

FISH COMMISSION OF OREGON
TRAWL INVESTIGATION

Report of cruise 67-10, Shrimp

Vessel: MV Sunrise, chartered trawler

Dates: September 26-28, 1967

Objectives: 1. To learn to set and retrieve the 30-foot midwater trawl.
2. To determine if the midwater trawl fished properly.
3. To catch shrimp off the bottom at night.
4. To compare depth calculated from wire angle with recorded depths from a time-depth recorder attached to the footrope.

Methods: We used a 30-foot headrope midwater trawl during the cruise (Figure 1). Fish were counted and weighed whenever possible. All shrimp caught were weighed, measured, and sexed. A time-depth recorder and wire angle indicator were used to obtain net depth.

During the cruise minor modifications of the net and doors were made including sewing on rings and a splitting strap, shortening the chains on one upper door, and shortening the upper cables.

Results: Five tows were made September 26, southwest of the Columbia River, to test gear handling techniques and net configuration. We experienced no difficulties in setting or retrieving the gear. The net appeared to be well spread both vertically and horizontally. The first tow produced a startling 4,000 pounds (estimated) of jellyfish. A summary of all tows is shown in Table 1.

Four tows were made during the late evening and night of September 27 to compare depths from the time-depth recorder with those calculated from the wire angle indicator. Except for very short warp lengths (25 and 50 fathoms) the net was always shallower than the depth calculated from wire angle. Jellyfish and euphasids were caught on the first two tows. However, the later tows produced very small catches of shrimp. In addition, hake, a yellowtail rockfish, an arrowtooth flounder, smelt, anchovies, jellyfish, and euphasids were caught.

A final daylight tow was made September 28. The time-depth recorder was attached to the footrope, and the net was fished continuously at 25 fathom warp intervals from 25 to 250 fathoms. At each interval the net was towed 15 minutes to allow it to adjust in depth. Wire-angle was recorded at each interval.

A comparison is shown in Table 1. The presence of approximately 100 shrimp and two heart urchins indicates that the net probably scraped bottom momentarily.

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October 19, 1967

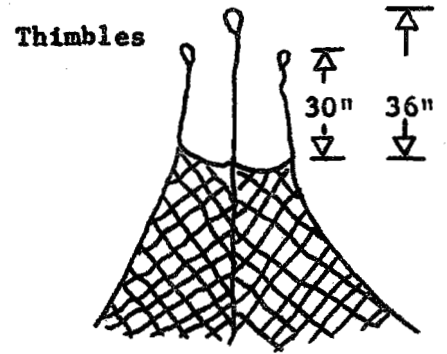
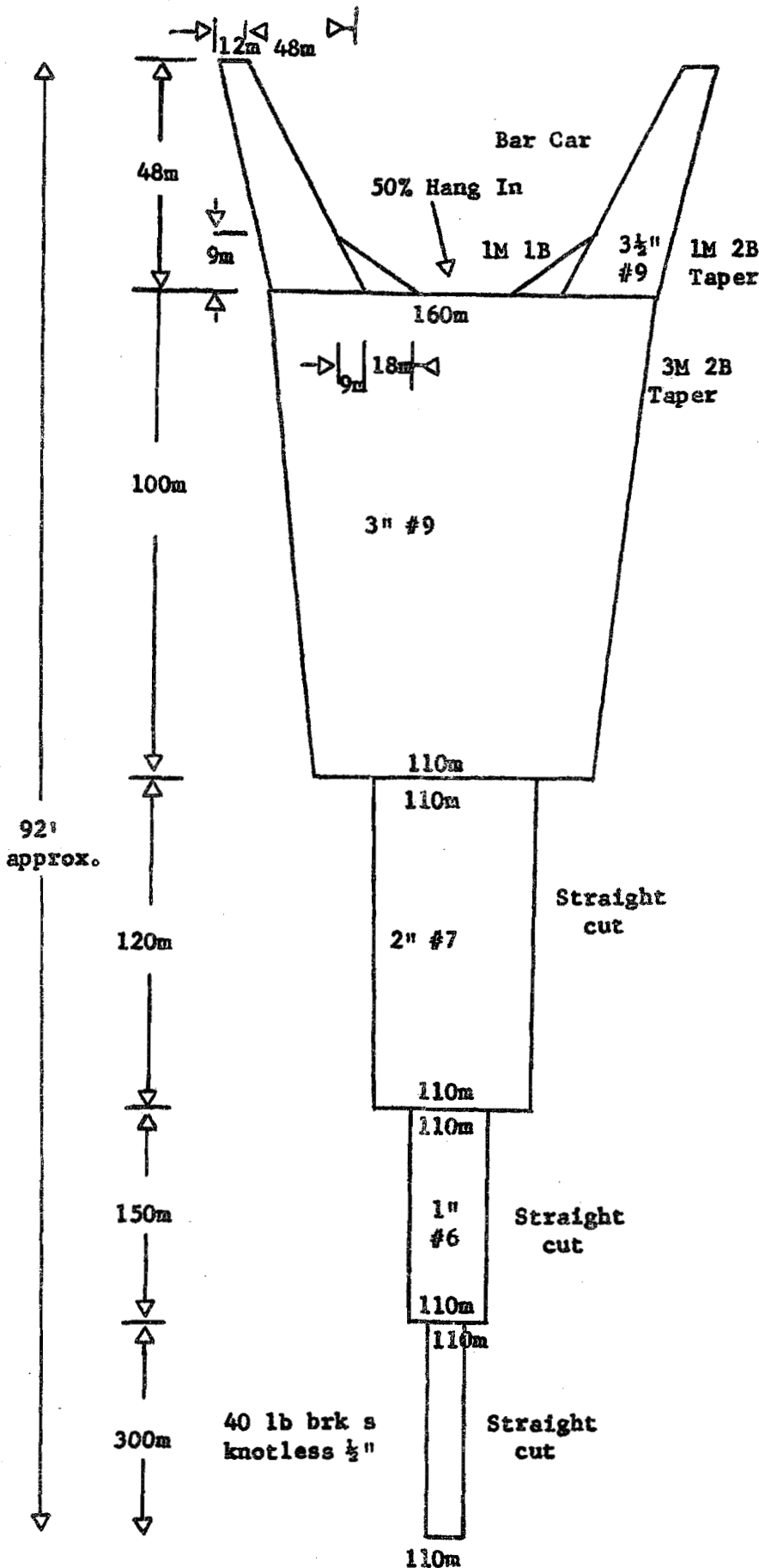


Figure 1. Thirty-foot midwater trawl.

Net consists of four panels sewn together with riblines on longitudinal seams and around mouth perimeter. Chain to be fastened along one mouth line. Hog rings to be fastened on riblines 1 foot from end of codend. Net to be treated to color black and to prevent knot slippage.

Materials

- Webbing: Filamented chaff resistant nylon
- Rib and mouth lines: 1/2" Dia. braided nylon rope
- Chain: 3/16" galvanized
- Hog rings: 2" Dia.
- Thimbles: To fit 1/2" nylon rope

Table
Summary of tow data
Cruise 67-10

Tow No.	Date	Loran		Bottom depth (fms)	Tow time (min)	Time down	Warp length	Depth calculated from wire		Recorder depth	Catch
		Down 2H 4 block	Up					Slope	angle ^{1/}		
1	9-26	3400		27	10	Day	25	Unknown	Unknown	-	Jellyfish-4,000 lbs. Juvenile anchovies
2	9-26	3400		54	15	Day	50	Unknown	Unknown	-	Dogfish-3 lbs. Jellyfish-200 lbs. Juvenile anchovies
3	9-26	3400		53	15	Day	75	Unknown	Unknown	-	Longnose-20 lbs. Jellyfish-5 lbs.
4	9-26	3400		55	25	Day	50	Unknown	Unknown	-	Jellyfish-5 lbs.
5	9-26	3400		25	10	Day	25	Unknown	Unknown	-	Jellyfish-300 lbs. Juvenile anchovies
6	9-27	3338	3327	70-71	22	1713	75	15°	19	17	Jellyfish-23 lbs.
7	9-27	3315	3300	71-72	29	1809	150	18°	46	36	Jellyfish-10 lbs. Euphasids-1 lb.
8	9-27	3288	3260	72-74	58	1904	150	20°	51	38	Hake-6 lbs. Yellowtail R.F.-4 lbs. Turbot-2½ lbs. Smelt-trace Shrimp-¼ lb. Anchovy-trace Jellyfish-5 lbs. Euphasids-trace
9	9-27	3252	3240	75-75	20	2037	75	17°	22	17	Hake-6 lbs. Shrimp-trace Jellyfish-trace Euphasids-trace
10	9-28	3198	3222	77-86	2½ hrs.	0825	25	12°	5	9	Shrimp-¾ lb.
							50	13°	11	13	Jellyfish-12 lbs.
							75	16°	21	20	Euphasids-trace
							100	18°	31	25	Anchovies-trace
							125	21°	45	34	Crago-trace
							150	22°	56	38	Heart urchins-trace
							175	22°	66	49	
							200	21°	72	54	
							225	24°	92	67	
							250	23°	98	75	

^{1/} Warp length does not include 25 fathoms of bridle.