

FISH COMMISSION OF OREGON
TRAWL INVESTIGATION
REPORT OF CRUISE 68-2, DOVER SOLE

Vessel: MV Sunrise, chartered trawler.

Dates: February 14-16, 1968.

- Objectives:
1. Determine distribution of bottomfish juveniles with emphasis on Dover sole.
 2. Identify and record incidentally caught fish and shrimp.
 3. Collect juvenile English and Dover sole for aquarium studies.

Methods: A Gulf semi-balloon trawl with a headrope 41 feet long was used. The trawl was made of 1-1/8-inch stretch mesh netting in the body and intermediate and 1-1/2-inch mesh in the cod end. The anterior 1/3 of the cod end contained a 1-1/8-inch innerliner while the posterior 2/3 of the cod end had a 1/2-inch knotless innerliner. Plastic rollers and 1/4-inch galvanized chains, used for weights, were attached to the 52-foot footrope. A 5/16-inch steel tickler chain 49 feet long completed the net which was attached to the otter boards by a 30-foot bridle.

Tows were made at 10-fathom intervals on two general track lines between the Columbia River and Tillamook Head (Figure 1).

The catch from each tow was sorted by species and weighed. Random samples of adults were measured at sea. Juvenile sole were put in plastic bags, iced down and returned to the laboratory for processing.

Results: Nine tows were made on the northern tack line but fishing was terminated after two tows on the southern track line due to a broken brakeband on the port winch. Table 1 lists each tow by depth, Loran position, time fished and catch. Weights are given for Dover, English, and petrale sole and Pacific ocean perch. Weights for other species are grouped into rockfish, flatfish, roundfish and miscellaneous fish. Table 2 lists the scientific and common names of fish in each group.

Depth of tows ranged from 9 to 91 fathoms. Length of tows was 15 minutes. Tables 3-9 show size composition by number caught per 15 minutes of trawling for Dover, English, rex, sand, slender, and Bellingham sole and Pacific sand dabs. Length frequencies were expanded to the catch for those tows where the catch of adults was subsampled.

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April 16, 1968

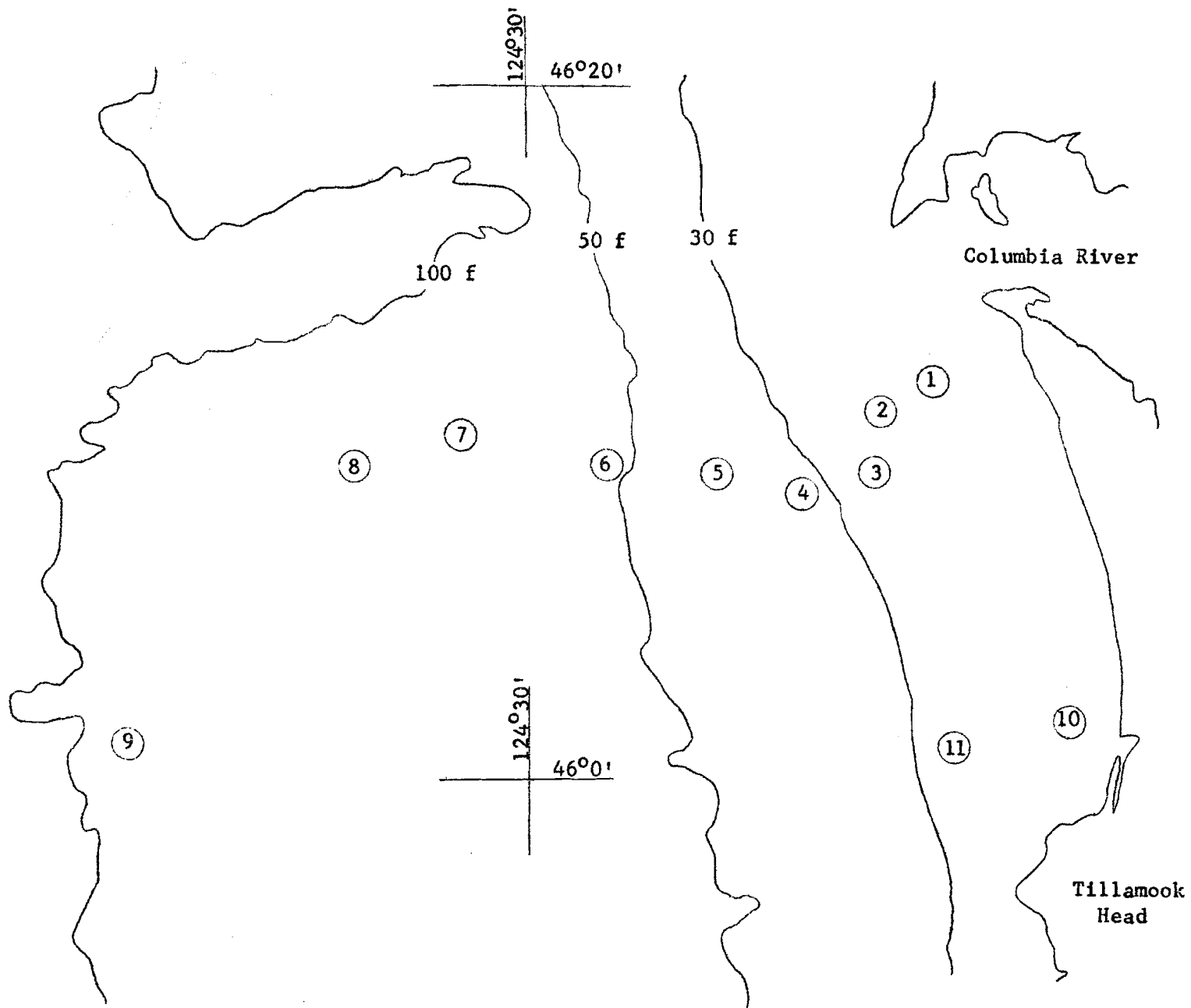


Figure 1. Locations of tows with trawl net on Cruise 68-2 for Dover sole

Table 1. Tow data and pounds of catch by station, cruise 68-2.

No.	Tow data			Loran		Pounds of catch						
	Depth fms	Time	Start-end	Start-end	Pet. ^{1/}	Eng. ^{1/}	Dov. ^{1/}	P.O.P. ^{1/}	Rock Fish ^{2/}	Flat Fish ^{2/}	Round Fish ^{2/}	Misc Fish ^{2/}
			2H4	2H5								
1	9	15	3490-3497	3484-3483		2				39	1	26
2	16	15	3480-3486	3479-3479		2				9	2	1
3	22-21	15	3460-3465	3478-3478		3				60	6	15
4	35	15	3452-3456	3472-3472		149			4	97	36	19
5	44	15	3460-3462	3466-3466	1	18	2		35	55	90	24
6	54-55	15	3458-3462	3457-3457	2	10	7		1	43	130	14
7	64-65	15	3470-3476	3445-3445			7		16	138	9	T
8	73	15	3460-3457	3434-3435			T	T	T	46	24	11
9	91-90	15	3350-3355	3407-3407			3		5	262	14	5
10	9	15	3370-3365	3484-3484		3				97	2	
11	26	15	3358-3362	3477-3477	4	60				115	1	

^{1/} Pet. - Petrale, Eng. - English and Dov. - Dover sole, P.O.P. - Pacific ocean perch

^{2/} Refer to Table 2 for species composition.

^{3/} T. - trace an observable amount but not enough to weigh - usually less than a pound

Table 2. Common and scientific names of fishes caught on cruise 68-2.

Petrale sole	<u>Eopsetta jordani</u>
Dover sole	<u>Microstomus pacificus</u>
English sole	<u>Paraphrys vetulus</u>
Pacific ocean perch	<u>Sebastes alutus</u>
Rockfishes:	
Blackmouth rockfish	<u>Sebastes crameri</u>
Greenstriped rockfish	<u>S. elongatus</u>
Yellowtail rockfish	<u>S. flavidus</u>
Orange rockfish	<u>S. pinniger</u>
Flatfish:	
Pacific sand dab	<u>Citharichthys sordidus</u>
Arrowtooth flounder	<u>Atheresthes stomias</u>
Rex sole	<u>Glyptocephalus zachirus</u>
Bellingham sole	<u>Isopetta isolepis</u>
Slender sole	<u>Lyopsetta exilis</u>
Starry flounder	<u>Platichthys stellatus</u>
Sand sole	<u>Psettichthys melanastictus</u>
Roundfishes:	
Pacific herring	<u>Clupea harengus pallasii</u>
American shad	<u>Alosa sapidissima</u>
Northern anchovy	<u>Engraulis mordax</u>
Smelts	<u>Osmeridae</u>
Pacific tomcod	<u>Microgadus proximus</u>
Sablefish	<u>Anoplopoma fimbria</u>
Lingcod	<u>Ophiodon elongatus</u>
Miscellaneous fish:	
Spiny dogfish	<u>Squalus acanthias</u>
Big skate	<u>Raja binoculata</u>
Longnose skate	<u>R. rhina</u>
Starry skate	<u>R. stellulata</u>
Ratfish	<u>Hydrolagus colliei</u>
Shiner perch	<u>Cymatogaster aggregata</u>
Redtail surfperch	<u>Amphistichus rhodaterus</u>
Sea poachers	<u>Agonidae</u>
Showy snailfish	<u>Liparis pulchellus</u>
Eel pouts	<u>Zoarcidae</u>

Table 3. Size composition of Dover sole (number caught per 15 minutes of trawling), by sex, by tow, Cruise 68-2.

Length (cm)	Tow number										
	5			6			7			8	9
	M	F	NS	M	F	NS	M	F	NS	NS	NS
4											1
5									1	8	17
6						13			7	62	63
7			1			8			3	2	7
8											
9											
10			2			1			1		
11			6					1	3		
12		3	5								
13	1	1	1								
14	1										
15								1			
16										2	
17	2										
18											
19	1	1			3		2	2	1		
20	2						1	1			
21					1			1			
22				1	1		2				
23					1			1			
24		1		2	4		1	1		1	
25	1			1	1						
26		1			3		1	1			
27		1		2	1		1	2			
28		1			1			3			
29				1	1			1			
30					1		2				
31								1			
32								1			
33											
34								1			
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											
46											
47								1			
Total	8	9	15	7	18	22	10	19	16	75	88

NS = no sex determined.

Table 4. Size composition of English sole
(number caught per 15 minutes of trawling),
by tow, Cruise 68-2.

Length (cm)	Tow number					
	3	4	5	6	10	11
8			1			
9		1	1			
10	1	6	6		1	5
11	2	10	4			14
12	4	8	1			24
13	4	6	6			41
14	7		2			38
15	4	1				12
16	9		3			5
17	10	2	1			46
18	10	1	1			17
19	20	3	2			29
20	23	1	3			12
21	21		1			19
22	22		2			19
23	16	2	2			14
24	9	3	3			19
25	5	1	1			12
26	2	7				14
27	1	6				10
28	1	6	3			7
29	1	1	4			7
30	2	3		1		
31	6	1	7	1		2
32	1	3	2			
33		1	1	3		2
34		1				
35	1		1	1		
36				2		
37	1			1		
38			1	1		
39					1	
40	1	1				
41			1	1		
42					1	
43						
44						
45			1		1	
Total	184	75	61	11	4	368

Table 5. Size composition of rex sole
(number caught per 15 minutes of trawling),
by tow, Cruise 68-2.

Length (cm)	Tow number				
	5	6	7	8	9
5				14	19
6		1		24	10
7				6	1
8		1		5	1
9		19	5	49	5
10	11	67	24	141	16
1	111	99	23	85	13
2	125	74	12	18	6
3	114	52	6	11	1
4	87	30	14	34	6
5	26	18	19	37	
6	10	21	19	23	12
7	15	40	3	22	
8	9	24	6	21	
9	6	26	8	17	6
20	8	16		10	
1	7	11	1	11	6
2	2	13	10	3	12
3	3	1	5	6	
4	3	11	20	5	6
5	1	8	20	5	18
6	4	8	30	6	24
7	3	6	40	3	42
8	4	13	15	2	30
9	2	10	40		66
30	3	6	25		54
1	1	8	15	2	48
2	2	4	10	1	24
3	1				6
4			5		
5					
6			5		
7	1				
Total	559	587	380	561	432

Table 6. Size composition of sand sole
(number caught per 15 minutes of trawling),
by tow, Cruise 68-2.

Length (cm)	Tow number						
	1	2	3	4	5	10	11
6		1					
7							
8							
9							
10	1						
11							
12	1						
13	1						
14	3						
15	2						2
16	2		1				4
17	1			1			7
18	4	2	2	2		1	6
19	3	2	2			4	5
20	2	2	2	2		3	3
21	1	1	4	2		3	1
22			2	2		4	5
23	1	1	2		1	1	2
24	1		1	1	1	1	
25						1	1
26	1			1		1	1
27	1						
28						1	
29	1		1			2	
30	3			1	1		
31	2				1	4	
32				2		1	
33	1		1			3	
34				1	3		
35						1	
36							
37	1			1		2	
38							
39	1						
40	1					1	
41				1			
42							
43	1						
44						1	
45							
46						1	
47	1	1			1		
48						2	
49						1	
Total	37	10	18	17	8	39	37

Table 7. Size composition of slender sole
(number caught per 15 minutes of trawling),
by tow, Cruise 68-2

Length (cm)	Tow number				
	5	6	7	8	9
4				1	
5				7	
6				2	2
7				8	2
8			1	26	6
9		5	7	29	17
10		3	8	19	35
11			7	28	19
12		5	13	32	56
13		2	15	31	78
14			11	42	95
15		1	20	25	31
16	3	2	29	27	105
17		2	15	12	106
18		2	19	12	122
19		1	48	12	99
20			17	18	94
21			23	22	95
22		2	28	13	62
23		2	28	13	47
24		1	8	9	21
25			6	2	5
26			3	3	5
27			3		
28				1	
Total	3	28	309	397	1,174

Table 8. Size composition of Bellingham sole
(number caught per 15 minutes of trawling),
by tow, Cruise 68-2.

Length (cm)	Tow number						
	1	2	3	4	5	10	11
5	1		2				
6	3						
7	4						
8	1						
9		1		4	2	1	
10	2		2	11	6	3	4
11	1		2	13	14	2	
12			1	18	7	3	2
13	2		2	18	3	2	
14	2	1	2	10	2	3	4
15			1	6			
16	1	1	3	7	3		
17				7			
18		1	5	12	1		2
19	1	1	11	12	1		6
20	3	5	8	12	1		10
21	3	2	2	12			6
22	2	2	12	10		2	10
23	3	5	13	14			12
24	5	3	5	7			2
25	3	1	7	14		1	12
26	3		3	5			10
27	1		1	10			8
28	9	1	1	10			6
29	3	1	1	10			8
30	5		1	5		1	2
31			1	2		2	8
32				2		8	
33	1	1				4	2
34	1			2		8	
35	2	1				1	
36						1	
37						1	
Total	62	27	86	233	40	43	114

Table 9. Size composition of sand dabs
(number caught per 15 minutes of trawling),
by tow, Cruise 68-2.

Length (cm)	Tow number										
	1	2	3	4	5	6	7	8	10	11	
4							1				
5											
6	1	1							1		
7			1	2		2	1	2			
8	1	2	16	9	6	4	5	2		1	
9	7	4	25	13	1	4	2		4	2	
10	5	1	11	4	1					2	
11	1	1	4	1	2	1	1			4	
12	2	1	1	1	4	2		1		1	
13				3	3	3	1	1		2	
14	1				3	4				4	
15					1						
16				1	3	1		1		2	
17				2	7	1		1		5	
18				4	3	3				14	
19				6	11	3	1			16	
20				9	10	2				18	
21			1	19	25	3	1	1		12	
22			3	12	32		1	2		20	
23				16	29		1	2		13	
24		1	2	8	47		3	5		12	
25				4	22	2		2		13	
26			2	9	2		1	2		9	
27		1	1	7	10			1		3	
28		1	1	4	5			2		2	
29				2	2			2		1	
30							1			1	
Total	18	13	68	136	229	35	21	27	3	158	