

FISH COMMISSION OF OREGON  
GROUNDFISH AND SHRIMP INVESTIGATIONS

Report of Cruise 72-4, Resource Survey

**Vessel:** R/V Commando, chartered research vessel.

**Dates:** September 2 - October 1, 1972

**Objectives:** The purpose of the survey was to provide data for biomass estimates of flatfish and age data for forecasting year class strength of important commercial flatfish. The cruise in 1972 completed the survey of the continental shelf off Oregon started in 1971 (Cruise 71-5). An additional objective of the cruise was to conduct mesh size selectivity experiments and length of tow experiments.

**Methods:** Trawling stations were determined by use of a 5x5 nautical mile grid with a random starting point. Tow locations were located by Loran (1L0), radar, depth sounder, and dead reckoning. Tows were three-fourths nautical mile in length or 10 Loran microseconds. All tows were made to the south except tows 17 and 54 which were made to the north.

Gear used was a 400-mesh eastern otter trawl constructed entirely of 3.5-inch mesh. Footrope-headrope measures were 77 and 60-feet, respectively. Sweep lines consisted of a 5-fathom dandy line and 10-fathom bridle. There were eleven 8-inch floats attached to the headrope. The footrope was weighted with 50 pounds of chain. A 71-foot, 5/16-inch tickler chain was attached to each wing tip. The "V" type doors or otter boards measured 5x7-feet and weighed 1,050 pounds each.

Nets used in the mesh size selectivity experiments were the 3½-inch mesh survey trawl, a 5-inch mesh commercial trawl, a 3½-inch mesh survey trawl with a 2½-inch intermediate and cod-end, and a 2½-inch mesh trawl hung on the frame of the 3½-inch mesh survey trawl.

Results:

The survey started 18 miles south of Newport and extended to 5 miles south of Cape Blanco.

There were 73 stations plotted within the survey area, but only 53 tows provided useable data. Snags or net damage occurred on 5 tows and 14 stations were unoccupied because of untrawable bottom. One haul (#16) was repeated because of a winch malfunction.

Catch rate by species, tow location, and depth are shown in Table 1. Dungeness crab accounted for the major part of the weight shown in the miscellaneous category of Table 1. Table 2 lists the common and scientific names of fishes caught. There were 7,236 fish sampled for age and sex composition. This figure is preliminary in that some age-weight samples taken can also be used in age composition. Preliminary numbers sampled by species is shown in Table 3.

Tows 61 to 102 dealt with mesh experiments. Results will be reported on in the annual report for FY 1972.

BT casts were made along every other track line. Various requests were fulfilled for specimens. Muscle samples were collected from selected fishes for heavy metals analysis.

Personnel:            Robert Demory, Party Chief 9/2-9/30  
                         Mike Hosie, Biologist, 9/2-9/30  
                         Brent Forsberg, Biologist, 9/2-9/30  
                         Connie Bruneau, Experimental Biology Aide, 9/2-9/13, 9/28-9/30  
                         Larry Six, Student Intern, 9/2-9/7  
                         Chuck Walters, Biologist, 9/8-9/14  
                         Steve Dahl, Experimental Biology Aide, 9/14-9/27  
                         Gail Popham, Experimental Biology Aide, 9/28-9/30

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October 27, 1972

Table 1. Station Location and Catch by Haul, Groundfish Survey, Cruise 72-4, September 2 to September 30, 1972.

Haul Numbers	1	2	3	4	5	6
Date	9/2	9/2	9/3	9/3	9/3	9/3
Loran 110						
Start	2142	2150	2134	2120	2059	2052
End	2132	2140	2124	2110	2049	2042
Depth	23	38	45	50-53	55-58	56-55
Catch:						
Spiny dogfish					6	5
Skate	60	82	32	10	12	32
Ratfish	23	24	10	4	10	11
Pacific hake			3			22
Flatfish						
Pacific sanddab	20	94	68	2	20	11
Arrowtooth flounder					3	
Slender sole					T	T
Petrale sole	20	12	14	T	9	5
Sand sole	3					
Butter sole	18					
English sole	68	150	84		19	21
Rock sole	16			T		
Dover sole	4	17	11		67	66
Rex sole		170	115	2	60	5
Starry flounder						
Curlfin sole	7					
Rockfish						
Shortspine thornyhead						
Bocaccio						
Yellowtail rockfish						
Canary rockfish						
Blackmouth rockfish						
Redstripe rockfish						
Pacific ocean perch						
Yellowmouth rockfish					11	
Stripetail rockfish						
Splitnose rockfish						
Flag rockfish						
Sharpchin rockfish						
Greenstriped rockfish				10	120	
Rosethron rockfish				3	5	
Sablefish						T
Lingcod	12	36			4	6
Miscellaneous <sup>1/</sup>			9		1	8
Totals	251	585	346	31	347	192

<sup>1/</sup> See Table 2 for species listed in this category.

\* Snag

T = Trace = <1 pound

Table 1. Continued

Haul Numbers	7	8	9	10	11	12*
Date	9/3	9/3	9/3	9/3	9/4	9/4
Loran, 1L0						
Start	2050	2064	2012	1990	1986	1986
End	2060	2054	2002	1980	1976	1976
Depth	48-46	36-37	30-29	45-44	57-58	59-61
Catch:						
Spiny dogfish	4				16	5
Skate	40	68		51	9	
Ratfish	12	4	20	15	10	30
Pacific hake	4			42	426	
Flatfish						
Pacific sanddab	116	73	22	840	12	1
Arrowtooth flounder	4					T
Slender sole			T	T	T	
Petrale sole	6	28	7	18	1	
Sand sole						
Butter sole			2			
English sole	58	92	480	34	8	
Rock sole			9			
Dover sole	6	29	29	34	88	
Rex sole	72	34	45	64	21	T
Starry flounder						
Curlfin sole						
Rockfish						
Shortspine thornyhead						
Bocaccio						
Yellowtail rockfish						
Canary rockfish						17
Blackmouth rockfish						
Redstripe rockfish						
Pacific ocean perch						
Yellowmouth rockfish						
Stripetail rockfish						
Splitnose rockfish						
Flag rockfish						
Sharpchin rockfish						
Greenstriped rockfish						11
Rosethorn rockfish						
Sablefish					8	
Lingcod			10		10	10
Miscellaneous	10		4	11	10	
Totals	332	328	628	1109	619	74

Table 1. Continued

Haul Numbers	13	14	15	16	17	18
Date	9/4	9/5	9/5	9/5	9/5	9/5
Loran, 1L0						
Start	1926	1938	1938	1936	1930	1942
End	1916	1928	1928	1926	1946	1932
Depth	68	27	46	62-64	64-62	66-69
Catch:						
Spiny dogfish	26		10		24	46
Skate	2	26	12		46	56
Ratfish	12	1	14		5	12
Pacific hake	1026	4	300		1548	
Flatfish						
Pacific sanddab	2	250	511		8	1
Arrowtooth flounder	7		3		9	3
Slender sole			T		1	T
Petrale sole		11	23		6	2
Sand sole		2				
Butter sole		3				
English sole	3	460	27			1
Rock sole		2				
Dover sole	63	8	15		118	114
Rex sole	3	63	100		20	3
Starry flounder						
Curlfin sole						
Rockfish						
Shortspine thornyhead						
Bocaccio	1					
Yellowtail rockfish						
Canary rockfish						
Blackmouth rockfish					T	
Redstripe rockfish						
Pacific ocean perch						
Yellowmouth rockfish	5					
Stripetail rockfish						
Splitnose rockfish						
Flag rockfish						
Sharpchin rockfish						
Greenstripe rockfish	66				6	9
Rosethorn rockfish						
Sablefish	28		1		6	5
Lingcod	7				2	
Miscellaneous	5	5	16		1	5
Totals	1256	835	1032		1800	257

Net Fouled

Table 1. Continued

Haul Numbers	19	20	21	22	23	24
Date	9/5	9/5	9/5	9/6	9/6	9/6
Loran, 1L0						
Start	1868	1795	1795	1809	1810	1860
End	1858	1785	1790	1799	1800	1850
Depth	79-82	112-130	111-115	75-76	108-113	76-74
Catch:						
Spiny dogfish	8			136	18	214
Skate	14	56	40		79	14
Ratfish	15	14	33	2		
Pacific hake	604	70	26	890	146	2288
Flatfish						
Pacific sanddab				3		3
Arrowtooth flounder	12	4	16	7	40	13
Slender sole	6		T		6	T
Petrale sole	2			5		
Sand sole						
Butter sole						
English sole		30				
Rock sole						
Dover sole	96	210	285	70	134	22
Rex sole	91	17	48	5	68	3
Starry flounder						
Curlfin sole						
Rockfish						
Shortspine thornyhead		17	56		116	T
Bocaccio				6	6	5
Yellowtail rockfish						
Canary rockfish	5	4	6	4	6	
Blackmouth rockfish	4		10			
Redstripe rockfish						
Pacific ocean perch		160	6		2	
Yellowmouth rockfish					33	
Stripetail rockfish		8	2			
Splitnose rockfish		68				
Flat rockfish		5			8	
Sharpchin rockfish					3	
Greenstriped rockfish	4	T	3	56	4	16
Rosethorn rockfish						
Sablefish	92	54	38	2	828	30
Lingcod				10		
Miscellaneous	1	35	4	2	4	2
Totals	954	752	573	1198	1501	2610

Table 1. Continued

Haul Numbers	25	26	27	28	29	30
Date	9/6	9/6	9/6	9/6	9/7	9/7
Loran, 1L0						
Start	1874	1877	1881	1870	1803	1772
End	1864	1867	1871	1860	1793	1762
Depth	65	55	10-11	44-43	63-62	36-35
Catch:						
Spiny dogfish	16	7		3	3	4
Skate	5	9	36		8	46
Ratfish	1				11	1
Pacific hake	612	2910		46	200	8
Flatfish						
Pacific sanddab	T	4		26	5	52
Arrowtooth flounder	5	11		3	7	
Slender sole					T	
Petrale sole		2	3	13		11
Sand sole			166			
Butter sole			2			
English sole		5	12	13	4	12
Rock sole						
Dover sole	25	14		132	92	224
Rex sole		7		32	4	85
Starry flounder			54			
Curlfin sole			6			
Rockfish						
Shortspine thornyhead						
Bocaccio		2				
Yellowtail rockfish						
Canary rockfish						
Blackmouth rockfish						
Redstripe rockfish						
Pacific ocean perch						
Yellowmouth rockfish						
Stripetail rockfish						
Splitnose rockfish						
Flag rockfish						
Sharpchin rockfish						
Greenstripe rockfish	2	1			45	
Rosethron rockfish						
Sablefish	166	2			8	1
Lingcod				9	9	2
Miscellaneous	4	3		1	4	12
Totals	836	2977	279	278	400	458



Table 1. Continued

Haul Numbers	31	32	33	34	35	36
Date	9/7	9/7	9/7	9/8	9/8	9/9
Loran, 1L0						
Start	1746	1750	1745	1695	1688	1680
End	1736	1740	1735	1685	1678	1670
Depth	60-59	68-69	110-112	28-24	59-58	70-67
Catch:						
Spiny dogfish		72	26			16
Skate	24	46	170	198	5	80
Ratfish	23	13	12		8	7
Pacific hake			158		28	32
Flatfish						
Pacific sanddab	2			66	6	T
Arrowtooth flounder	8	6	21		4	8
Slender sole	7	2	36		2	2
Petrale sole		2		21		5
Sand sole						
Butter sole				7		
English sole	3			250	9	5
Rock sole						
Dover sole	68	192	105	18	52	159
Rex sole	16	37	52	150	26	61
Starry flounder						
Curlfin turbot						
Rockfish						
Shortspine thornyhead			24			
Bocaccio		3	11			
Yellowtail rockfish		3				5
Canary rockfish	1		10			6
Blackmouth rockfish			37			
Redstripe rockfish						
Pacific ocean perch			4			
Yellowmouth rockfish						
Stripetail rockfish						
Splitnose rockfish			2			
Flag rockfish						
Sharpchin rockfish			2			
Greenstripe rockfish	4	147	10		7	112
Rosethorn rockfish		3				4
Sabiefish	3	4	136		13	4
Lingcod					10	
Miscellaneous	1	3	1	46	18	10
Totals	160	533	817	756	188	516

Table 1. Continued

Haul Numbers	37	38	39	40	41	42
Date	9/9	9/9	9/9	9/9	9/9	9/9
Loran, 1L0						
Start	1620	1627	1622	1566	1563	1488
End	1610	1617	1612	1556	1553	1478
Depth	69	58	25-29	58	75-74	93-94
Catch:						
Spiny dogfish						
Skate		44	286	102	20	32
Ratfish	5	10		9	23	
Pacific hake	20	44		182	430	142
Flatfish						
Pacific sanddab	3	28	114	6	2	
Arrowtooth flounder	5	4			15	12
Slender sole		5	T	2	3	2
Petrale sole	5		25	4	9	4
Sand sole			16			
Butter sole			11			
English sole	4	6	361	4	32	2
Rock sole						
Dover sole	68	31	22	117	156	57
Rex sole	3	25	181	63	14	8
Starry flounder			2			
Curlfin sole						
Rockfish						
Shortspine thornyhead						3
Bocaccio						34
Yellowtail rockfish						
Canary rockfish		8				24
Blackmouth rockfish	5					1
Redstripe rockfish						
Pacific ocean perch	4					
Yellowmouth rockfish						
Stripetail rockfish						
Splitnose rockfish						
Flag rockfish						
Sharpchin rockfish						
Greenstriped rockfish	13				24	3
Rosethorn rockfish						
Sablefish	9	10		5	11	30
Lingcod			23		14	25
Miscellaneous	4	5	4	3		
Totals	148	220	1045	497	753	379

Table 1. Continued

Haul Numbers	43	44	45	46*	47	48
Date	9/10	9/10	9/10	9/10	9/10	9/10
Loran, 110						
Start	1449	1502	1486	1431	1372	1379
End	1439	1492	1476	1421	1362	1369
Depth	55	52-50	69-68	74	92-95	60-59
Catch:						
Spiny dogfish					52	
Skate	100	28	4		188	
Ratfish	29	1	20		10	60
Pacific hake	74	186			70	532
Flatfish						
Pacific sanddab	36	13	3			2
Arrowtooth flounder	8	10	3		20	2
Slender sole	1	T	3			T
Petrale sole	3	3	1	1	5	5
Sand sole						
Butter sole						
English sole	34	23	13			30
Rock sole						
Dover sole	35	74	110		225	2
Rex sole	51	32	11	1	12	14
Starry flounder						
Curlfin sole						
Rockfish						
Shortspine thornyhead					16	
Bocaccio				5	12	
Yellowtail rockfish						10
Canary rockfish		6	5		66	
Blackmouth rockfish					T	
Redstripe rockfish				22		
Pacific ocean perch						
Yellowmouth rockfish						
Stripetail rockfish					17	
Splitnose rockfish						
Flag rockfish						
Sharpchin rockfish						
Greenstripe rockfish			3	11	9	
Rosethorn rockfish				2		
Sablefish	5	3			74	8
Lingcod	15	2			7	
Miscellaneous	T	21			2	T
Totals	391	402	176	42	785	665

Table 1. Continued

Haul Numbers	49	50	51*	52*	53	54
Date	9/11	9/11	9/12	9/12	9/12	9/12
Loran, 1L0						
Start	1387	1318	1300	1191	1204	1146
End	1377	1308	1294	1184	1194	1156
Depth	29-30	16	80-78	29	106-101	87
Catch:						
Spiny dogfish						12
Skate	75	8	6		44	4
Ratfish	318	191	15	134	9	2
Pacific hake					10	
Flatfish						
Pacific sanddab	2			T		
Arrowtooth flounder					4	7
Slender sole					T	5
Petrale sole	3	14				26
Sand sole						
Butter sole	T	3				
English sole	18					11
Rock sole				11		
Dover sole			68		77	181
Rex sole	7		6	4	7	17
Starry flounder		14				
Curlfin sole	1					
Rockfish						
Shortspine thornyhead					37	
Bocaccio						
Yellowtail rockfish						
Canary rockfish			102		4	
Blackmouth rockfish					5	4
Redstripe rockfish						
Pacific ocean perch					1	
Yellowmouth rockfish						
Stripetail rockfish					16	17
Splitnose rockfish						
Flag rockfish					1	
Sharpchin rockfish						
Greenstripe rockfish			26		32	211
Rosethorn rockfish			T			
Sablefish	T				11	20
Lingcod	16	44			9	
Miscellaneous	5	2	31			4
Totals	445	276	254	149	267	521

Table 1. Continued

Haul Numbers	55	56	57	58	59	60
Date	9/12	9/12	9/13	9/13	9/13	9/13
Loran, 1L0						
Start	1127	1125	1088	1083	1091	-
End	1117	1115	1078	1076	1081	-
Depth	74-70	50-47	27-25	55	90-95	26-29
Catch:						
Spiny dogfish	20			18	3	
Skate	115	32	28		12	11
Ratfish	15	63	82	16	8	440
Pacific hake	60	8		6	14	
Flatfish						
Pacific sanddab		2	9			2
Arrowtooth flounder	17	1		3	7	
Slender sole	2			1	T	
Petrale sole	8	17	26	26		16
Sand sole						
Butter sole			21			
English sole	2	12	400	7	3	20
Rock sole						
Dover sole	121	84		102	312	
Rex sole		23	9	4		4
Starry flounder						
Curlfin sole			1			
Rockfish						
Shortspine thornyhead					37	
Bocaccio						
Yellowtail rockfish	12			11		
Canary rockfish	16			24	9	
Blackmouth rockfish					17	
Redstripe rockfish						
Pacific ocean perch					2	
Yellowmouth rockfish						
Stripetail rockfish					58	
Splitnose rockfish						
Flag rockfish						
Sharpchin rockfish						
Greenstripe rockfish	6			5	2	
Rosethorn rockfish						
Sablefish	18	4		11	9	
Lingcod	46		10	5	4	58
Miscellaneous						
Totals	458	246	586	239	497	551

Table 2. List of Common and Scientific Names of Fishes Caught on Cruise 72-4.

<u>Common Name</u>	<u>Scientific Name</u>
Spiny dogfish	<i>Squalus acanthias</i>
Pacific electric ray	<i>Torpedo californica</i>
Skates	<i>Raja</i> spp.
Ratfish	<i>Hydrolagus colliei</i>
American shad*	<i>Alosa sapidissima</i>
Chinook salmon*	<i>Oncorhynchus tshawytscha</i>
Surf smelt*	<i>Hypomesus pretiosus</i>
Eulachon*	<i>Thaleichthys pacificus</i>
Pacific cod*	<i>Gadus macrocephalus</i>
Pacific hake	<i>Merluccius productus</i>
Pacific tomcod*	<i>Microgadus proximus</i>
Shiner perch*	<i>Cymatogaster aggregata</i>
Pacific mackerel*	<i>Scomber japonicus</i>
Bocaccio	<i>Sebastes paucispinis</i>
Widow rockfish	<i>S. entomelas</i>
Black rockfish	<i>S. melanops</i>
Yellowtail rockfish	<i>S. flavidus</i>
Canary rockfish	<i>S. pinniger</i>
Blackmouth rockfish	<i>S. crameri</i>
Redstripe rockfish	<i>S. proriger</i>
Pacific ocean perch	<i>S. alutus</i>
Stripetail rockfish	<i>S. saxicola</i>
Splitnose rockfish	<i>S. diploproa</i>
Flag rockfish	<i>S. rubrivinctus</i>
Sharpchin rockfish	<i>S. zacentrus</i>
Greenstriped rockfish	<i>S. elongatus</i>
Rosethorn rockfish	<i>S. helvomaculatus</i>
Shortspine thornyhead	<i>Sebastolobus alascanus</i>
Sablefish	<i>Anoplopoma fimbria</i>
Lingcod	<i>Ophiodon elongatus</i>
Sculpins*	Cottidae
Poachers*	Agonidae
Snailfish*	Liparidae
Wolf-eel*	<i>Anarrhichthys ocellatus</i>
Eelpouts*	Zoarcidae
Speckled sanddab*	<i>Citharichthys stigmaeus</i>
Pacific sanddab	<i>Citharichthys sordidus</i>
Arrowtooth flounder	<i>Athirestes stomias</i>
Petrale sole	<i>Eopsetta jordani</i>
Rex sole	<i>Glyptocephalus zachirus</i>
Flathead sole*	<i>Hippoglossodes elassodon</i>
Pacific halibut*	<i>Hippoglossus stenolepis</i>
Butter sole	<i>Isopsetta isolepis</i>
Rock sole	<i>Lepidopsetta bilineata</i>
Slender sole	<i>Lyopsetta exilis</i>
Dover sole	<i>Microstomus pacificus</i>
English sole	<i>Parophrys vetulus</i>
Starry flounder	<i>Platichthys stellatus</i>
Curlfin sole	<i>Pleuronichthys decurrens</i>
Sand sole	<i>Psettichthys melanostictus</i>
Invertebrates	
Dungeness crab*	<i>Cancer magister</i>

\*Species listed in the miscellaneous category of Table 1.

Table 3. Preliminary Numbers of Fish Sampled for Age Composition, Cruise 72-4.

Dover sole	1,872
Rex sole	1,850
Pacific sanddab	1,200
English sole	1,196
Petrale sole	322
Slender sole	318
Arrowtooth flounder	165
Sand sole	165
Butter sole	148
Total	7,236