

Charleston

FISH COMMISSION OF OREGON
TRAWL INVESTIGATION

Cruise Report 66-13, Shrimp Cruise, Phase B-Fish

Vessel: MV Sunrise, chartered trawl vessel.

Date: September 27-November 9, 1966

Objectives: Phase A. Determine distribution and abundance of pink shrimp (Pandalus jordani) off Oregon and determine size, sex ratio, and age composition of shrimp caught.

Phase B. 1. Collect data on sex and size composition of Dover sole.

2. Identify, count, and weigh incidentally caught fish.

3. Collect incidentally caught fishes and invertebrates as requested.

4. Collect oceanographic data (salinities, temperatures, and bottom samples).

Methods: Ninety-six tows were made with a 41-foot headrope Gulf semi-balloon trawl. The trawl was made of 1-1/8-inch stretch mesh netting in the body and intermediate, with 1-1/2-inch mesh in the codend. The anterior one-third of the codend had a 1-1/8 inch innerliner, while the posterior two-thirds of the codend contained a 1/2-inch knotless innerliner. Plastic rollers and a 1/4-inch galvanized chain, hung loop-style, were attached to the 52-foot footrope. One-half of the footrope chain was removed after tow 29 to reduced excessive digging. A 49-foot, 5/16-inch steel tickler chain was attached to the ends of the footrope. A 30-foot bridle connected each wing to an otter board.

The catch from each tow was sorted and fish were either counted or weighed, or both, by species as time permitted. Dover sole were measured to the nearest cm. Dover, English, and petrale sole less than 16 cm were preserved. On selected tows, bottom samples were taken with a Dietz-LaFond bottom sampler. A two liter Van Dorn water bottle attached approximately 15 feet above the bottom sampler was used to obtain water samples for salinities. A 1° graduated thermometer was used to determine the temperature of the surface water and water contained in the Van Dorn bottle.

Results: The survey of the Oregon coastal waters was divided into four areas, Figure 1: (I) Oregon-California border to Cape Blanco; (II) Cape Blanco to Umpqua River; (III) Umpqua River to Cape Kiwanda; and (IV) Cape Kiwanda to Columbia River. In Area I, 29 tows were made ranging in depth from 56 to 105 fathoms. Due to adverse weather, Area II was not surveyed. Area III had 13 tows made in 48 to 98 fathoms between Yaquina Bay and the

Siletz River. In Area IV, 52 tows were made in 28 to 124 fathoms, however, only two tows were less than 49 fathoms. Stations 1-29 were in Area I; stations 30-83 were in Area IV; and stations 84-96 were in Area III.

Each tow is summarized in Table 1 by depth, length of time trawled, position, and catch in pounds. Weights are listed for petrale, English, and Dover sole, and Pacific ocean perch. Other species caught were grouped into rockfish, flatfish, round fish, and miscellaneous fish. Table 2 lists the species in each group. Since it was impossible to weigh all fish, numbers were taken for some species. Weight estimates based on average weights were determined for some poundages.

Area I. The most commonly caught species was Dover sole which occurred at depths of 50 to 100 fathoms. Next in prominence were stripetail rockfish, petrale sole, rex sole, slender sole, and hake. Rex and slender sole occurred in 40 to 60 fathoms, with petrale sole frequently being caught in 50 to 60 fathoms. Hake were found at 60 to 70 fathoms and stripetail rockfish were caught at depths of 70 to 90 fathoms.

Area III. Rex and slender sole were the most commonly caught species and occurred between 40 and 90 fathoms. Next in prominence were spiny dogfish caught in 60 to 100 fathoms and hake found in 70 to 90 fathoms. Rockfishes were commonly taken at depths greater than 80 fathoms. Sand dabs, smelt, and tomcod were frequently caught at depths of 40 to 60 fathoms.

Area IV. The most commonly caught species were rex sole and arrowtooth flounder which occurred between 40 and 100 fathoms. Hake, Dover sole, and rockfishes were next in prominence. Hake and Dover sole were abundant in 50 to 90 fathoms. Rockfishes were caught at depths from 60 to 120 fathoms with yellowtail rockfish occupying depths of 60 to 70 fathoms, and blackmouth rockfish in 70 to 120 fathoms.

Lengths collected from 700 Dover sole ranged from 9 to 55 cm. Scales from 52 juvenile Dover sole were collected.

Personnel: Jack Robinson, Party Chief 9/28-10/24, 10/31-11/9/66
 Robert Demory, Party Chief 10/25-11/2/66
 Rudy Lovvold, Vessel Captain
 Gary Milburn, Aquatic Biologist, 10/14-24/ 11/2-9/66
 Halbert Bailey, Aquatic Biologist, 10/7-11/2/66
 Terry Link, Biology Technician 9/28-10/13, 10/25-30, 11/7-9/66
 Tom Lovvold, Crewman

Distribution

Astoria Lab - 3
 Charleston Lab - 1
 OFC - Portland
 BCF - Alverson
 Moore
 CFG - Jow
 Newport Lab - 1
 PMFC

Library
 Van Hyning
 OSU-Pearcy
 WDF - Olympia

Terry Link
 Oregon Fish Commission
 February 20, 1967

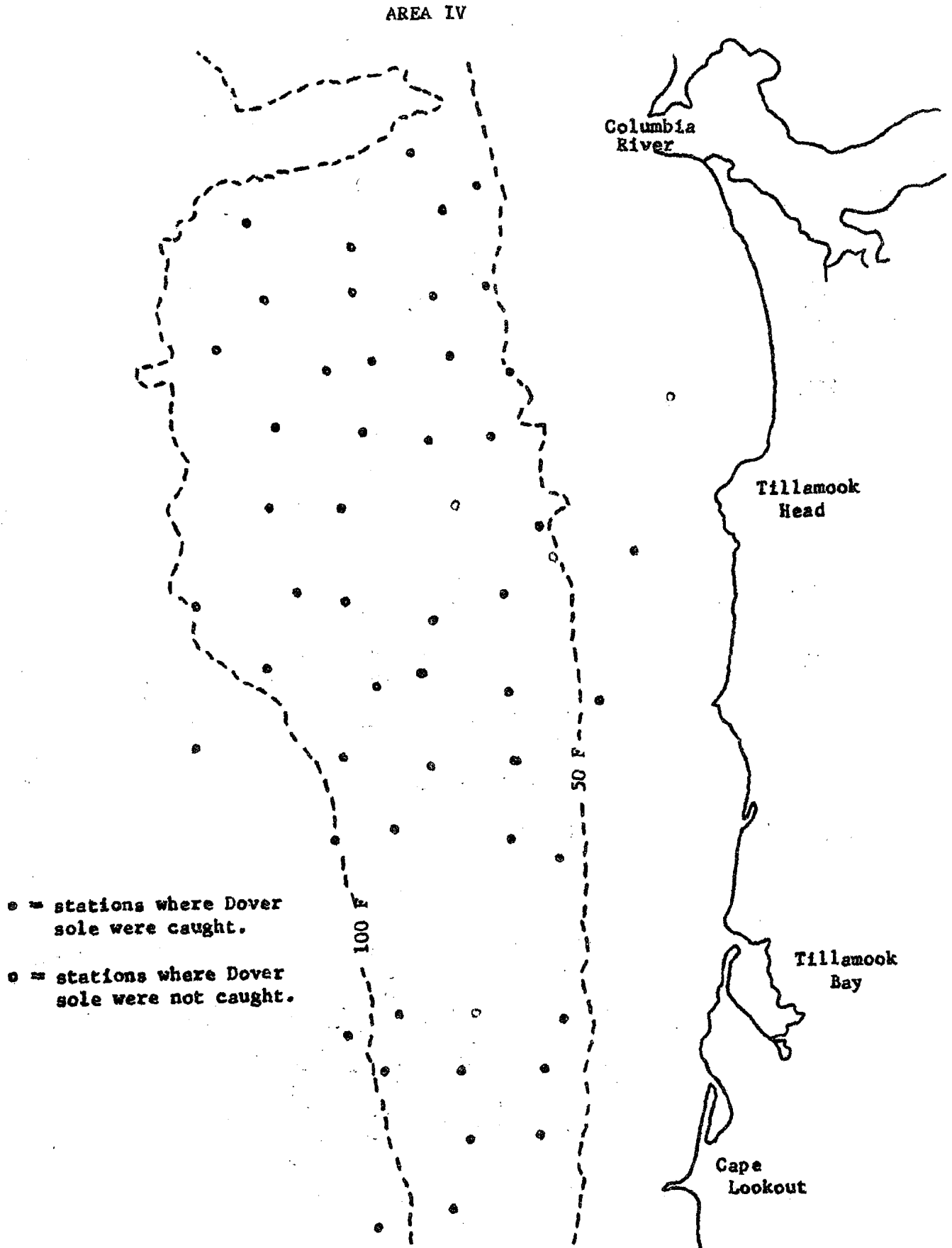


Figure 1. Stations fished during October-November 1966, shrimp cruise.

AREA I

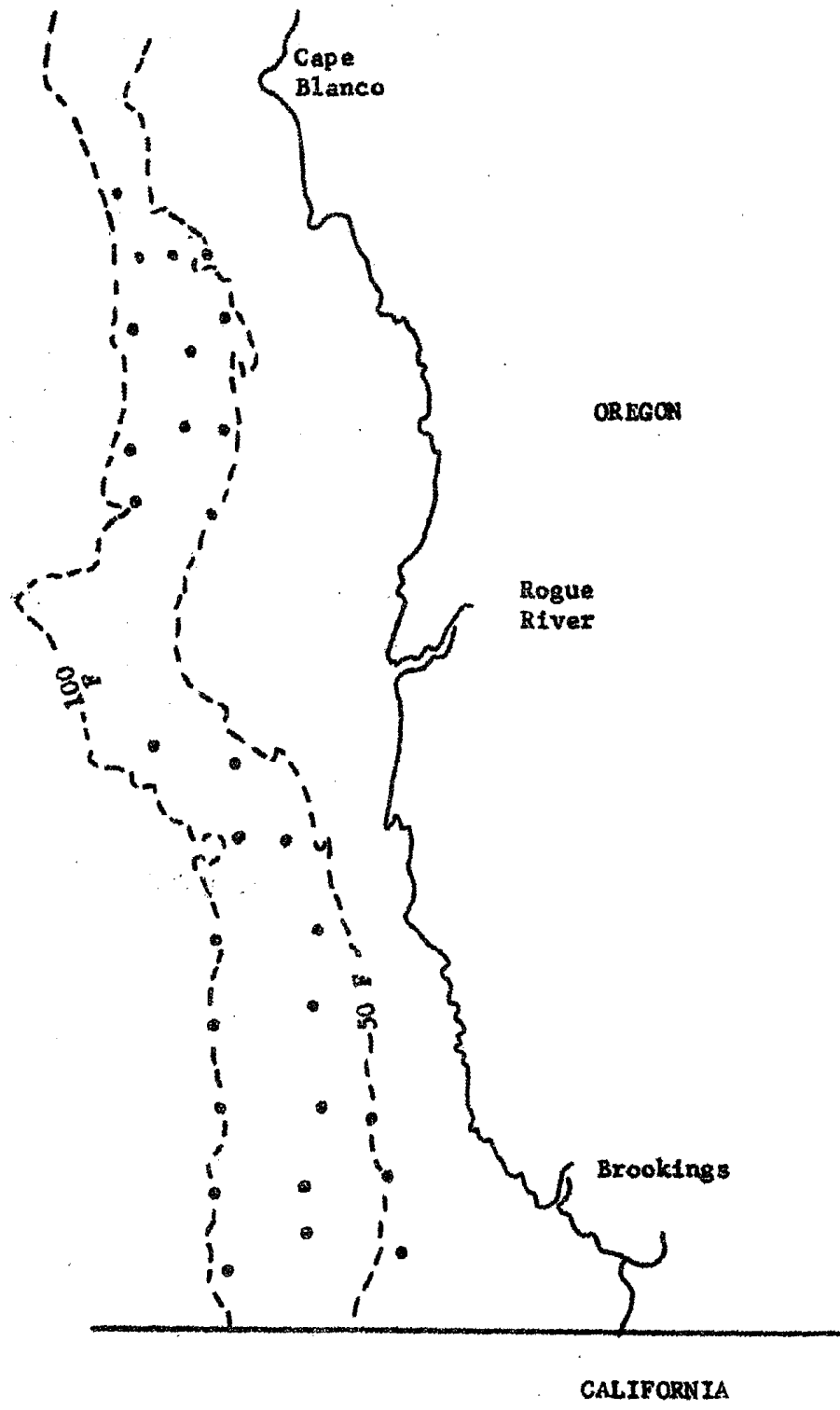


Figure 1 (cont'd)

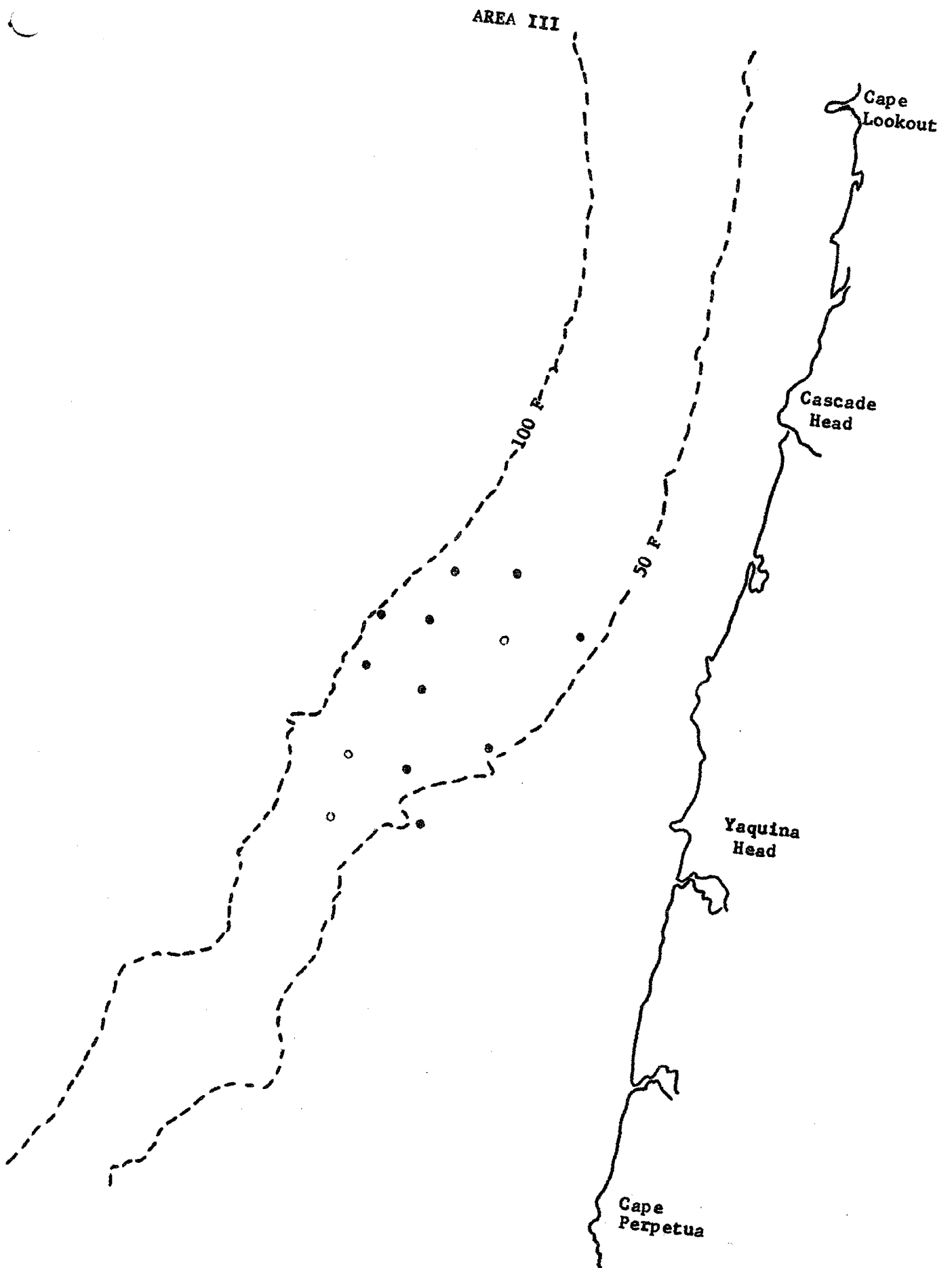


Figure 1 (cont'd)

Table I. Tow Data and Pounds of Catch List by Station, Fall 1966 Shrimp Cruise.

No.	Depth	Tow Data		Pound of Catch								
		Time	Loran Start-End <u>2H3</u>	Loran Start-End <u>2H5</u>	Pet. <u>1/</u>	Eng. <u>1/</u>	Dov. <u>1/</u>	P.O.P. <u>1/</u>	Rock Fish	Flat Fish	Round Fish	Misc.
1	52-53	15	1122-1128		3	0	21		6	40	1	4+
2	85-86	15	1130-1132				240	120	88	14+	75	T ^{2/}
3	83	15	1092-1097				50		64	T	3	2+
4	76	10	1068-1065			3	21		34	13	5	T
5	52-55	10	1085-1085		8	2	12	1		20+	13+	T
6	52-54	15	1180-1163		40	8	44			106	65	20+
7	76-74	15	1185-1190				23		132	11	4	4+
8	74-75	6	1210-1208				15		11	1		3+
9	50	15	1220-1226		41	44	120			29	6+	22
10	75-71	14	1335-1332				52	14	70	16	30	16+
11	61-65	15	1348-				72		12	21	2+	14
12	77	16	1388-1382				79		3	11+	14	7+
13	62-63	15	1392-1398				20		6	20	2+	10+
14	62	15	1440-1436		8		36		55	35	3+	59
15	67	16	1478-1485				12		5	19	2	T
16	64	16	1530-1538				21		12	3	19	T
17	46	15	1615-1622		3		23			68	3	T
18	62	16	1600-1590		3		6		T	10+	14	T

1. Pet. = Petrale Sole; Eng. = English Sole; Dov. = Dover Sole; P.O.P. = Pacific Ocean Perch.

2. T. = Trace.

Table I. Tow Data and Pounds of Catch (Continued).

Tow Data					Pounds of Catch							
No.	Depth	Time	Loran		Pet.	Eng.	Dov.	P.O.P.	Rock Fish	Flat Fish	Round Fish	Misc.
			Start-End <u>2H3</u>	Start-End <u>2H5</u>								
19	86-85	15	1610-1620				11		8	T		T
20	98-96	15	1570-1578				4		2	6	10	T
21	105-100	15	1522-1530				27		3	8	6	1+
22	63-62	15	1570-1576				4		3	24+	11	T
23	48-50	15	1570-1578		15		15			41	1+	T
24	50-51	15	1540-1548		10	2	25			25+	2+	T
25	98-96	15	1482-1490				105		9	14	43	T
26	93-95	15	1438-1446				20		15	5	15	T
27	61	15	1180-1170		15		44		21+	15+	8+	3+
28	58	15	1140-1132		5	2			1	20	5	T
29	65-66	15	1090-1080				5		2	20	4	25+
			<u>2H4</u>									
30	59-60	15	3485-3480				18		17	5	9	
31	65	15	3525-3515	3450-3450			24		272	10	92+	8+
32	51-50	15	3505-3495	3460-3459			2		9	5	51	31+
33	67-68	15	3460-3452	3438-3438			140		6	19	12	T
34	77-79	15	3462-3468	3420-3420					30	56	2	T
35	74	15	3415-3425	3421-3423			19		12	21	2	
36	68	15	3430-3428	-3433			8		115	3+	7	T

Table I. Tow Data and Pounds of Catch (Continued).

No.	Tow Data				Pounds of Catch							
	Depth	Time	Loran		Pet.	Eng.	Dov.	P.O.P.	Rock	Flat	Round	Misc.
			Start-End	Start-End					Fish	Fish	Fish	
37	60	15	3432-3425	3449-3450	5		88	3	60	3	17+	
38	52	15	3380-3388	-3459	3	10	19	6	28+	91+	53+	
39	51-52	15	3438-3442		15	12	23	1	77	4+	T	
40	61	15	3390-3385	3450-3450	3		16	78	34	86	9+	
41	70	15	3382-3387	3438-			26	19	11	9+	T	
42	73	15	3380-3372	3432	5		25	19	28+	18+	1	
43	83-84	15	3373-3380	3412-3412			18	40	32	41	T	
44	57	24	3338-3348	-3452	8		56	20	81+	30	25+	
45	71	15	3335-3342	3445-			28	26	37+	10	T	
46	75-76	15	3340-3345	3435-3435	18		9	26	40+	23	1+	
47	81-82	18	3333-3340	3422-3420			12	84	45	43	2	
48	83	10	3290-3295	3418-3418	6		1	10	44	20	T	
49	79-80	17	3292-3286	3430-3430	15		6	9	27+	5	T	
50	73	17	3295-3300	3448-3445				1	3	12		
51	60	15	3288-3282	3458-	26		10	2	27	121	15+	
52	49-50	15	3270-3262	-3458					T	16+		
53	65	16	3242-3248	-3452	10		56	25	73+	17+	14+	
54	77	15	3228-3219	3441-3441			5		28	9	3+	
55	82	15	3232-3238	3428-3428	3		2	12	33	8		

Table I. Tow Data and Pounds of Catch (Continued).

No.	Depth	Tow Data		Pounds of Catch								
		Time	Loran		Pet.	Eng.	Dov.	P.O.P.	Rock Fish	Flat Fish	Round Fish	Misc.
Start-End <u>2H4</u>	Start-End <u>2H5</u>											
56	83	11	3238-3235	3420-3422			5			23+	T	
57	100-99	11	3219-3223	3404-3402			8		62+	2	2	
58	95	10	3185-3190	3415-3415			4		20	25	3	
59	83-79	10	3182-3177	3431-3430			4		24+	15	T	T
60	76	10	3190-3193	3438-3439			4		8	11+	T	T
61	50	12	3180-3176	3460-3460		3	15		5	40+	26+	9+
62	69-70	14	3182-3186	3449-3450	8		4		1	8+	36+	8+
63	69	12	3140-3136	3448-	3		1		8	1	T	T
64	71-76	11	3132-3131	3435-3438					19+	5	5	
65	90-89	10	3138-3132	3425-3425					9	6	T	T
66	112-115	10	3136-3132	3401-3402			18	40	371	1+		T
67	96-100	10	3079-3075	3422-3422			14		30	8		
68	83-81	10	3092-3090	3432-3430			7		21+	4		10+
69	70-71	10	3090-3087	3445-3447	5		30		8	21	56	T
70	51	11	3081-3076	3451-3452	3	8	25			27+	51+	7+
71	60	15	2975-2970	3448-3448	10	2	4		6	35	5+	10+
72	82	15	2976-2970	3438-3438					11	43	15+	10+
73	94	15	2974-2968	3428-3428			13	5	40	22	48	22+
74	110	11	2960-2958				9	5	55	6	27	T

Table I. Tow Data and Pounds of Catch (Continued).

No.	Tow Data			Pounds of Catch										
	Depth	Time	Loran		Pet.	Eng.	Dov.	P.O.P.	Rock	Flat	Round	Misc.		
			Start-End <u>2H4</u>	Start-End <u>2H5</u>					Fish	Fish	Fish			
75	28-30	27	3370-3359	3478-		1				T	450+	T		
76	40-38	24	3275-3260	3468-		20				T	1			
77	64-62	18	2900-2895		5	2			T	20	20	9		
78	63	15	2938-2945	3445-	3	1			6	35	10+	9		
79	84-85	14	2940-2935	3435-			5		25	24	33	137		
80	95-96	15	2935-2940	3425-3426	3				57+	17		T		
81	85	15	2898-2887	3435-3434					27	17	131			
82	124-122	15	2836-2830	3423-3421				14	15	32	15	84		
83	87	15	2840-2850	3431-3432				9	20	20	22	721	100	
84	55-58	11	2406-2410			4					10	5		
85	59-58	17	2391-2382		2						10	21		
86	72-74	16	2437-2448	3400-3401					1	57	3+	412+	182	
87	70-69	11	2485-2477	3411-						19	7	296+	286	
88	60	19	2487-2499	3420-3420						2	43	32+	49+	
89	48-49	7	2350-2349	3400-3401							T		T	
90	64-67	15	2347-2357	3390-3390						3+		1	64	
91	72-71	15	2390-2399											
92	86-92	10	2453-2455							13	56	39+	39	215+
93	97-98	10	2485-2495					111	3	75	65	13	243	10.

Table I. Tow Data and Pounds of Catch (Continued).

No.	Depth	Tow Data		Pounds of Catch								
		Time	Loran		Pet.	Eng.	Dov.	P.O.P.	Rock	Flat	Round	Misc.
		Start-End	Start-End									
			<u>2H4</u>	<u>2H5</u>								
94	81-85	15	2486-2492	-3401	3		18	24	28	56	115+	138+
95	74-77	10	2523-2530	-3412			2		15	12+	5+	24
96	84-89	10	2522-2528	3405-			5		15	33	16	29

Table 2. Common and scientific names of fishes caught during the fall 1966 shrimp cruise.^{1/}

Petrable sole	<u>Eopsetta jordanii</u>
English sole	<u>Parophrys vetulus</u>
Dover sole	<u>Microstomus pacificus</u>
Pacific ocean perch	<u>Sebastes alutus</u>
Rockfishes:	
Rougheye rockfish	<u>Sebastes aleutianus</u>
Silvergray rockfish	<u>S. brevispinis</u>
Greenspotted rockfish	<u>S. chlorastictus</u>
Blackmouth rockfish	<u>S. crameri</u>
Splitnose rockfish	<u>S. diploproa</u>
Greenstriped rockfish	<u>S. elongatus</u>
Widow rockfish	<u>S. entomelas</u>
Yellowtail rockfish	<u>S. flavidus</u>
Rosethorn rockfish	<u>S. helvomaculatus</u>
Black rockfish	<u>S. melanops</u>
Boccaccio	<u>S. paucispinis</u>
Canary rockfish	<u>S. pinniger</u>
Redstripe rockfish	<u>S. proriger</u>
Raspehead rockfish	<u>S. ruberrimus</u>
Stripetail rockfish	<u>S. saxicola</u>
Shortspine channel rockfish	<u>Sebastes alascanus</u>
Flatfishes:	
Pacific sand dab	<u>Citharichthys sordidus</u>
Arrowtooth flounder	<u>Atheresthes stomias</u>
Rex sole	<u>Glyptocephalus zachirus</u>
Sand sole	<u>Psettichthys melanostictus</u>
Slender sole	<u>Lyopsetta exilis</u>

Table 2. Common and scientific names of fishes (Continued)

Roundfishes:

Pacific herring	<u>Clupea harengus pallasii</u>
American shad	<u>Alosa sapidissima</u>
Northern anchovy	<u>Engraulis mordax</u>
Smelts	Osmeridae
Pacific hake	<u>Merluccius productus</u>
Pacific cod	<u>Gadus macrocephalus</u>
Pacific tomcod	<u>Microgadus proximus</u>
Sablefish	<u>Anoplopoma fimbria</u>
Lingcod	<u>Ophiodon elongatus</u>

Miscellaneous fishes:

Pacific hagfish	<u>Polistotrema stouti</u>
Spiny dogfish	<u>Squalus acanthias</u>
Pacific electric ray	<u>Torpedo californica</u>
Big skate	<u>Raja binoculata</u>
Longnose skate	<u>R. rhina</u>
Starry skate	<u>R. stellulata</u>
Ratfish	<u>Hydrolagus colliei</u>
Lanternfishes	Myctophidae
Shiner perch	<u>Cymatogaster aggregata</u>
Threadfin sculpin	<u>Icelinus filamentosus</u>
Sea poacher	Agonidae
Snail fish	Liparidae
Red Devil	<u>Lyconectes aleutensis</u>
Blennies	Stichaeidae
Eel pouts	Zoarcidae

1/ Arranged by category as shown in table 1.