318 ♂	318 ♀	319 ♂	319 ♀			115	E ♂	E ♀	E OSU
520				1									1	1
530			1					1				1	1	2
540						1					1		1	2
550	1	1										1	1	2
560														
570				1				11					3	3
580														
590		1											1	1
600														
610														
620														
630														
640														
650								1					1	1
660								1					1	1
670						1							1	1
680														
690														
700														
~~800~~														

CP3 A-E

'72 SPG C. armatus

	276		277		278		280			E				
	♂	♀	♂	♀	♂	♀	♂	♀		♂	♀	NS		OSU 1450 US
<80														
81-90														
91-100														
110												1		1
120														
130												2		II
140												1		1
150														
160								1			1	2		II
170					1					1		1		1
180							1			1				
190							1	1		1	1	2		II
200						1	1			1	1			
210						1	II			2	1	2		II
220					1		1			2		1		1
230		1									1	2		II
240												1		1
250					1					1		1		1
260														
270														
280												1		1
290	1	II				1				1	3	4		IIII
300	II						1			3				
310	1		1			1	1			3	1	2		II
320														
330					1			1		1	1			
340														
350				1			1			1	1			
360				1							1	1		1
370												2		II
380			1		1					2		1		1
390	1	1				1				1	2	2		II
400								1			1			
410		1									1	2		II
420					1					1		1		1
430														
440														
450		1		1		1					3			
460			1							1		1		1
470						1					1			
480		1								1				
490								1			1			
500												1		1
510						1					1			

CP3 A-E

72 SPG. C. armatus

	276 ♂	276 ♀	277 ♂	277 ♀	278 ♂	278 ♀				Σ ♂	Σ ♀	NS		OSU 1450 NS
520														
530														
540		1		1		1					3			
550														
560												1		1
570												1		1
580														
590		1									1			
600														
610														
620				1							1			

CP3 A-E

73' SPG C. armatus

Σ 72-73

	321-22 ♂	321-22 ♀	323 ♂	323 ♀	324 ♂	324 ♀	NS	Σ ♂	Σ ♀	Σ NS	Σ
<80											
81-90							1			1	1
91-100											
110							1			2	2
120											
130										2	2
140							1			2	2
150							1			1	1
160							2		1	4	5
170								1		1	2
180							2	1		2	3
190							4	1	1	6	8
200							2	1	1	2	4
210							3	2	1	5	8
220							3	2		4	6
230							2		1	4	5
240			1	1	1		3	2	1	4	7
250			1				2	2		3	5
260	1							1			1
270		1					1		1	1	2
280	1	1		1			1	1	2	2	5
290	1							2	3	4	9
300				1	1	1		4	2		6
310							1	3	1	3	7
320						1			1		1
330		1	1		1			4	3		7
340											
350								1	1		2
360		1	1					1	2	1	4
370										2	2
380				1				2	1	1	4
390			1					2	2	2	6
400				1		1			3		3
410									1	2	3
420					1			2		1	3
430											
440											
450		1							4		4
460								1		1	2
470		1							2		2
480		1						1	1		2
490									1		1
500		1							1	1	2
510									1		1

CP3 A-E
73 SP6 C. armatus

Σ 72-73

	321-22 ♂	321-22 ♀	324 ♂	324 ♀					Σ ♂	Σ ♀	Σ NS	Σ E		
520				1						1		1		
530														
540										3		3		
550		1								1		1		
560											1	1		
570				1							1	1		
580				1										
590										1		1		
600														
610														
620			1							1		1		
630														
640														

OSU 1450

CP 3 A-E

73 FALL C. armatus

332 – 336

		NS
<80		
81-90	1	1
91-100		
110	II	2
120	I	1
130		
140	II	2
150	II	2
160	II	2
170	II	2
180	II	2
190	I	1
200	II	2
210	I	1
220	IIII	5
230	I	1
240	III	3
250	I	1
260	II	2
270	II	2
280	I	1
290	I	1
300	IIII	4
310	II	2
320	IIII	5
330	III	3
340	I IIII	6
350	IIII I	6
360	IIII III	8
370	IIII	4
380	I IIII	8
390	II	2
400	III IIII	8
410	III	3
420		
430	III	3
440	II	2
450	II	2
460	III	3
470	I	1
480	III	3
490	IIII I	6
500	III	3
510		

		NS
520	I	1
530		
540	II	2
550	III	3
560		
570	I	1
580	I	1
590		
600	I	1

OSU 1450

CP 4 A-E

SPRING C. armatus

OSU 1450

			E											
<80														
81-90														
91-100														
110														
120														
130														
140														
150	1		1											
160														
170														
180														
190														
200	1		1											
210	1		1											
220	11		2											
230														
240	11		2											
250	11		2											
260	1		1											
270														
280	11		2											
290														
300	1		1											
310														
320	1111		4											
330														
340	111		3											
350	11		2											
360	1		1											
370	1		1											
380														
390														
400	1		1											
410	1		1											
420														
430	1		1											
440	1		1											
450	1111		4											
460	1		1											
470														
480	11		2											
490	11		2											
500	1		1											
510														
620	1		1											

TP BMI's C. armatus

	3354–3687 228–233			3585–3990 m 298–309											
	♂	♀		♂	♀				♂	♀	MS	E	NS DSU 1450		
<80											6	6	1 IIII		
81-90															
91-100															
110															
120		1								1	1	2	1		
130															
140	1								1			1			
150															
160															
170															
180				1					1			1			
190											1	1	1		
200											1	1	1		
210											1	1	1		
220											1	1	1		
230											2	2	II		
240				1					1		2	3	II		
250													1		
260															
270											1	1	1		
280		1		1					1	1	3	5	III		
290		1								1	3	4	III		
300	III								3		1	4	1		
310				III					3		2	5	II		
320		1								1		1			
330	1								1		2	3	II		
340															
350	1			1					2			2			
360											1	1	1		
370	III	1							3	1	3	7	III		
380				1	1				1	1	1	3	1		
390		1								1	1	2	1		
400	1	1			II				1	3		4			
410				1					1		2	3	II		
420	1								1		1	2	1		
430				1					1			1			
440	II								2			2			
450		1		1					1	1	1	3	1		
460	1	1		1					2	1	1	4	1		
470					II					2		2			
480	1				II				1	2		3			
490	1			II					3			3			
500	1			III					4			4			
510	1			1					2			2			

TP

	228-233			298-310										OSU 1450
	♂	♀		♂	♀				♂	♀	NS	Σ	NS	
520				II					2			2		
530				II	1				2	1		3		
540				I					1			1		
550	1			I					2			2		
560				III					3			3		
570				I					1		1	2	1	
580				I	1				1	1		2		
590		1								1		1		
600														
610				1					1			1		
620	1			1					2			2		
630				1					1			1		
640														
650														
660		1			1					2		2		
670														
680		1			1					2		2		
690											1	1	1	
700				1					1			1		
710		1								1		1		
720														
730														
740														
750														
760														
770														
780														
790														
800					1				1			1		
810														
820														
830														
840														
850														
860														
870					1					1		1		
880														
890					1					1		1		
900														
910														
920														
930					1					1		1		
~														
980					1					1		1		

Spring OTB's
NH-65 (CP-3E) C. armatus

	172		283										E			
	♂	♀	♂	♀	♂	♀	♂	♀			NS	♂	♀	OSU 1400		
<80																
81-90											1			1		
91-100																
110																
120																
130											1			1		
140																
150																
160																
170																
180	1											1		1		
190											1			1		
200																
210			1									1				
220																
230				1									1			
240																
250																
260				1							1		1	2		
270																
280											1			1		
290																
300											1			1		
310				1							1		1	2		
320		1		1									2	2		
330											1			1		
340		1									1		1	2		
350				1									1	1		
360																
370											1			1		
380																
390																
400											1			1		
410				1									1	1		
420		1											1	1		
430																
440	1										1	1		2		
450		1											1	1		
460																
470		1											1	1		
480			1													
490												1		1		
500																
510											(1)520			1		

Summer OTB's
NH-65 (CP-3-E) C. armatus

77, 79 | Z 58

	♂	♀	♂	♀	OSU 1450
<80					
81-90					
91-100					
110					1
120					1
130					
140					1
150					1
160					1
170					
180					1
190					
200					3
210					
220					2
230					1
240					2
250					2
260					
270		1			2
280				1	2
290			1		1
300	1	1			2
310			1		2
320	1	1		1	1
330	1				2
340					1
350	1			1	1
360	1	1	1		
370				1	3
380					1
390	1			1	1
400		2			2
410	1	5	1		2
420					1
430		1			3
440		1			2
450					
460				1	1
470		1		1	2
480		1			2
490					3
500		3		1	
510					1

SUM OTB's

NH-65(CP3-E) C. armatus

77

	♂	♀												
520		1												1
530		11												1
540														
550		1												
560														
570		1												
580														
590														
600														

FALL OTB's WINTER

CP3-E C. armatus

	F 132			W 154		155							
	♂	♀		♂	♀	♂	♀			NS	♂	♀	Σ OSU 1450
<80													
81-90										1			1
91-100													
110													
120													
130													
140													
150													
160													
170										1			1
180						1				1	1		2
190													
200										1			1
210													
220				1						1	1		2
230										1			1
240					1							1	1
250				11			1				2	1	3
260										1			1
270				1	1		1				1	2	3
280				1	1	1					2	1	3
290				11							2		2
300						11	1				2	1	3
310													
320				1			1			1	1	1	3
330													
340				1			1				1	1	2
350													
360				1							1	1	2
370				1							1		
380					11		11					4	4
390						1					1		1
400	1										1		
410	1			1			1				2	1	3
420		1					1					2	2
430					1		1					3	3
440					1		1					2	2
450													
460				1							1		1
470													
480													
440													
500										11			2
570													

FALL OTB's WINTER

CP3E C. armatus

	F ♂ 132	F ♀		W ♂ 151	W ♀	155 ♂	155 ♀				NS ♂	NS ♀	OSU ~~950~~
520											1		1
530													
540													
550													
560													
570							1					1	1
580													
590													
600													
610													
620													
630													
640													
650													
660					1							1	1
670													
680													
690													
700													

OTB's Σ

C. armatus NH-65 (CP 3-E)

OSU 1450

	♂	♀	NS	Σ
<80				
81-90			II	2
91-100				
110			I	1
120			I	1
130			I	1
140			I	1
150			I	1
160			I	1
170			I	1
180	II		I	4
190			I	1
200	I		IIII	5
210				
220	I		III	4
230		I	II	3
240		I	II	3
250	II	I	II	5
260		I	II	3
270	I	III	II	6
280	II	II	III	7
290	III		I	4
300	III	II	III	8
310	I	I	III	5
320	II	III	II	7
330			III	3
340	I	II	II	5
350	II	I	I	4
360	III	II		5
370	I	I	IIII	6
380		IIII	I	5
390	II	I	I	4
400	I	II	III	6
410	IIII	~~IIII~~ III	II	16
420		III	I	4
430		IIII	III	8
440	I	IIII	III	8
450		I		1
460	I	I	I	3
470		III	II	5
480		I	II	3
490	I		III	4
500		IIII	II	6
510			I	1
520		I	III	4
530		II	I	3
540				
550		I		1
560			I	1
570		II		2
580				
590				
600				
610				
620				
630				
640				
650				
660		I		1

OTB TP (#s 81, 162, 163, 331, 334)

C. armatus

♂ ♀ NS

OSU 1450

<80-90			
91-100			
110			
120			
130			
140			
150			
160			
170			
180			
190			
200			
210			
220			
230			
240			
250			
260			
270			
280			
290			
300			
310			
320			
330			
340			
350			
360			
370		2	
380	1		
390			
400			
410	1		
420			
430			
440			
450			
460			
470	1		
480	1		
490	1		
500	1		
510			
520			

OTB TP (#81, 162, 163, 331, 334)

C. armatus

OSU 1450

	♂	♀	NS											
520														
530														
540														
550														
560														
570														
580														
590	1													
600														
610														
620		1												
630														
640														
650														
660														

BMT'S CPI A-B SUM

C. filser

	93 ♂	93 ♀	94 ♂	94 ♀	95 ♂	95 ♀	97 ♂	97 ♀			♂	♀	Σ
<200													
201-210													
211-220													
230													
240													
250													
260													
270			1								1		1
280													
290													
300													
310		2										2	2
320													
330													
340													
350													
360					1						1		1
370													
380													
390													
400													
410													
420													
430													
440													
450			1								1		1
460													
470			1								1		1
480			1				1				2		2
490			2								2		2
500			1				1				2		2
510	1		2								3		3
520													
530	1		2				1	1			4	1	5
540			2	2	1		3	1			6	3	9
550				1	2		1				3	1	4
560	1	1	1	1		1					2	3	5
570						1	1	2			1	3	4
580	3		1		2	1		1			6	2	8
590	1	1	1				1				3	1	4
600	2				1		1	2			4	3	7
610		3			2		1	1			3	4	7
620	1										1		1

OSU 1450

BHT'S CPI A-B SUM

C. filifer

	93		94		95		97						
	♂	♀	♂	♀	♂	♀	♂	♀			♂	♀	Σ
630	//	/									2	/	3
640			/		/			/			2	/	3
650	/							//			/	2	3
660					/		/	/			2	/	3
670						/						/	/
680													
690						/						/	/
700													

OSU 1450

BITS CP1 A-B

C. filifer FALL – Spg

	F 113		192		193		194		195			E		
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	NS	♂	♀	OSU 1~~5~~00
<200		2											2	2
200-210														
211-220														
230														
240														
250														
260														
270									1			1		1
280		1											1	1
290														
300														
310					1							1		1
320			1									1		1
330		1											1	1
340														
350					1							1		1
360				1									1	1
370														
380				1									1	1
390														
400														
410					11							2		2
420														
430										1			1	1
440														
450														
460														
470	1		1			1						2	1	3
480														
490					1							1		1
500			1			1						1	1	2
510	1			1	1							2	1	3
520					1					1	1	1	1	3
530			11				1					3		3
540			11	1		1					1	2	2	5
550		1							1			1	1	2
560				1	1	11						2	3	5
570			1	1			1					2	1	3
580	1		11				1					4		4
590			1	1					1	1		2	2	4
600			11	1	111	1						5	2	7
610			11		1	1						3	1	4
620	1	1		111								1	4	5

BMT CP1 A-B

C. filifer Fall_ Spg

	F 113 ♂	F 113 ♀	Spr 192 ♂	Spr 192 ♀	193 ♂	193 ♀	194 ♂	194 ♀	195 ♂	195 ♀	NS	E ♂	E ♀	OSU 1550 E
630		1	1		1	III						2	4	6
640	1		1	II		1	1		1			4	3	7
650			1		1				1		1	3		4
660						1							1	1
670														
680				1		1		1					3	3
690			1			1						1	1	2
700				1									1	1
710				1		1							2	2
720														
730														
740										1			1	1
750										1			1	1

C. filifer BATS,

CP2 A-E WIN 70

	154		155		156		157		158		159-60		161-62	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂ OSU 1450	♀
<200														
201-210														
211-220														
230														
240														
250														
260														
270														
280												/		
290														
300							/							
310														
320														
330														
340														
350												/		
360														
370														
380														
390				/										
400														
410												/ NS		
420														
430														/
440														
450														
460														
470	/					/								
480														
490							/					/		
500												/		
510												/		
520				//									/	
530	/							/	/	/		/		
540			/		/				/					
550	/			//	/					/				
560		/		/				/			/		/	
570		/					/				/		/	
580			/						/			//	///	//
590											/	/		
600			/									/		
610	//		//			/	/		/			/		
620		//	/	//					/					/
630		//												//

C. filifer BMT's
CP2-A-E WIN 70

	154		155		156		157		158		161-162			
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀		
640	1	1						II		1				
650	1		II	1				II						
660				1		1		1						
670						1						1		
680														
690														
700														
710		1		1										
720														

OSU 1450

C. filifer

CP2 A-E WIN '71

E

256-58 259 260-262 263 264-272

	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	NS	♂	♀	OSU 1450 Σ
<200														
201-210														
211-220														
230														
240														
250														
260														
270														
280														
290														
300														
310														
320														
330														
340														
350									1			1		1
360			1									1		1
370														
380					1				1			2		2
390														
400								1					1	1
410					1							1		1
420				1			1					1	1	2
430														
440														
450						1							1	1
460									1			1		1
470	///	1								1		3	2	5
480				1									1	1
490			1	1	1			1	//			4	2	6
500									///	//		3	2	5
510			1						1	1		2	1	3
520	1		1			1				1		2	2	4
530		1			1					1		1	2	3
540	1								1	//		2	2	4
550										1			1	1
560				1			1		//			4	3	7
570						1			1 ///	1		6	2	8
580					///	1				1		4	2	6
590					1		1		1	//		5	3	8
600			1		1		1	1	1			3	2	5
610	1	1	1	1	1				1	///		6	7	13
620	1	1		1	1		1		1	///		5	9	14
630	///	1		///	1	//		//	1	1		5	9	14

C. filifer

CP2 A-E WIN '71

	256-58		259		260-62		263		264					
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	LS	♂	♀	OSU 1260
640		1		///					///	//		3	6	9
650		//	/	/	/	/			///	///	/	5	9	15
660						/		/	//	//		2	5	7
670					/	/				//		1	3	4
680		1											1	1
690										1			1	1
700														

CP2A-E

FALL

253-255

C. filifer

SPR71

276-282

SPR72

321-324

CP3 A-E

WIN

315-320

	♂	♀		♂	♀	♂	♀	♂	♀		NS ♂	NS ♀	OSU 1450 NS ♂	OSU 1450 NS ♀
<200														
201-210														
211-220														
230														
240														
250														
260														
270					1									
280														
290														
300														
310														
320														
330														
340														
350									1					
360														
370									1					
380											1			
390														
400														
410									1		1			
420														
430								1	1		1			
440														
450				1					1		1			
460	1													
470														
480				1		1			1			2	1	
490														
500							1				1		1	
510														
520				1		1						2		
530					1			1	1			1	2	
540								1				2		
550									1		1		1	
560	1			1	1			1				3	1	
570								1	1		1	2	1	
580					1			1	1		1	2	3	
590					1		1	1	1			2	7	
600							1	1	1			1	4	
610		1		1	1				1			1	7	
620					1			1	1			1	3	
630									1		1		1	

CP2 A-E

C. filifer ~~CP2 A-E~~ CP3 A-E

	FALL 253-255 ♂	FALL 253-255 ♀	SPR 71 276-282 ♂	SPR 71 276-282 ♀	SPR 72 321-324 ♂	SPR 72 321-324 ♀	WIN 315-320 ♂	WIN 315-320 ♀	NS	Σ ♂	Σ ♀
640				1	1			11	1	1	3
650			1	11				1		1	3
660						1		1		2	
670							1			1	
680		1				1		1			3
690											
700				1							1
710											
720								1			1
730								1			1
740											
750											
760											
770								1			1

OSU 1450

C. leptolepis BMT's

CD2 A-E

	WIN '30 ♂	WIN '30 ♀	WIN '30 NS	WIN '31 ♂	WIN '31 ♀	WIN '31 NS	FALL ♂	FALL ♀	FALL NS	OSU ♂	OSU ♀	Σ
<80			1			1111						7
81-90			1			1						2
91-100						1111						4
110						1111						4
120						111						3
130	11					11				2		4
140	11	11	1			11				2	2	7
150			1	1						1		2
160		1	11			11					1	5
170	1	11				111				1	2	6
180					1						1	
190			1		11						2	3
200				1	1	1				1	1	3
210			1									1
220						1						1
230				1						1		1
240												
250		1									1	1
260												
280												
280												
290												
300						1						1
310				11						2		
320	1									1		1
330	1									1		1
340		1			1						2	2
350												
360					1						1	1
370		1		1						1	1	2
380		1			1						2	2
390					11						2	2
400					1						1	1
410		1			1						2	2
420		1				1					1	2
430					1111						4	4
440					111						3	3
450					1						1	1
460												
470					1			1			2	2
480												
490												
500												
570		1						1			2	2

C. leptolepis all stn.

	CPI-A-B ♂	CPI-A-B ♀	CPI C-E ♂	CPI C-E ♀	A-B NS	C-E NS
<80					////	
81-90					///	
91-100						
110					/	
120					/	
130						
140						
150					/	
160		//				
170						
180						
190		/				
200						
210						
220	//					
230						
240						
250						
260						
270						
280	/					
290	/					
300	/	/				
310		/				
320		/				
330	/	/				
340		/				
350		/				
360		//				
370						
380						
390	/	/				
400		/				
410						
420						
430						
440						
450						
460						
470						
480						
490		/				
500						
510						

OSU 1450

SPECIES LIST

AGNATHA: 900
- Eptatretus deanii 90001 — Eptatretus sp 90099
- Eptatretus stoutii 90002
- Entosphenus tridentata 90003

RAJIDAE: 901
- Raja binoculata 90101
- inornata 90102
- kincaidii 90103
- rhina 90104
- stellulata 90105
- trachura 90106
- Unident 90199
- Bathyraja spinosissima 90120

HOLOCEPHALI: 902
- Hydrolagus colliei 90201

PLEUROTREMATA: 903
- Apristurus brunneus 90301
- Squalus acanthias 90302

NOTACANTHIDAE: 032
- Notacanthus chemnitzii 03201
- Polyacanthonotus challengeri 03202

OSMERIDAE: 045
- Allosmerus attenuatus 04501
- elongatus 04502
- Hypomesus pretiosus 04505
- Spirinchus dilatus 04510
- Thaleichthys pacificus 04515

BATHYSAURIDAE: 066
- Bathysaurus mollis 06601

GADIDAE: 174
- Microgadus proximus 17401

MORIDAE: 172
- Antimora rostrata 17201

MACROURIDAE: 180
- Coryphaenoides acrolepis 18001 — 18099 Unsp
- armatus 18002
- filifer 18003
- leptolepis 18004
- pectoralis 18005
- yaquinae 18006
- Nezumia stelgidolepis 18010

CINEREUS 18007

OPHIDIIDAE: 176

Parabassogigas grandis	17601
Cataetyx rubrirostris	17605
Brosmophycis marginata	17610
Sciadonus pedicellaris	17615
Barathronus pacificus	17620

17699 - undet ophiond
17698 - undet [illegible]
17697 - Bassogigas profundissimus

ZOARCIDAE: 179

Aprodon cortezianus	17901
Bothrocara brunneum	17905
molle	17906
Embryx crocatalina	17910
Lycodes diapterus	17915
Lycodopsis pacifica	17918
Lycenchelys "A"	17920
"B"	17921
"C"	17922
"D"	17923
"E"	17924
camchaticus	17930
Maynea bulbiceps	17935
Taranetzella lyoderma	17940

undet 17999
B. pusillus 17907
B. new genus 17908

SCORPAENIDAE: 234

Sebastolobus alascanus	23401
altivelis	23402
Sebastes alutus	23405
aurora	23406
crameri	23407
diploproa	23408
elongatus	23409
entomelas	23410
helvomaculatus	23411
jordani	23412
melanops	23413
pinniger	23414
proriger	23415
rosaceus	23416
ruberrimus	23417
rubrivinctus	23418
saxicola	23419
wilsoni	23420
zacentrus	23421

Sebastolobus sp. 23403
Sebastes sp 23424

HEXAGRAMMIDAE: 240

Hexagrammus superciliosus	24001
Ophiodon elongatus	24005

ANOPLOPOMIDAE: 241

Anoplopoma fimbria	24101

COTTIDAE: 247

Chitonotus pugetensis		24701
Cottus asper		24702
Enophrys bison		24703
Hemilepidotus spinosus		24704
	hemilepidotus	24705
Icelinus tenuis		24706
	filamentosus	24707
Leptocottus armatus		24710
Paricelinus hopliticus		24711
Scorpaenichthys marmoratus		24712
Radulinus asprellus		24713

PSYCHROLUTIDAE: 252

Psychrolutes sp. 25201

AGONIDAE: 253

Asterotheca pentacantha	25301
Agonopsis emmelane	25305
Bathyagonus nigripinnis	25308
Occa verrucosa	25310
Xeneretmus triacanthus	25312
Xenopyxis latifrons	25315
Pallasina barbata	25318
Agonus acipenserinus	25320

LIPARIDAE: 254

Careproctus filamentosus		25401
	gilberti	25402
	longifilis	25403
	microstomus	25404
	melanurus	25405
	ovigerum	25406
	oregonensis	25407
	cypselurus	25408
Elassodiscus caudatus		25415
Osteodiscus cascadiae		25418
Odontoliparis ferox		25420
Liopariscus nanus		25421
Nectoliparis pelagicus		25422
Rhinoliparis attenuatus		25423
	barbulifer	25424
Acantholiparis caecus		25425
	opercularis	25426
Paraliparis cephalus		25427
	paucidens	25428
megalopus =	intermedius	25429
	latifrons	25430
	mento	25431
	dactylosus	25432
	pectoralis	25433
	rosaceus	25434
	ulochir	25435
	deanii	25436
	melanobranchus	25437
Liparis cyclopus		25445
florae		25446
pulchellus		25447

BATHYMASTERIDAE: 336
Ronquilus jordani 33601

ANARRHICHADIDAE: 355
Anarrhichthys ocellatus 35501

STICHAEIDAE: 364
Delolepis gigantea 36401
Lumpenus anguillaris 36405
Lyconectes aleutensis 36408
Plectobranchus evides 36410
Poroclinus rothrocki 36413

PHOLIDAE: 366
Apodichthys flavidus 36601

AMMODYTIDAE: 371
Ammodytes hexapterus 37101

BOTHIDAE: 403
Citharichthys sordidus 40301
stigmaeus 40302

PLEURONECTIDAE: 404
Atheresthes stomias 40401
Embassichthys bathybius 40402
Eopsetta jordani 40403
Glyptocephalus zachirus 40405
Isopsetta isolepis 40408
Hippoglossoides elassodon 40410
Lyopsetta exilis 40412
Microstomus pacificus 40414
Parophrys vetulus 40416
Platichthys stellatus 40418
Pleuronichthys decurrens 40420
Psettichthys melanostictus 40422

CYNOGLOSSIDAE: 406
Symphurus atricauda 40601

NOTE: Any unidentified species will be listed as ---99.

List of trawls tabulated

NH 35 - OTB# ~~2~~, 10, ~~36~~, ~~[illegible]~~, 310, ~~[illegible]~~

NH 39 - OTB# ~~1~~, 7, ~~22~~, 46, ~~75~~, 82, ~~94~~, ~~103~~, 175, 183, 209, 225, 245, ~~256~~, 314

NH 50 - OTB# 63, 93, 184, 208, 224, ~~241~~, 313

NH 55 - OTB# 64

NH 65 - OTB# ~~1~~, 29, ~~38~~, 77, 79, ~~92~~, 112, 132, 154, 155, 172, 185, 186, 223, 243, 258, 276, 283, [284, 285, 286] Combined 294, 301,

NH 85 - OTB# 31, 49

NH 90 - OTB# ~~39~~

NH 105 - OTB# 30, 48, 90

NH 145 - OTB# 61, 88

NH 165 - OTB# 102

NH 235 - OTB# 81

NH 350 - OTB# ~~162~~

NH 450 - OTB# ~~163~~

TP-2 - OTB# 331

TP-4 - OTB# 334

THB-11 - OTB# 169, 189, 204, 221, 240,

THB-15 - OTB# 170, 188, 205, 241

THB-19 - OTB# 78, ~~156~~, 242, 187

~~THB-21 - OTB# 111~~

WS - OTB# 40, 41, 42

PG 100 - OTB# ~~184~~

1–4 TRAWL ID	5–8 SPECIES CODE	9–12 ΣNO.	13–16 ΣWT	17–20 L	21–24 W	25–28 L	29–32 W	OSU 1450
01 — Agnatha								
02 Rajidae								
03 Sharks								
05 Notacanthidae								
07 ~~Congridae~~								
12 ~~Gadidae~~								
13 ~~Ophidiidae~~								
14 ~~Zoarcidae~~								
15 ~~Macrouridae~~								
16 ~~Moridae~~								
21 ~~Bathymasteridae~~								
22 Stichaeidae								
Phelidae								
Anarrichadidae								
Pomacentridae								
30 Scorpaenidae								
31 Anoplomatidae								
34 Hexagrammidae								
35 Cottidae								
36 Agonidae								
37 Liparidae								
38 Cyclopteridae								
40 Bothidae								
41 Pleuronectidae								
~~Bathysaurida~~								
~~Aphyonidae~~								
~~Myxinidae~~								
Ophidiontidae								

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- Raja rhina 90104
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- Raja trachura 90106
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- Coryphaenoides pectoralis 18005
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	"C"	17922
	"D"	17923
	"E"	17924
	camchaticus	17930
Maynea	bulbiceps	17935
Taranetzella	lyoderma	17940

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Sebastolobus	alascanus	23401
	altivelis	23402
Sebastes	alutus	23405
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	crameri	23407
	diploproa	23408
	elongatus	23409
	entomelas	23410
	helvomaculatus	23411
	jordani	23412
	melanops	23413
	pinniger	23414
	proriger	23415
	rosaceus	23416
	ruberrimus	23417
	rubrivinctus	23418
	saxicola	23419
	wilsoni	23420
	zacentrus	23421

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	filamentosus	24707
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Paricelinus	hopliticus	24711
Scorpaenichthys	marmoratus	24712
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Psychrolutes sp. 25201

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Bathyagonus	nigripinnis	25308
Occa	verrucosa	25310
Xeneretmus	triacanthus	25312
Xenopyxis	latifrons	25315
Pallasina	barbata	25318
Agonus	acipenserinus	25320

LIPARIDAE: 254

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	longifilis	25403
	microstoma	25404
	melanurus	25405
	ovigerum	25406
	oregonensis	25407
	cypselurus	25408
Elassodiscus	caudatus	25415
Osteodiscus	cascadiae	25418
Odontoliparis	ferox	25420
Liparis cus	nanus	25421
Nectoliparis	pelagicus	25422
Rhinoliparis	attenuatus	25423
	barbulifer	25424
Acantholiparis	caecus	25425
	operc ularis	25426
Paraliparis	cephalus	25427
	paucidens	25428
megalepus	~~intermedius~~	25429
	latifrons	25430
	mento	25431
	dactylosus	25432
	pectoralis	25433
	rosaceus	25434
	ulochir	25435
	deanii	25436
	melanobranchus	25437
Liparis	cyclopus	25445
	florae	25446
	~~pu~~chellus	25447

	Jan	Feb	Mar.	April	May	June	July	Aug	Sept.	Oct.	Nov	Dec
BMT	154	256	69		228	232	2		1 DWD	113		
	155	258	72		229	233	24		2 DWD	117		
	156	259	185		276	288	26		3 DWD	118		
	157	260	186		277	289	89		4 DWD	120		
	158	261	187		278	293	91		5 DWD	255		
	159	262	188		280		90		6 DWD			
	160	263	190				93		7 DWD			
	161	264	191				94		8 DWD			
	162	265	192				95		9 DWD			
	163	266	193				97		10 DWD			
		268	194						251			
		269	195						252			
		270	197						253			
		271										
		272										
OT B	48	20*	7	5	29	75	1 KK	38	46	87		18 RA fish
	49	23	24	61	30	284	2 KK	39		88		19 RA fish
	50	313	283	63	31	285	76	40 RA fish		89		102
	51			64		286	78	41		90		103
	52			65		287	258	42		93		
	53			66		331		79		132		
	154			170		334		81		272		
	155			172				126				
	221			245								
	223											
	224											
OT			1			52		21		27		40
								22*		28		42
								24		29		43
Total Samples	21	18	17	9	9	13	15	11	14	15	—	7

* ≤ 200 m

BMT #	STATION	DATE TAKEN
I	DWD	I/IX/7I
2	DWD	2/IX/7I
3	DWD	5/IX/7I
4	DWD	5/IX/7I
5	DWD	8/IX/7I
7	DWD	IO/IX/7I
8	DWD	IO/IX/7I
9	DWD	II/IX/7I
I0	DWD	II-I2/IX/7I
2	NH-11	7/VII/67
24	NH-38	I4/VII/68
26	NAD 65-I	I6/VII/68
69	NAD-II	28/III/69
72	THB I9	30/III/69
89	THB I9	I4/VII/69
9I	CPI-B	I5/VII/69
90	CP-IB	I4/VII/69
93	CP-IC	I5/VII/69
94	CP-ID	I6/VII/69
95	CP-I-D	I6/VII/69
97	CP-IE	I7/VII/69
II3	CP-IA	3/X/69
II7	CP-IC	5/X/69
II8	CP-ID	5/X/69
I20	NH-65	6/X/69
I54	CP-2A	I6/I/70
I55	CP-2A	I6/I/70
I56	CP-2B	I7/I/70
I57	CP-2C	I7/I/70
I58	CP-2A	I7/I/70
I59	CP-2C	I8/I/70
I60	CP-2D	I8/I/70
I6I	CP-2D	I9/I/70
I62	CP-2D	I9/I/70
I63	CP-2E	I9/I/70
I85	CP-IE	I6/III/70
I86	CP-IE	I6/III/70
I87	CP-ID	I7/III/70
I88	CP-ID	I7/III/70
I90	CP-IC	I8/III/70
I9I	CP-IC	I8/III/70
I92	CP-IB	I9/III/70
I93	CP-I-B	I9/III/70
I94	CP-IA	20/III/70
I95	CP-IA	20/III/70
I97	THB-II	20/III/70
228	TP-I	30/V/70
229	TP-I	3I/V/70
232	TP-3	3/VI/70
233	TP-3	4/VI/70
25I	THB-I9	27/IX/70
252	NAD-2I	30/IX/70
253	CP-2E	30/IX/70
255	CP-2E	I/X/70
256	CP-2A	I4/II/7I
258	CP-2A	I5/II/7I
259	CP-2A	I5/II/7I
260	CP-2A	I6/II/7I
26I	CP-2B	I6/II/7I
262	CP-2B	I7/II/7I
263	CP-2B	I7/II/7I
264	CP-2C	I7/II/7I
265	CP-2C	I8/II/7I
266	CP-2C	I8/II/7I
268	CP-2D	I9/II/7I
269	CP-2D	I9/II/7I
270	CP-2E	20/II/70
27I	CP-2E	20/II/7I
272	CP-2E	20/II/7I
276	CP-3A	I7/V/7I
277	CP-3A	I7/V/7I
278	CP-3A	I8/V/7I
280	CP-3C	I8/V/7I
288	CP-I-WW	I4/VI/72
289	CP-I-WW	I5/VI/72
293	CP-I-XX	I7/VI/72

BMT #	STATION	DATE TAKEN	BMT #	STATION	DATE TAKEN
~~1 DWD~~	DWD	1 IX 71	256	CP-2-A	14/II/71
5 DWD	DWD	8 IX 71	~~256~~		
24	NH-38	14/VII/68	258	CP-2-A	15/II/71
69	NAD-11	28/III/69	259	CP-2-A	15/II/71
89	THB-19	14/VII/69	260	CP-2-A	16/II/71
93	CP-1-C	15/VII/69	261	CP-2-B	16/II/71
94	CP-1-D	16/VII/69	262	CP-2-B	17/II/71
95	CP-1-D	16/VII/69	263	CP-2-B	17/II/71
97	CP-1-E	17/VII/69	264	CP-2-C	17/II/71
117	CP-1-C	5/X/69	265	CP-2-C	18/II/71
118	CP-1-D	5/X/69	266	CP-2-C	18/II/71
154	CP-2-A	16/I/70	268	CP-2-D	19/II/71
155	CP-2-A	16/I/70	269	CP-2-D	19/II/71
156	CP-2-B	17/I/70	270	CP-2-E	20/II/71
157	CP-2-C	17/I/70	271	CP-2-E	20/II/71
159	CP-2-C	18/I/70	272	CP-2-E	20/II/71
160	CP-2-D	18/I/70	276	CP-3-A	17/V/71
161	CP-2-D	19/I/70	277	CP-3-A	17/V/71
162	CP-2-D	19/I/70	278	CP-3-A	18/V/71
163	CP-2-E	19/I/70	280	CP-3-C	18/V/71
185	CP-1-E	16/III/70	72	THB 19	30/III/69
186	CP-1-E	16/III/70	187	CP-1-D	17/III/70
188	CP-1-D	17/III/70	113	CP-1-A	3/X/69
190	CP-1-C	18/III/70	288	CP-1-WW	14/III/72
191	CP-1-C	18/III/70	289	CP-1-WW	15/III/72
192	CP-1-B	19/III/70	~~290~~	~~CP-1-WW~~	~~15 III 72~~
193	CP-1-B	19/III/70	~~291~~	~~CP-1-WW~~	~~15 III 72~~
194	CP-1-A	20/III/70	~~292~~	~~CP-1-XX~~	~~16 III 72~~
195	CP-1-A	20/III/70	293	CP-1-XX	17 III 72
197	THB-11	20/III/70	~~294~~	~~CP-1-XX~~	~~17 III 72~~
228	TP-1	30/V/70	91	CP1-b	15/VIII/69
229	TP-1	31 V 70	90	CP 1-b	14/VII/69
232	TP-3	3/VI/70	120	NH 65	6/X/69
233	TP-3	4/VI/70	158	CP-2A	17/I/70
251	THB-19	27/IX/70	~~2 DWD~~	~~DWD~~	2 IX 71
252	NAD-21	30/IX/70	8 DWD	DWD	10 IX 71
253	CP-2-E	30/IX/70	9 DWD	DWD	11 IX 71
255	CP-2-E	1/X/70	7 DWD	DWD	10 IX 71

QTR #	STATION	DATE TAKEN
1	KK	20/VII/66
2	NK	23/VII/66
78	NAD-3	1/VII/65
87	NAD-26	22/X/65
103	NAD-11	8/XII/65
126	NAD-11	25/VIII/66
[redacted] 313	NAD-11-B	19/II/70
170	THB-15	3/IV/67
221	THB-11	11/I/68
272	NAD-11	15/X/68
284	NAD-21	1/VI/69
285	NAD-21	2/VI/69
286	NAD-21	2/VI/69
287	NAD-21	6/VI/69
331	TP-2	1/VI/70
334	TP-4	5/VI/70
172	NAD21	4/III/67
93	NAD 15	24 X 65
88	NAD 25	22 X 65
90	NAD 23	23 X 65
66	NAD 11 B	11 IV 65
76	Coos Bay	27 VII 65
258	NH 65	15 VII 68
155	NAD-21	10/I/67
301	NAD 23	20/IV/64
63	NAD 15	8/IV/65
64	NAD 20-A	9/IV/65
20	NAD 2	18/II/64
89	NAD 24	23/X/65
245	NAD 11	4/IV/68
283	NAD 27	28/III/69
5	NAD 21	29/IV/63
7	NAD 11	31/III/63
18	NAD 21	29/XII/63
19	NAD 22	30/XII/63
23	NAD 21	20/II/64
24	NAD 11	23/III/64
29	NAD 21	19/V/64

OT #	STATION	DATE TAKEN	DwD #
27	WH 43	19/X/61	
28	WH 44	20/X/61	
40	WH 47	10/XII/61	
21		9/VIII/61	
22		10/VIII/61	
24		14/VIII/61	
29		20/X/61	
40		10/XII/61	
42		10/XII/61	
43		10-11/XII/61	
52		20/VI/62	
104			
1		28/III/61	

MT #
552

	BMT's	
I	January	𝍸 IIII
II	February	𝍸 𝍸 𝍸
III	March	𝍸 𝍸 III
IV	April	
V	May	𝍸
VI	June	𝍸
VII	July	𝍸 II
VIII	August	
IX	September	III
X	October	IIII
XI	November	
XII	December	

	OTB's	
I	January	I
II	February	
III	March	
IV	April	II
V	May	
VI	June	𝍸 I
VII	July	III
VIII	August	I
IX	September	
X	October	II
XI	November	
XII	December	I

CP - Cascadia Plain
THB - Tillamook Head
TP - Tufts Plain
NH - Newport Hydroline
NAD - Newport Anchor Dredge

C. acrolepis

% w./ body wt.

length	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	OSU 1650 14-15 other
1000														
980														
960														
940														
920														
900														
880														
860														
840														1
820														
800														
780		1							1					
760		2												
740	1	1												
720		2						1						
700		3						1						
680		3				1								
660	1	1	1	1										
640	1	1												
620														
600													1	
580	1	4												
560	1													
540							1							
520		1				1								
500	2													
480	2	1												
460	1													
440	2													
420	3													
400	8													
380	3													
360	5													
340	6													
320	3													
300	4													
280	4													
260	3													
240	1													
220	1													
200														
180														
160														
140														

acrolepis

OSU 1450

egg sizes	Stage I	Stage II	Stage III	Stage IV
.0 - .10				
.11 - .20	1			
.21 - .30	5			
.31 - .40		8		
.41 - .50		4		
.51 - .60		1		
.61 - .70				
.71 - .80				
.81 - .90			2	
.91 - 1.00			1	
1.01 - 1.10				
1.11 - 1.20				
1.21 - 1.30			3	
1.31 - 1.40			1	
1.41 - 1.50			2	
1.51 - 1.60			1	
1.61 - 1.70				
1.71 - 1.80				
1.81 - 1.90				
1.91 - 2.00				
2.01 - 2.10				3
2.11 - 2.21				

	1	2	3
Species	C. acrolepis	C. acrolepis	
Trawl #	BMT 194	BMT 113	
Date	20/III/70	3/X/69	
Fish length	762	760	
Fish wt.	1930	2720	
Ovary wt.	29.5	31.1	
Ovary/body	.015	.011	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.29	2.09	
min egg size			

Comments:

2) "ovary partially everted from cloaca"
Spawn out. Some IV in ovary at center. ovary flacid. matrix around walls contains some I's. IV's measured

1) Stage I. ovary wall tough. old stage IV present

	1	2	3
Species	C. acrolepis		
Trawl #	BMT 72		
Date	30/III/69		
Fish length	730	795	
Fish wt.	1487	2195	
Ovary wt.	27.6	25.0	
Ovary/body	.019	.011	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.54	.33	
min egg size			

Comments:

1) Stage II well developed II's

2) Stage I-II. Smaller than ave. II's but appear more developed than I's. Old stage IV present

	1	2	3
Species	C. acrolepis		
Trawl #	BMT 2		
Date	7/VII/67		
Fish length	406		
Fish wt.	177		
Ovary wt.	.6		
Ovary/body	.003		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 313		
Date	19/II/70		
Fish length	660	681	700
Fish wt.	990	1041	1374
Ovary wt.	3.9	12.9	104.5
Ovary/body	.004	.012	.076
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.34	.41	1.51
min egg size			

Comments:

1) Stage II. early II. perhaps classed I-II

2) Stage II. many Stage I present scattered with II's. Eggs difficult to determine stage. Perhaps between I + II

3) Stage III some irregular in shape. starting into late III stage

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 313		
Date	19/II/70		
Fish length	485	556	363
Fish wt.	472	734	163
Ovary wt.	1.7	47.9	.5
Ovary/body	.004	.065	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		1.23	
min egg size			

Comments:

2) Stage III. eggs mostly white.

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 313		
Date	19/II/70		
Fish length	365	289	
Fish wt.	164	90	
Ovary wt.	.4	.3	
Ovary/body	.002	.003	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 224		
Date	15/I/67		
Fish length	720	796	721
Fish wt.	1504	1912	1164
Ovary wt.	106.1	152.7	22.1
Ovary/body	.071	.080	.019
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	1.44	1.28	.38
min egg size			

Comments:

1) Stage III

2) Stage III. some eggs white, others yellow. eggs uniform in development

3) old Stage IV present. Stage II. eggs difficult to determine Stage

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 224		
Date	15/I/67		
Fish length	689	591	597
Fish wt.	1633	804	763
Ovary wt.	26.7	10.1	13.7
Ovary/body	.016	.013	.018
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.41	.37	.86
min egg size			

Comments:

1) Stage II.

2) Stage II. Some what immature for this but not I.
@ much perit. space.

3) Stage III. ovary small for this stage.

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 224		
Date	15/I/67		
Fish length	366	319	341
Fish wt.	266	127	111
Ovary wt.	.7	.2	.2
Ovary/body	.003	.002	.002
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 224		
Date	15/I/67		
Fish length	353		
Fish wt.	202		
Ovary wt.	.6		
Ovary/body	.003		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB170		
Date	3/IV/67		♂
Fish length	360	353	590
Fish wt.	173	162	1076
Ovary wt.	.2	.2	19.2
Ovary/body	.001	.001	.018
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 170		
Date	3/IV/67		
Fish length	706	602	415
Fish wt.	1645	1143	233
Ovary wt.	12.0(½)	72.9(½)	.4
Ovary/body	.015	.128	.002
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		2.05	
min egg size			

Comments:

2) Stage IV. eggs still held loosely in matrix

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 170		
Date	3/IV/67		
Fish length	281	275	407
Fish wt.	63	54	253
Ovary wt.	.2	<.1	.2
Ovary/body	.003		.0008
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 170		OTB 93
Date	3/IV/67		
Fish length	445	420	650
Fish wt.	316	360	1144
Ovary wt.	.2	.3	
Ovary/body	.0006	.0008	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			1.50
min egg size			

Comments:

3) Stage III advanced

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 93		
Date	24/8/65		
Fish length	442	581	518
Fish wt.	260	691	832
Ovary wt.	1.0	12.4	7.4
Ovary/body	.004	.018	.009
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			.20
min egg size			

Comments:

3) Stage I. all eggs small and about same stage of maturity

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 93		
Date	24/X/65		
Fish length	381	316	414
Fish wt.	283	150	197
Ovary wt.	.7	.3(½)	.7
Ovary/body	.003	.004	.004
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.25		
min egg size			

Comments:

1) Stage I.

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 93		
Date	24/X/65		
Fish length	373	748	342
Fish wt.	190	1159	195
Ovary wt.	.4	21.1	.7
Ovary/body	.002	.018	.004
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		.37	
min egg size			

Comments:

2) Stage I-II.

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 93		
Date	24/IX/65		
Fish length	696	698	657
Fish wt.	1390	1035	1045
Ovary wt.	78.7	14.3	18.5
Ovary/body	.057	.014	.018
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	1.21	.41	.41
min egg size			

Comments:

1) Stage III. typical III with many oil droplets thruout

2) Stage II firm in matrix. appear as black dots

3) Stage II. typical

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 89		
Date	23/X/65		
Fish length	597		
Fish wt.	812		
Ovary wt.	7.5		
Ovary/body	.009		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.26		
min egg size			

Comments:

1) Stage I

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 78		
Date	1/VII/65		
Fish length	407	701	747
Fish wt.	214	1283	1611
Ovary wt.	.5	15.5	4.8
Ovary/body	.002	.012	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		.33	
min egg size			

Comments:

2) Stage I-II. ◉ A bit small and immature to be classed as II.

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 66		
Date	11/IV/65		
Fish length	678	324	
Fish wt.	1360	101	
Ovary wt.	15.0	.2	
Ovary/body	.011	.002	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

1)

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 63		
Date	8/IV/65		
Fish length	700	420	
Fish wt.	1312	211	
Ovary wt.	20.1	.8	
Ovary/body	.015	.004	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.49		
min egg size			

Comments:

1) advanced Stage II. well formed - round
little perivitelline space

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 41		
Date	14/VIII/64		
Fish length	525	434	392
Fish wt.	—	—	—
Ovary wt.	3.6	1.5	.7
Ovary/body	—	—	—
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 41		
Date	14/VIII/64		
Fish length	411	482	
Fish wt.	—	—	
Ovary wt.	.7	2.7	
Ovary/body	—	—	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		.25	
min egg size			

Comments:

2) Stage I typical

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 40		
Date	14/VIII/64		
Fish length	350	320	338
Fish wt.	—	—	—
Ovary wt.	.4	.2	.4
Ovary/body	—	—	—
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 40,41,42		
Date	14/VIII/64		
Fish length	311		
Fish wt.	188		
Ovary wt.	.8		
Ovary/body	.004		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OTB 20		
Date	18/II/64		
Fish length	418		
Fish wt.	221		
Ovary wt.	.6		
Ovary/body	.003		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 52		
Date	20/VI/62		
Fish length	~~330~~ 236	361	534
Fish wt.	69	154	586
Ovary wt.	.1	.3	33.9
Ovary/body	.001	.001	.058
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			1.31
min egg size			

Comments:

3) Stage III. eggs loosely held in ovary. ovary wall thin.

	1	2	3
Species	C. acrolepis		
Trawl #	OT 52		
Date	20/VI/62		
Fish length	500		
Fish wt.	505		
Ovary wt.	2.0		
Ovary/body	.004		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 42		
Date	10/XII/61		
Fish length	416		
Fish wt.	263		
Ovary wt.	1.5		
Ovary/body	.006		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 40		
Date	10/XII/61		
Fish length	388		
Fish wt.	216		
Ovary wt.	.1		
Ovary/body	.0004		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 29		
Date	20/X/61		
Fish length	667	650	460
Fish wt.	1466	1200	274
Ovary wt.	57.4	10.7	.9
Ovary/body	.039	.009	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.94	.33	
min egg size			

Comments:

1) Stage III difficult to see thru eggs. definate III but probable early

2) eggs unusual in formation Stage I appear normal

looks like ← what stage these others should be in is not determinable

	1	2	3
Species	C. acrolepis		
Trawl #	OT 29		
Date	20/X/61		
Fish length	295		
Fish wt.	117		
Ovary wt.	.5		
Ovary/body	.004		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 28		
Date	20/X/61		
Fish length	371	389	585
Fish wt.	166	198	793
Ovary wt.	.4	.9	11.6
Ovary/body	.002	.004	.015
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			.21
min egg size			

Comments:

3) Stage I. difficult to determine. eggs have many dark dots throughout

	1	2	3 #401
Species	C. acrolepis		
Trawl #	OT 28		
Date	20/X/61		
Fish length	331	259	494
Fish wt.	236	76	884
Ovary wt.	.7	.1	8.7
Ovary/body	.003	.001	.010
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			.34
min egg size			

Comments:

3) Stage II. dark hard to see thru.

	1	2	3
Species	C. acrolepis		
Trawl #	OT 27		
Date	19/X/61		
Fish length	570	425	344
Fish wt.	662	270	132
Ovary wt.	2.7	.7	.3
Ovary/body	.004	.003	.002
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Can't find

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 27		
Date	19/x/61		
Fish length	~~344~~ 325	345	
Fish wt.	~~132~~ 145	114	
Ovary wt.	~~3~~ .5	.3	
Ovary/body	.003	.003	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 24		
Date	14/VIII/61		
Fish length	371		
Fish wt.	290		
Ovary wt.	.1		
Ovary/body	.0003		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. acrolepis		
Trawl #	OT 1 KK		
Date	28/III/61		
Fish length	667		
Fish wt.	1363		
Ovary wt.	36.6		
Ovary/body	.027		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1 #377	2	3 382
Species	C. acrolepis		
Trawl #	BMT 10 DWD		
Date	11-12/IX/71		
Fish length	529	352	293
Fish wt.	732	155	175
Ovary wt.	12.6	.1	.6
Ovary/body	.017	.001	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.82		
min egg size			

Comments:

1) Stage III. ovary wall thin.

	1	2	3
Species	C. acrolepis		
Trawl #	BMT 10 DWD		
Date	11-12/IX/71		
Fish length	411	373	
Fish wt.	305	202	
Ovary wt.	1.3	.1	
Ovary/body	.004	.0004	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments: can't find

	1	2	3
Species	C. acrolepis		
Trawl #	BMT 9 DWD		
Date	11/IX/71		
Fish length	392	315	842
Fish wt.	202	99	1950
Ovary wt.	.5	.6	283.6
Ovary/body	.002	.006	.145
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			2.03
min egg size			

Comments:

3) Stage IV eggs flow freely from ovary. very ripe

	1	2	3
Species	C. acrolepis		
Trawl #	BMT 9 DWD		
Date	11/1x/71		
Fish length	407	490	
Fish wt.	288	334	
Ovary wt.	1.3	1.0	
Ovary/body	.004	.003	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species			
Trawl #			
Date			
Fish length			
Fish wt.			
Ovary wt.			
Ovary/body			
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species			
Trawl #			
Date			
Fish length			
Fish wt.			
Ovary wt.			
Ovary/body			
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species			
Trawl #			
Date			
Fish length			
Fish wt.			
Ovary wt.			
Ovary/body			
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species			
Trawl #			
Date			
Fish length			
Fish wt.			
Ovary wt.			
Ovary/body			
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species			
Trawl #			
Date			
Fish length			
Fish wt.			
Ovary wt.			
Ovary/body			
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

C. leptolepis

% ov/body wt.

OSU 1450

	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
1000								
980								
960								
940								
920								
900								
880								
860								
840								
820								
800								
880								
760								
740								
720								
700								
680								
660								
640								
620								
600								
580								
560								
540								
520								
500	3							
480	4							
460	1	1						
440	5							
420	6	3						
400	6	2	1					
380	9	1	1					
360	11	2						
340	10							
320	10	3	1	1				
300	4							
280	6							
260	3							
240								
220	2							
200	2		1					
180	1							
160	2							
140								

Leptolepis

OSU 1450

eggsizes mm	Jan	Feb	Mar	April	May	June	July	Aug	Sept.	Oct	Nov	Dec
.0 - .10												
.11 - .20	II	III	IIII	I		I	II	I	I	I		
.21 - .30	I	II	I		I	II	I					
.31 - .40		I										
.41 - .50									I			
.51 - .60											NO DATA	NO DATA
.61 - .70												
.71 - .80												
.81 - .90												
.91 - 1.00												

leptolepis

OSU 1450

egg sizes mm	Stage I		I-II	Stage II			Stage III			Stage IV		
.0 - .10												
.11 - .20	𝍸 𝍸 𝍸 ||											
.21 - .30	||||		|||	|								
.31 - .40				|								
.41 - .50				|								
.51 - .60												
.61 - .70												
.71 - .80												
.81 - .90												
.91 - 1.00												

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 293		
Date			
Fish length	453	330	293
Fish wt.	282	97	73
Ovary wt.	1.7	.4	.5
Ovary/body	.006	.004	.007
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		C. leptolepis
Trawl #	BMT 293		BMT 289
Date	17/VI/72		15/VI/72
Fish length	410		517
Fish wt.	168		383
Ovary wt.	1.6		3.3
Ovary/body	.010		.009
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.16		.21
min egg size			

Comments:

1) Stage I

3) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 289	BMT 288	BMT 288
Date	15/VI/72	14/VI/72	14/VI/72
Fish length	385	172	300
Fish wt.	155	15	54
Ovary wt.	.6	.1	.1
Ovary/body	.004	.006	.002
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 276	BMT 277	BMT 278
Date	17/V/71		
Fish length	276	371	280
Fish wt.	39	400	50
Ovary wt.	.1	2.1	.1
Ovary/body	.003	.005	.002
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		.25	
min egg size			

Comments:

2) Stage I-II

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 271		
Date			
Fish length	467	434	398
Fish wt.	309	211	126
Ovary wt.	1.7	3.6	1.0
Ovary/body	.006	.017	.007
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.18	.16	
min egg size			

Comments:

1) Stage I

2) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 269	BMT 268	BMT 268
Date			
Fish length	425	433	227
Fish wt.	244	224	40
Ovary wt.	2.0	4.2	.1
Ovary/body	.008	.018	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		.27	
min egg size			

Comments:

2) Stage II early

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 266	BMT 265	BMT 265
Date			
Fish length	178	424	200
Fish wt.	12	235	22
Ovary wt.	2.1	2.2	.1
Ovary/body		.009	.005
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 264		
Date			
Fish length	428	425	448
Fish wt.	244	239	268
Ovary wt.	1.8	4.6	1.6
Ovary/body	.007	.019	.005
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.16	.32	
min egg size			

Comments:

1) Stage I

2) Stage II

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 262	BMT 262	BMT 263
Date			
Fish length	385	378	390
Fish wt.	160	137	195
Ovary wt.	1.3	.8	1.1
Ovary/body	.008	.006	.006
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 259		
Date	15/II/71		
Fish length	354	200	406
Fish wt.	148	17	224
Ovary wt.	1.0		
Ovary/body	.007		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 259		
Date			
Fish length	200	406	
Fish wt.	17	224	
Ovary wt.	.5	.6 (½)	
Ovary/body	.029	.005	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		C. leptolepis
Trawl #	BMT 258	BMT 258	255
Date			
Fish length	436	350	506
Fish wt.	278	163	425
Ovary wt.	1.4	.7	1.8
Ovary/body	.005	.004	.004
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 253		BMT 252
Date			
Fish length	462		345
Fish wt.	306		81
Ovary wt.	5.8		.3
Ovary/body	.019		.004
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.45		
min egg size			

Comments:

1) Stage II advanced.

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 251		
Date			
Fish length	350	395	375
Fish wt.	114	233	127
Ovary wt.	.4	1.3	.8
Ovary/body	.004	.005	.006
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 192		
Date			
Fish length	320	360	382
Fish wt.	96	154	96
Ovary wt.	.5	2.0	1.0
Ovary/body	.005	.013	.010
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis	C. leptolepis	
Trawl #	BMT 192	BMT 193	
Date	19/III/70		
Fish length	488	296	
Fish wt.	429	76	
Ovary wt.	2.5	.3	
Ovary/body	.006	.004	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 191		
Date			
Fish length	200	230	383
Fish wt.	17	31	164
Ovary wt.	<.1	.1	3.4
Ovary/body		.003	.021
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			.17
min egg size			

Comments:

3) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 190	BMT 190	BMT 190
Date			
Fish length	275	331	
Fish wt.	61	96	
Ovary wt.	<.1	1.6	
Ovary/body	.002	.017	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 190		
Date			
Fish length	190	318	400
Fish wt.	13	71	79
Ovary wt.	<.1	.2	2.1
Ovary/body		.003	.027
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 188		
Date			
Fish length	429	457	410
Fish wt.	254	251	189
Ovary wt.	1.1	2.3	.7
Ovary/body	.004	.009	.004
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		.16	
min egg size			

Comments:

2) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 187		
Date	17/III/70		
Fish length	401	452	368
Fish wt.	198	258	131
Ovary wt.	1.8	1.7	1.0
Ovary/body	.009	.006	.008
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.16	.13	.16
min egg size			

Comments:

1) Stage I

2) Stage I

3) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 187		
Date	17/III/70		
Fish length	331	272	334
Fish wt.	94	50	127
Ovary wt.	.2	.1	1.0
Ovary/body	.002	.002	.008
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 187		
Date	17/III/70		
Fish length	370	445	498
Fish wt.	144	250	330
Ovary wt.	.9	1.2	2.5
Ovary/body	.006	.005	.007
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			.21
min egg size			

Comments:

3) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 186	BMT 186	
Date	16/III/70		
Fish length	389		
Fish wt.	150		
Ovary wt.	.5		
Ovary/body	.003		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 185		
Date	16/III/70		
Fish length	402	324	302
Fish wt.	186	74	59
Ovary wt.	.6	.3	.2
Ovary/body	.003	.004	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 185		
Date	16/III/70		
Fish length	328		
Fish wt.	105		
Ovary wt.	.5		
Ovary/body	.005		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 159		
Date	18/I/70		
Fish length	331	420	367
Fish wt.	91	206	151
Ovary wt.	.3	.8	.5
Ovary/body	.003	.004	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		C. leptolepis
Trawl #	BMT 158		BMT 157
Date	17/I/70		17/I/70
Fish length	374		405
Fish wt.	179		170
Ovary wt.	.6		1.4
Ovary/body	.003		.008
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		C. leptolepis
Trawl #	BMT 154		BMT 155
Date	16/I/70		
Fish length	503		410
Fish wt.	340		189
Ovary wt.	2.8		1.1
Ovary/body	.008		.006
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.18		
min egg size			

Comments:

1) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 120		
Date	6/x/69		
Fish length	357	352	345
Fish wt.	151	102	110
Ovary wt.	.7	.3	.5
Ovary/body	.005	.003	.005
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 95		
Date	16/VIII/69		
Fish length	360		
Fish wt.	130		
Ovary wt.	1.0		
Ovary/body	.008		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 94		
Date			
Fish length	307	336	342
Fish wt.	72	125	113
Ovary wt.	.1	.7	.3
Ovary/body	.001	.006	.003
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 93		
Date	15/VII/69		
Fish length	325	292	393
Fish wt.	96	65	135
Ovary wt.	1.0	.2	1.5
Ovary/body	.010	.003	.011
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.23		
min egg size			

Comments:

1) Stage I middle phase.

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 93		
Date	15/VII/69		
Fish length	322		
Fish wt.	140		
Ovary wt.	.4		
Ovary/body	.003		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 26		
Date	16/VIII/68		
Fish length	370		
Fish wt.	115		
Ovary wt.	.6		
Ovary/body	.005		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.17		
min egg size			

Comments:

1) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	OTB 334		
Date	5/VI/70		
Fish length	340		
Fish wt.	145		
Ovary wt.	.2		
Ovary/body	.001		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis	C. leptolepis	
Trawl #	OTB 286	OTB 284-287	
Date	2/VI/69		
Fish length	320	335	
Fish wt.	85	232	
Ovary wt.	1.7	7.1	
Ovary/body	.020	.031	
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size		.29	
min egg size			

Comments:

2) Stage I-II eggs appear to have some sort of solid center but not uniform

	1	2	3
Species	C. leptolepis		
Trawl #	OTB 258		
Date	15/VII/68		
Fish length	287	350	362
Fish wt.	88	163	147
Ovary wt.	.3	.6	.6
Ovary/body	.003	.004	.004
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

	1	2	3
Species	C. leptolepis		
Trawl #	OTB155		
Date	10/I/67		
Fish length	446		
Fish wt.	214		
Ovary wt.	1.7		
Ovary/body	.008		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.21		
min egg size			

Comments:

1) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	OTB 89		
Date	23/X/65		
Fish length	490	391	358
Fish wt.	562	251	127
Ovary wt.	1.6	2.0	.7
Ovary/body	.003	.008	.005
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.15		
min egg size			

Comments:

1) Stage I

	1	2	3
	#404		
Species	C. leptolepis		
Trawl #	OTB 78		
Date	1/VII/65		
Fish length	495		
Fish wt.	438		
Ovary wt.	2.2		
Ovary/body	.005		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.12		
min egg size			

Comments:

1) Stage I

	1	2	3
Species	C. leptolepis		C. leptolepis
Trawl #	OTB 76		OTB 64
Date	27/VII/65		9/IV/65
Fish length	283		349
Fish wt.	75		161
Ovary wt.	.5		.9
Ovary/body	.006		.006
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.12		
min egg size			

Comments:

3) Stage I

	1	2	3
Species	C. leptolepis		C. leptolepis
Trawl #	OTB 64		OTB 49
Date	9/IV/65		12/I/65
Fish length	381		412
Fish wt.	134		74
Ovary wt.	.6		.9
Ovary/body	.004		.012
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.12		.12
min egg size			

Comments:

1) Stage I

3) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	OTB 23		
Date	20/II/64		
Fish length	370		
Fish wt.	—		
Ovary wt.	3.0		
Ovary/body	—		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.21		
min egg size			

Comments:

1) Stage I-II eggs darkish hard to see through ⊙

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 8 DWD		
Date	10/1x/71		
Fish length	491		
Fish wt.	407		
Ovary wt.	3.3		
Ovary/body	.008		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.20		
min egg size			

Comments:

1) Stage I

	1	2	3
Species	C. leptolepis		
Trawl #	BMT 5 DWD		
Date			
Fish length	330	~~335~~	363
Fish wt.	104	~~232~~	154
Ovary wt.	.2	~~7.1~~	1.6
Ovary/body	.002		.010
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size			
min egg size			

Comments:

N. pectoralis

% ov/body wt.

OSU 1450

	0-1	1-2	2-3
840			
820			
800	1		
780			
760	1		
740			
720	11		
700	1		
680	111		
660			
640			
620	1		
600	1	1	
580	1	1	
560			
540			
520			
500			

# of eggs

pectoralis

OSU 1450

egg sizes	Stage I	Stage II	Stage III	Stage IV
.0 - .10				
.11 - .20				
.21 - .30	III			
.31 - .40		++++ II		
.41 - .50		II		
.51 - .60				
.61 - .70				
.71 - .80				
.81 - .90				
.91 - 1.00				
1.01 - 1.10			I	
1.11 - 1.20				

pectoralis

OSU 1450

egg sizes	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
.0 - .10												
.11 - .20												
.21 - .30		III		I						V		
.31 - .40				I					I	II		
.41 - .50										II		
.51 - .60												
.61 - .70												
.71 - .80												
.81 - .90												
.91 - 1.00												
1.01 - 1.10										I	NO DATA	NO DATA
1.11 - 1.20												

	1	2	3
Species	N. pectoralis		
Trawl #	OTB 313		
Date	II/	/II/	/II/
Fish length	734	689	682
Fish wt.	1713	1173	1002
Ovary wt.	9.1	7.6	4.2
Ovary/body	.005	.006	.004
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.33	.33	.31
min egg size			

Comments:

1) Stage II: early. several egg sizes common. Largest is an early II.

2) Stage II early

3) Stage II early

all these could be classed I-II

	1	2	3
Species	A. pectoralis		
Trawl #	OTB 93	OTB 90	OTB 90
Date	/x/	/x/	/x/
Fish length	711	619	592
Fish wt.	941	964	729
Ovary wt.	6.5	19.0	12.7
Ovary/body	.007	.019	.017
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.41	1.05	.41
min egg size			

Comments:

1) Stage II. mid way between I - III as is #3 ↓
very little pv space

2) Stage III many oil droplets throughout egg
most eggs fairly uniform

3) Stage II average or typical mid way between I - III

	1	2	3
Species	N. pectoralis		
Trawl #	OTB 66		OTB 63
Date	1/V/		1/V/
Fish length	580		774
Fish wt.	662		1587
Ovary wt.	2.2		9.5
Ovary/body	.003		.006
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.24		.33
min egg size			

Comments:

1) Stage I. again fairly large compared to other eggs. but development is definately I

3) Stage II early

	1	2	3
Species	N. pectoralis		
Trawl #	OT 27		
Date	/X/		
Fish length	616	629	814
Fish wt.	718	781	1054
Ovary wt.	2.7	6.0	6.5
Ovary/body	.004	.008	.006
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.24	.38	.32
min egg size			

Comments:

1) Stage I

2) Stage II very little perivitelline space

3) Stage II early

	1	2	3
Species	N. pectoralis		
Trawl #	OT 27		
Date	X/		
Fish length	689		
Fish wt.	530		
Ovary wt.	1.9		
Ovary/body	.004		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.26		
min egg size			

Comments:

1) Stage I egg seems large but appears which is typical I

	1	2	3
Species	N. pectoralis		
Trawl #	BMT 9 DWD		
Date	/IK/		
Fish length	723		
Fish wt.	1972		
Ovary wt.	13.6		
Ovary/body	.007		
egg sample wt.			
eggs/sample			
eggs/gm			
eggs/fish			
max egg size	.37		
min egg size			

Comments:

1) Stage II some early types. others medium