

Fish Commission of Oregon
Groundfish and Shrimp Investigations
Report of Cruise 74-11, Shrimp

Vessel: M/V Ms. Dana, Chartered trawler

Dates: September 5-13, 1974

- Objectives:
1. To determine the biomass and number of shrimp (*Pandalus Jordanii*) within the two survey areas between the Astoria Canyon (Columbia River) and Yaquina Head.
 2. To determine age and sex composition of stocks as well as average size (number/pound) and length frequency.
 3. To compare the FCO survey trawl net with a commercial shrimp trawl net.

Methods: The MV Ms. Dana is a steel Gulf-style shrimp trawler, built in Newport in 1973-74, 55 feet overall length and 44 gross tons. She is powered by a 275-hp diesel engine. The vessel supplied a 57-foot (headrope) Marinovitch semi-balloon trawl having mesh size of 1½ inches and tickler chain. We supplied a 41-52 foot (headrope - footrope) shrimp trawl (1 1/8 inch mesh except for a 1½-inch codend with a ½-inch bobinette innerliner).

We selected 28 sampling stations in the North area (Columbia River to Tillamook Bay); 24 sampling stations in the north-central area (Tillamook Bay to Yaquina Head), based on a systemic sampling plan using 4.0x4.0 nautical mile - square grids. Tows were approximately one nautical mile long. We recorded Loran (ILO) and depth (fathoms) at start and end of each tow, as well as time and ocean - weather conditions.

We sorted the catch of each net each tow and estimated the number and weight of major non-shrimp species in the catch. The shrimp catch was weighed and recorded to the nearest pound for each net each tow. A randomly drawn 2-5 pound sample was retained and taken ashore for analysis. Samples were frozen ashore pending analysis.

Results: Twenty-eight and twenty-four stations were occupied towing both nets in the north and north-central areas, respectively. Shrimp were caught in 23 of 28 stations (commercial) and 24 of 28 stations (FCO trawl) in the north area. Catch/net/tow ranged from 0-256 pounds. Table 1 summarizes unweighted catch data:

Table 1. North Area Catch and Composition Summary

	Commercial Trawl		FCO Trawl		
Mean catch/tow, lbs.	49		72		
Range, lbs.	0-172		0-256		
Age composition (%)	age	N	Wt.	N	Wt.
	1	51	31	56	35
	2	34	42	30	39
	3+	15	27	14	26
Average Size (N/Lb)	119		123		

Shrimp were caught in 20 of 24 stations (commercial) and 21 of 24 stations (FCO trawl) in the north-central area. Catch/net/tow ranged from 0-552 pounds. Table 2 summarizes unweighted catch data:

Table 2. North-Central Area Catch and Composition Summary

	<u>Commercial Trawl</u>		<u>FCO Trawl</u>	
Mean catch/tow, lbs.	70		84	
Range, lbs.	0-485		0-552	
Age Composition (%)	<u>age</u>	<u>N</u> <u>Wt.</u>	<u>N</u> <u>Wt.</u>	
	1	66 45	70 50	
	2	19 28	19 28	
	3+	15 27	11 22	
Average Size (N/Lb)		126		133

In general, the FCO trawl outfished the commercial trawl in both areas. It also retained slightly more age-1 shrimp, less age-3+ shrimp.

Table 3 summarizes the cruise log.

Personnel: Edwin Niska, Party Chief 9/5 - 8/74
William Barss, Party Chief 9/11 - 13/74
George McMurrick, Jr., Vessel Captain
Michael Main, Crewman
Mimi McMath, Crewwoman

Jack G. Robinson
Management and Research Division
November 5, 1974

Table 3. Log of Fish Commission of Oregon Shrimp Cruise, Northern Oregon, September 5-13, 1974, M/V Ms. Dana

Tow North	Date Area	Time Start PDT	Tow		Depth fms	Loran In	LO Out	Shrimp Catch				FCO Net	Fish Catch
			Duration Min	Miles				FCO Shrimp (lbs)	Ilet Shrimp lb	Comm. Net Shrimp (lbs)	Net Shrimp lb		
1	9/5	0707	30	1.1	59	3518	3506	131	117	82	96	35# Dover, 19# Smelt	12# Dabs
2	"	0815	32	1.1	58	3473	3459	113	120	60	114	418# Hake	28# Turbot, 16# Canary
3	"	0940	35	1.2	65	3468	3456	0	-	0	-	19# Smelt	34# Smelt, 10# Dover
4	9/6	0817	30	1.0	70	3421	3409	256	117	138	109	79# Blackbl. RF, 27# Smelt	60# Blackbl. RF, 19# Smelt
5	"	0917	25	1.0	66	3419	3407	129	127	65	128	178# Hake	20# Dover, 213# Hake
6	"	1027	23	1.0	55	3421	3407	35	124	14	111	634# Hake	418# Hake
7	"	1135	20	1.2	52	3884	3372	0	-	0	-	245# Sable	618# Sable
8	"	1253	22	1.1	68	3369	3357	69	130	21	121	213# Hake, 21# Blackbl. RF	224# Hake, 20# Blackbl. RF
9	"	1353	21	1.1	72	3372	3360	70	117	23	109	411# Hake	502# Hake
10	"	1534	27	1.0	81	3366	3354	153	119	103	122	110# Hake, 16# Smelt	88# Hake, 13# Smelt
11	"	1633	28	1.0	81	3326	3314	103	109	74	111	328# Hake, 40# Sable	310# Hake, 56# Sable
12	"	1743	20	1.0	78	3320	3308	80	124	51	120	14# Smelt	431# Hake, 11# Smelt
13	9/7	0728	23	1.0	64	3322	3310	142	147	83	139	246# Hake, 22# Smelt	200# Hake, 14# Smelt
14	"	0828	22	1.1	63	3278	3266	47	150	33	149	15# Hake	260# Hake
15	"	0937	18	0.9	75	3276	3264	28	77	26	107	240# Hake	290# Hake, 20# Smelt
16	"	1100	25	1.0	80	3271	3259	28	106	21	89	1218# Hake, 47# Smelt	1348# Hake, 47# Blackbl. RF
17	"	1218	29	1.0	85	3220	3208	207	139	172	118	31# Hake, 15# Sable	90# Hake, 20# Blackbl. RF

Table 3. Continued

Tow	Date	Time Start PDT	Tow		Depth fms	Loran In	LLO Out	Shrimp Catch				Fish Catch	
			Duration Min	Miles				FCO Net		Comm. Net			
								Shrimp (lbs)	Shrimp lb	Shrimp (lbs)	Shrimp lb	FCO Net	Comm. Net
18	"	1336	23	1.1	83	3223	3211	95	87	75	103	11# Smelt	35# Smelt
19	"	1452	29	1.2	79	3227	3215	42	98	41	97	229# Hake	323# Hake
20	"	1608	23	1.0	66	3229	3217	1	126	t	-	260# Hake, 25# Smelt	337# Hake
21	"	1718	22	1.0	58	3175	3163	0	-	0	-	103# Hake	86# Hake
22	"	1817	30	1.0	70	3130	3118	43	179	33	184	460# Hake	171# Hake
23	"	0727	25	1.0	79	3178	3166	63	112	50	113	31# Hake, 20# Lingcod	103# Hake
24	"	0830	32	1.0	81	3178	3166	85	130	117	133	15# Hake	40# Hake
25	"	0745	22	1.2	94	3175	3163	80	134	69	126	10# Hake	20# Hake
26	"	0909	30	1.5	96	3130	3117	14	185	7	193	55# Hake	50# Hake, 10# Smelt
27	"	1248	23	1.1	61	3078	3066	0	-	0	-	300# Hake	150# Hake
28	"	1100	25	1.2	81	3083	3070	2	138	4	126	14# Hake	25# Hake, 10# Smelt
North Central													
1	"	1503	25	1.1	105	3030	3018	256	162	215	145	Clean	25# Pacific ocean perch
2	"	1630	25	1.1	95	2980	2968	106	134	74	145	20# Smelt	Clean
3	"	1723	27	1.0	95	2936	2924	552	188	485	190	Clean	15# Smelt
4	"	1830	30	1.2	97	2889	2877	5	174	t	162	Clean	12# Arrowtooth
5	"	0745	25	1.0	81	2977	2965	126	165	80	135	26# Hake	25# Hake
6	"	0835	22	1.2	80	2940	2928	107	166	52	160	60# Hake	90# Hake

Table 3. Continued

Tow	Date	Time Start PDT	Tow Duration Min Miles		Depth fms	Loran In	LO Out	Shrimp Catch				FCO Net	Fish Catch	
								FCO Net		Comm. Net			FCO Net	Comm Net
								Shrimp (lbs)	Shrimp Tb	Shrimp (lbs)	Shrimp Tb			
7	"	0945	27	1.0	87	2880	2868	142	134	157	146	10# Hake	12# Sable	
8	"	1050	24	1.0	88	2835	2823	119	122	143	114	Clean	15# Smelt	
9	"	1208	26	0.9	110	2832	2820	171	184	130	202	Clean	20# Arrowtooth	
10	"	1319	26	1.0	104	2781	2769	31	175	20	158	30# Pacific Ocean Perch	Clean	
11	"	1440	30	1.0	93	2731	2719	49	120	37	118	Clean	Clean	
12	"	1550	24	1.1	95	2680	2668	18	104	14	105	Clean	Clean	
13	"	1645	-	1.1	94	2642	2630	23	112	11	118	12# Hake	Clean	
14	"	1800	25	1.0	121	2630	2618	33	109	25	91	16# Lingcod	14# Urchins	
15	"	0745	19	1.0	72	2780	2769	44	136	26	102	250# Hake	90# Hake	
16	"	0900	25	1.0	64	2736	2724	0	-	0	-	350# Hake	150# Hake	
17	"	1005	23	1.2	66	2683	2671	0	-	0	-	20# Hake	25# Hake	
18	"	1135	25	1.2	81	2585	2573	2	88	1	85	100# Hake	125# Hake	
19	"	1227	38	0.9	76	2535	2523	31	84	17	85	125# Hake	15# Hake	
20	"	1410	20	1.1	109	2578	2566	23	152	13	151	20# Pacific Ocean Perch	10# Urchins	
21	"	1505	25	1.0	89	2536	2524	2	159	1	154	12# Yellowtail Rock	Clean	
22	"	1619	24	1.0	149	2530	2528	0	-	0	-	37# Sable	9# Yellowtail Rock	
23	"	1730	11	0.9	95	2578	2566	75	102	55	107	20# Pacific Ocean Perch, 15# Hake	40# Hake, 11# Pacific Ocean Perch	
24	"	1837	23	0.9	78	2474	2466	98	151	76	146	20# Sable, 10# P.O.P.	150# Hake, 23# Sable	