# SHRIMP EXPLORATIONS OFF THE WASHINGTON COAST, FALL 1955 AND SPRING 1956

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#### SUMMARY

Shrimp explorations off the Washington coast were conducted by the Service's exploratory fishing vessel John N. Cobb during the fall (October 18 to November 9) of 1955 and spring (March 27 to April 19) of 1956. These explorations were carried out in cooperation with the State of Washington Department of Fisheries'

shellfish division. Gear used during the fall exploration included a 20-foot beam trawl and a small West Coast box-type otter trawl. Gear used during the spring exploration included a 20foot beam trawl, a small West Coast box-type otter trawl, and a 40-foot Gulf of Mexico shrimp trawl.

Fishing results during the fall exploration showed that pink shrimp (Pandalus jordani) were widely distributed at various depths over the entire area explored. The best drag with the beam trawl caught 150 pounds of heads on shrimp an hour and the best drag with the otter trawl caught 600 pounds of shrimp an hour.



Fig. 1 - Method of attaching port door to wing of Gulf shrimp trawl. Starboard door was attached in same manner. Arrow indicates foreward portion of "lazy line."

Fishing results during the spring exploration showed that of the three types of gear used, the Gulf shrimp trawl was the most efficient and practicable type of gear for catching shrimp on these grounds. Of the 51 drags made with this gear, 25 caught shrimp in amounts ranging from 300 to 2,200 pounds an hour. The two most promising localities which appeared to offer the best prospects for the development of a commercial shrimp fishery are between the mouth of the Moclips River and the mouth of Connor Creek, and between Grays Harbor and Cape Shoalwater.

### BACKGROUND

Explorations for shrimp off the Washington coast were undertaken by the U. S. Fish and Wildlife Service's exploratory fishing vessel John N. Cobb during the fall of 1955 and the spring of 1956. These explorations were carried out in cooperation with the State of Washington Department of Fisheries' shellfish division whose personnel participated in the collection of data aboard the vessel and examined samples of shrimp'in the laboratory after the completion of each trip.

During the fall exploration (October 18 to November 9, 1955), 45 drags were made with a 20-foot beam trawl and 7 drags were made with a small West Coast

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Fig. 2 - Gulf shrimp trawl used during the spring (March 27 to April 19, 1956) exploration by the exploratory fishing vessel John N. Cobb.



Fig. 3 - Location of beam-trawl drags and otter-trawl drags between Ocean Park and Cape Elizabeth, fall (October 18 to November 9, 1955) exploration.

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box-type otter trawl. During the spring exploration (March 27 to April 19, 1956), 51 drags were made with a 40-foot Gulf of Mexico shrimp trawl, 39 with a 20-foot beam trawl, and 4 with a small West Coast box-type otter trawl.

Detailed information concerning each drag made during the fall exploration is tabulated in table 1 (see pages 19 and 20), and the location of each drag is diagrammatically illustrated in figures 3 and 4, respectively. Detailed information concern-

ing each drag made during the spring exploration is tabulated in table 2 (see pages 21, 22, 23, and 24), and the location of each drag is diagrammatically illustrated in figure 8.

# THE AREA EXPLORED AND BOTTOM CONDITIONS

Fishing operations during the fall exploration were carried out between latitudes  $46^{\circ}27'$  N. and  $48^{\circ}04'$  N., a distance of 97 miles north and south and from  $4\frac{1}{2}$  to  $28\frac{1}{2}$ miles offshore. The area covered is approximately between Ocean Park and Carroll Island. Fishing operations during the spring exploration were carried out between



Fig. 4 - Emptying a beam-trawl catch on sorting table located on the deck of the John N. Cobb. Beam-trawl catches usually contained few fish requiring little time or effort to separate fish from shrimp.

ploration were carried out between latitudes 46°21' N. and 47°42' N., a distance of 81 miles north and south and from 11 to 31 miles offshore. The area covered is approximately between Long Beach and Destruction Island.

Successful shrimp explorations off the Oregon coast in 1951 and 1952 (Pruter and Harry 1952) by the Fish Commission of Oregon indicated that the largest concentrations of pink shrimp (<u>Pandalus jordani</u>) were taken in areas with a green-mud or a mixed mud-and-sand bottom, at depths between 60 and 80 fathoms.

Navigational charts of the Washington coast show that in the area between Ocean Park and Carroll Island the width between the 50- to 100-fathom contours varies from approximately 3 to 15 miles with green-mud bottom at numerous localities between these contours throughout this area. Although drags were made at depths ranging from 21 to 116 fathoms during the fall exploration and at depths of 48 to 139 fathoms during the spring exploration, the majority of the drags during both explorations were made between the 50- and 100-fathom contours.

A commercial fishery for bottom fish with otter trawls has been carried on off the Washington coast for a number of years, and generally favorable trawling bottom throughout the area was known to exist prior to the start of the fall shrimp exploration. The locations of known bottom obstructions were obtained from commercial fishermen engaged in the otter-trawl fishery, and these known obstructions were avoided as much as possible during both shrimp explorations. Nevertheless, during the fall exploration, one beam-trawl drag resulted in a broken beam and one ottertrawl drag resulted in net damage, while during the spring exploration two beamtrawl drags resulted in broken beams and eight Gulf shrimp-trawl drags resulted in net damage. Five of the drags with the Gulf shrimp trawl which resulted in net damage were made between Cape Shoalwater and Long Beach. Only one beam-trawl drag here resulted in a broken beam. With the exception of this one particular locality and the small number of localized bottom obstructions encountered in the rest of the entire area, the bottom dragged was considered excellent for all three types of gear. January 1957



Fig. 5 - Location of beam-trawl drags and otter-trawl drags between Cape Elizabeth and Carroll Island, fall (October 18 to November 9, 1955) exploration

#### GEAR USED

<u>BEAM TRAWL</u>: The 20-foot beam trawl used was constructed to the same specifications as the beam trawl used during shellfish explorations in Alaskan waters by the John N. Cobb. (Details of the beam trawl are described by Ellson and Livingstone 1952.) Nets of both 15-thread  $1\frac{1}{4}$ -inch, and 36-thread  $1\frac{1}{2}$ -inch mesh- cotton webbing, 150 meshes deep, were used. The beam was a hemlock pole approximately 8 inches in diameter at the center and cut down to 6 inches at each end to allow for attachment of the "D" frames or runners, which were made of bar iron  $\frac{5}{8}$ -inch thick and 6 inches wide. As a precautionary measure against possible mudding, which later proved unnecessary, the width of the bottom part of each "D" frame was increased to 16 inches by welding on a  $\frac{5}{8}$ -inch iron plate. After the hemlock beam was broken, 6 x 6-inch milled spruce beams were used. The beam trawl was towed at an average speed of 2 knots with an average scope  $\frac{2}{7}$  of 2.8 to 1.

<u>OTTER TRAWL</u>: The otter trawl used was a 600-mesh West Coast box-type trawl with a head rope 45 feet long and a foot rope 54 feet long. The wings, body, and intermediate of the trawl were  $1\frac{1}{2}$ -inch mesh cottom webbing and cod ends of



Fig. 6 - Emptying the West Coast box-type otter trawl on the deck of the John Ν. Cobb. Many fish were present in catches with this gear, making separating of shrimp difficult.

both  $1\frac{1}{4}$ -inch mesh and  $1\frac{1}{2}$ -inch mesh cotton webbing were used. (Details of the otter trawl are described by Schaefers and Smith 1954.) "Dandy-line" gear 13 fathoms in length extended from the doors to the wings of the net. The net was set from the stern and brought aboard over the starboard side. The otter trawl was towed at an average speed of 2.7 knots with an average scope of 3 to 1.

<u>GULF SHRIMP TRAWL</u>: The Gulf shrimp trawl (fig. 1) used during the spring shellfish exploration of the John N. Cobb is referred to as a 40-foot flat trawl in the Gulf of Mexico shrimp fishery. (See Bullis 1951 for a description of various types of shrimp trawls used in

the Gulf of Mexico shrimp fishery.) The trawl was set from the stern of the vessel and towed from a single trawl cable. A bridle, 25 fathoms in length on each leg, led from the end of the trawl cable to the doors. The net was attached to the doors with a 2-foot extension of the head rope and foot rope. The catch was hauled aboard over the stern using a "lazy line" (fig. 2) which ran from one trawl door back to the cod end. The Gulf shrimp trawl was towed at an average speed of 2.6 knots with an average scope of 3 to 1.

## FISHING RESULTS

FALL EXPLORATION: Fishing results with the beam trawl during the fall exploration showed that pink shrimp (Pandalus jordani) $\frac{3}{4}$  were widely distributed at various depths over the entire area explored. All drags  $\frac{4}{4}$  with the beam trawl caught shrimp

- 1/ All mesh sizes in this report refer to stretched measure.
- 2/ Ratio of trawl cable out to depth of water.
- Any mention of shrimp in the discussion refers to this species. The small infrequent catches of side-stripe shrimp (Pandalopsis dispar) are tabulated in the fishing log. Other species of shrimp were frequently taken but only in insignificant quantities and are not included in the discussion or the fishing log. These were Crangon species and Spirontocaris species.
- 4/ Drags in which the gear did not reach bottom are not included.

in amounts ranging from a "trace"  $\frac{5}{2}$  to 150 pounds per hour,  $\frac{6}{2}$  with the majority of the drags producing over 40 pounds per hour. Although drags were made at depths of 21 to 116 fathoms, the best catches were made at depths of approximately 40 to 90 fathoms on bottom consisting of green mud or a mixture of green mud and sand. Of the 9 beam-trawl drags that caught over 100 pounds of shrimp an hour, 7 were made at depths of 51 to 71 fathoms, and 2 were made at depths of 78 to 88 fathoms. Localities which produced over 100 pounds of shrimp an hour are located off Willapa Bay, off Grays Harbor, off Cape Elizabeth, and off the Queets River. For the best beam-trawl catches see drags 5, 20-23, 27, 32, 41-43, and 45 in the fishing log. Shrimp from these drags ranged from 115 to 166 whole (heads-on) shrimp a pound.  $\frac{7}{2}$ 

Although only a limited number of drags were made with the small West Coast box-type otter trawl, results indicated that this gear was considerably more effective than the beam trawl in taking shrimp in the area explored off the Washington coast. This was probably due to the larger size of the otter trawl and the faster speed at which the otter trawl was normally towed resulting in more bottom being fished than when using the beam trawl for a similar period of time.

Off Copalis Head four beam-trawl drags at depths of 44 to 81 fathoms caught from 55 to 95 pounds of shrimp an hour and 3 otter-trawl drags at depths of 48 to 20 fatheme 240 to 500

80 fathoms caught from 240 to 600 pounds of shrimp an hour. Off the Queets River, a beam-trawl drag at 61 to 65 fathoms that caught 120 pounds of shrimp an hour was approximately duplicated by an otter trawl drag at 61 to 63 fathoms which caught 270 pounds of shrimp an hour. In this same locality in deeper water a beam-trawl drag at 77 to 88 fathoms caught 110 pounds of shrimp an hour while an approximate duplicate ottertrawl drag at 81 to 85 fathoms caught 50 pounds of pink shrimp an hour. This was the only drag in which the otter trawlfailed to catch more shrimp per hour than the best beam-trawl drag of the entire fall exploration.



Fig. 7 - A clean catch of shrimp taken with the Gulf shrimp trawl.

Beam-trawl catches usually contained only small quantities of incidental fish, requiring little time or effort in separating the fish from the shrimp. Otter-trawl catches, however, usually contained larger quantities of fish  $\frac{8}{1}$  in relation to the shrimp, making it impracticable to separate all the shrimp.

Shrimp taken in the otter trawl appeared to be smashed in varying degrees, probably due in part to the pressure of the fish against them while in the net. For these reasons it was decided that the use of the small otter trawlfor catching shrimp would not be practicable in a commercial operation, and it was decided to experiment in the use of a Gulf shrimp trawl during future shrimp explorations off the Washington coast. It was believed that a 40-foot Gulf shrimp trawl would catch <u>more shrimp than the beam trawl</u> because of its increased spread and faster towing

5/ "Trace" - less than one pound of shrimp.

<sup>6/</sup> During the fall exploration all drags in which the gear reached the bottom were of 1-hour duration with the exception of drags number 1 and 34 which were beam-trawl drags and drags number 48 and 49 which were otter-trawl drags. The catches for drags number 48 and 49 have been converted to an hourly basis in the discussion.

<sup>7/</sup> For details of number of whole shrimp per pound for various drags see tables 1 and 2.

<sup>8/</sup> Data concerning fish taken along with the shrimp have been turned over to the State of Washington Department of Fisheries shellfish division for processing.



Fig. 8 - Location of beam-trawl drags, otter-trawl drags, and Gulf shrimp-trawl drags, spring exploration (March 27 to April 19, 1956).

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speed resulting in more bottom being fished per hour. It was also believed that the 40-foot Gulf shrimp trawl would catch less fish than the West Coast box-type otter trawl because of its shorter wings, less overhang, and the method of attaching the doors almost directly to the net rather than having "dandy-line" gear leading from the doors to the net as in the case of the West Coast otter trawl. These beliefs proved to be true during the spring shrimp exploration.

<u>SPRING EXPLORATION</u>: The best shrimp catches during the spring exploration were made with the Gulf shrimp trawl. Of the 51 drags made with this gear, 25 caught shrimp in amounts ranging from 300 to 2,200 pounds an hour. $\frac{9}{2}$ 

These 25 drags were made in the area between the mouth of Queets River and Oysterville at depths ranging from 61 to 87 fathoms. The two most promising localities which appeared to offer the best prospects for the development of a commercial shrimp fishery are between the mouth of the Moclips River and the mouth of Conner Creek, and between Grays Harbor and Cape Shoalwater.

Between the mouth of the Moclips River and the mouth of Connor Creek a total of 21 daytime and 4 nighttime drags were made with the Gulf shrimp trawl. Excellent shrimp catches were made during daytime hours in 15 of 16 drags at depths of 69 to 79 fathoms. With the exception of drag No. 1 which caught 175 pounds of shrimp, the other 15 drags at these depths caught from 980 to 2,200 pounds of shrimp an hour and averaged 1,407 pounds of shrimp an hour. Included in these 15 drags which were all made on green mud bottom were a series of 7 "production" drags (Nos. 85-91), each of 30-minutes duration made over a 6-hour period between 6:00 a.m. and 12 noon on April 18. These 7 drags, at depths of 74 to 79 fathoms, produced a total of 5,210 pounds of shrimp, with an average of 744 pounds of shrimp per 30-minute drag. The shrimp from these "production" drags averaged from 117 to 148 whole (heads on) shrimp a pound.

The remaining 5 daytime drags with the Gulf shrimp trawl in this locality at various depths from 48 to 66 fathoms and from 83 to 86 fathoms caught from a trace to 250 pounds of shrimp an hour.

Drags with the beam trawl in this locality at depths of 73 to 81 fathoms caught from 90 to 200 pounds of shrimp an hour and drags at over 90 fathoms caught insignificant quantities of shrimp.

The four nighttime drags, all made with the Gulf shrimp trawl, were approximate duplicates of daytime drags which had produced excellent catches of shrimp. The nighttime drags, however, produced only insignificant catches of shrimp ranging from 8 to 14 pounds of shrimp an hour. These drags, each of 30 minutes duration, were started from  $1\frac{1}{2}$  to 4 hours after sunset. Results of these nighttime drags suggest that shrimp trawling may not be productive during certain hours of darkness in this area during this season of the year.

Evidence that individuals of this species of shrimp do come off the bottom at night was subsequently obtained in early June 1956, off the northern end of Vancouver Island during a midwater trawl expedition for fish by the John N. Cobb. A drag with a midwater trawl at depths of  $43\frac{1}{2}$  to 50 fathoms over bottom depths of 109 to 121 fathoms caught 186 individual pink shrimp. This drag, of 1-hour duration was started  $4\frac{3}{4}$  hours after sunset. With the exception of a small-mesh liner in the cod end, the mesh size of the rest of this midwater trawl was too large to effectively capture shrimp, and more shrimp would probably have been taken if the entire net were of a small-mesh size.

97 Catch results have been converted to a rate-per-hour basis as some variation occurred in the duration of a considerable number of individual drags during the spring exploration. The one nighttime beam-trawl drag made during the fall exploration caught 65 pounds of shrimp an hour. This drag was started  $2\frac{1}{2}$  hours after sunset and was not a duplicate of a daytime drag.

Between the entrance of Grays Harbor and Cape Shoalwater a total of 28 drags were made at depths of 54 to 93 fathoms. Of these 28 drags, 16 were made with the beam trawl, 9 with the Gulf shrimp trawl, and 3 with the western otter trawl. Except for 1 drag at 54 to 56 fathoms which caught only 6 pounds of shrimp an hour and another which snagged, the other 7 drags with the Gulf shrimp trawl caught from 230 to 700 pounds of shrimp an hour. These 7 drags were made at depths of 57 to 87 fathoms. The best drag was made on a green mud bottom while the remaining drags were on a bottom composed of green mud and sand.

Of the 16 beam-trawl drags, 1 resulted in a broken beam, 8 caught from 120 to 275 pounds of shrimp an hour, and the remainder caught from 3 to 90 pounds of shrimp an hour. The majority of the beam-trawl drags which caught over 120 pounds of shrimp an hour were made in approximately the same locations as some of the better Gulf shrimp-trawl drags. The 3 otter-trawl drags caught from 150 to 600 pounds of shrimp an hour. The sizes here ranged from 109 to 182 whole (heads-on) shrimp a pound

Commercial quantities of shrimp were also taken with the Gulf shrimp trawl between Cape Elizabeth and Kalaloch Creek at depths ranging from 57 to 83 fathoms. The majority of the drags with this gear in this locality caught from 420 to 720 pounds of shrimp an hour with only 1 drag  $\underline{10}$ / producing less than 420 pounds of shrimp an hour. Drags with the beam trawl caught from 140 to 250 pounds of shrimp an hour.

While drags in this locality produced commercial quantities of shrimp, the shrimp were consistently small, averaging from 161 to 214 whole (heads-on) shrimp a pound. These small shrimp may be present only at certain seasons of the year, as shrimp taken from drags in this locality during the fall exploration showed a marked variation in size running from 100 to 166 whole (heads-on) shrimp a pound.

Between Cape Shoalwater and Long Beach 8 drags were made with the Gulf shrimp trawl at depths of 54 to 105 fathoms, with only 1 drag resulting in a catch of over 300 pounds an hour. This drag (No. 55), of 1-hour duration, was made at 75 to 80 fathoms and caught 315 pounds of shrimp. Five of these drags encountered snags which resulted in torn web. Beam-trawl drags in this area caught only small amounts of shrimp and 1 drag resulted in a broken beam.

## SHRIMP ICING EXPERIMENTS

Shrimp were held on ice during the spring exploration for as long as 96 hours with little change noted in the texture of the shrimp meat before or after cooking. The cooked shrimp meat was equal in flavor and color to that of shrimp cooked soon after being landed. It was noted, however, that after 48 hours on ice the pink color of the whole shrimp appeared to have faded to a paler shade. After a day on ice, the shrimp were much easier to peel than when first caught.

#### WEATHER CONDITIONS

Fishing operations during the fall exploration were seriously curtailed by adverse weather conditions, with no trawling possible on 9 of the 23 days the vessel was in the area of fishing operations.

Weather conditions were generally favorable for fishing operations during the spring exploration with trawling possible on all but 5 of the 24 days the vessel was in the area of fishing operations. 10/ Drag Nos. 53 and 54 are not included. These drags, made during adverse weather conditions, captured only trace amounts

<sup>107</sup> Drag Nos, 53 and 54 are not included. These drags, made during adverse weather conditions, captured only trace amounts of shrimp and were approximately duplicated by drags No. 74 and 72, respectively, which caught 720 and 420 pounds of shrimp an hour.

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Drag number	1 (B.T.) 1/	2 (B.T.)	3 (B.T.)	4 (B.T.)	5 (B.T.)	6 (B.T.)	7 (B.T.)	8 (B.T.)	9 (B.T.)	10 (B.T.)	11 (B.T.)	12 (B.T.)	13 (B.T.)
Date	10/18/55	10/19/55	10/19/55	10/19/55	10/19/55	10/19/55	10/20/55	10/20/55	10/20/55	10/20/55	10/20/55	10/20/55	10/21/55
Latitude N.	46°36.3'	46°29.5'	46°34.7'	46034.21	46°35.61	46°37.8'	46°34.1"	46°34.7"	46°35.1'	46°37.2'	46°38.8'	46°39.6'	46°37.3'
Longitude W.	124°12,1'	124°10.0'	124º16,2'	124024.21	124028.01	124°33.2'	124°29.7'	124032.01	124°33.9'	124°38.2'	12/1035.14'	124°32.5'	124°28.8'
Loran reading	284=3800	2нц-3715	2H4-3779	2H4=3770	2H4=3784	284-3806	284=3763	2时4=3769	2时4=3772	2нц-3792	284-3816	284-3827	2H4-3805
Loran reading	2H5=3489	285-3487	285-3479.5	285-3460	285-3451	2H5-3437	2H5-3山5	285-3439	2115-3433	245-3420	2H5-3430	2115-3440	2H5-3450
Course, magzietio 2/	2720	260°	2660	250°	329°	110 <sup>0</sup>	291°	278°	245°	290°	051°	2110	325°
Sea	Smooth	Smooth	Smooth	Slight	Slight	Slight	Slight	Slight	Smooth	Slight	Slight	Slight	Calm
Depth range in fathoms	25-28	21=28	34-39	50-69	62-65	71-74	81-84	89-91	100-116	89-93	68-76	69-77	57-61
Type of bottom	gy. S.	gy. S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gngy.M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	-	gn. 4. & S.	gn. M. & S.
Trawling bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	-	Clear	Clear
Time on bottom in minutes	30	60	60	60	60	60	60	60	60	60	-	60	60
Shrimp catch in pounds: (whole shrimp per pound) 3/			a services				and the second				and the second		-
Pink	Trace 4	Trace	14 (117)	35 (140)	130 (127)	18 (134)	75 (164)	80 (119)	40 (121)	30 (119)	-	45 (142)	75 (119)
Side-stripe	-	-	-	-	-	-	1 (78)	2 (73)	2 (75)	-	-	-	
		1					-/		1.			45	75
Total shrimp catch in pounds	-	-	14	35	130	18	76	82	42	30	-	45	15
	-	-	-	-	-	-	-		-	-	Net not on bottom	-	-
Romarke													
Remarks Drag number	-	-	-	-	-	•	-	•	-	-	Net not on bottom	-	-
Remarks Drag number Date	- 14 (b.T.) 1/	- 15 (B.T.)	- 16 (B.T.)	- 17 (B.T.)	- 18 (B.T.)	- 19 (B.T.)	- 20 (B.T.)	- 21 (B.T.)	22 (B.T.)	- 23 (B.T.)	Net not on bottom 24 (B.T.)	- 25 (B.T.)	- 26 (B.T.)
Remarks Drag number Date Latitude N.	- 14 (B.T.) <sup>1</sup> / 10/21/55	- 15 (B.T.) 10/21/55	- 16 (B.T.) 10/21/55	- 17 (B.T.) 10/21/55	- 18 (B.T.) 10/21/55	- 19 (B.T.) 10/22/55	- 20 (B.T.) 10/22/55	- 21 (B.T.) 10/22/55	- 22 (B.T.) 10/22/55	- 23 (B.T.) 10/22/55	Net not on bottom 24 (B.T.) 10/23/55	- 25 (B.T.) 10/28/55	- 26 (B.T.) 10/28/55
Total shrimp oatoh in pounds Remarks Drag number Date Latitude N. Longitude W. Loran reading	- 10/21/55 46°39.4'	- 15 (B.T.) 10/21/55 46°34+5°	- 16 (B.T.) 10/21/55 46°30.8'	- 17 (B.T.) 10/21/55 46°29.7'	- 18 (B.T.) 10/21/55 46°37.4°	- 19 (B.T.) 10/22/55 46°45.4*	- 20 (B.T.) 10/22/55 Цб <sup>0</sup> Цб.0'	- 21 (B.T.) 10/22/55 46°48.44	- 22 (B.T.) 10/22/55 46°51.2'	- 23 (B.T.) 10/22/55 46°51.8'	Net not on bottom 24 (B.T.) 10/23/55 46°53.9'	- 25 (B.T.) 10/28/55 147 <sup>0</sup> 28.1'	- 26 (B.T.) 10/28/55 47°26.7'
Remarks Drag number Date Latitude N. Longitude W.	- 14 (B.T.) <sup>1</sup> / 10/21/55 46°39.4' 124°27.4'	- 15 (B.T.) 10/21/55 46°34+5' 124°25.5'	- 16 (B.T.) 10/21/55 46°30.8' 124°23.6	- 17 (B.T.) 10/21/55 46°29.7' 124°26.0'	- 18 (B.T.) 10/21/55 46°37.4° 124°20.0°	- 19 (B.T.) 10/22/55 46°45.4° 124°27.5°	- 20 (B.T.) 10/22/55 46°46.0' 124°32.2'	- 21 (B.T.) 10/22/55 146°148.14° 1214°36.5°	- 22 (B.T.) 10/22/55 16 <sup>0</sup> 51.2' 121.011.0	- 23 (B.T.) 10/22/55 46°51.8' 124°35.1'	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124°21.9'	- 25 (B.T.) 10/28/55 1,7°28.1' 121,°12.5'	- 26 (B.T.) 10/28/55 47°26.7° 124°41.2'
Remarks Drag number Date Latitude N. Longitude W. Loran reading Loran reading	- 14 (B.T.) <sup>1</sup> / 10/21/55 46°39.4' 124°27.4' 214-3931	- 15 (B.T.) 10/21/55 1/0°3/45' 121/°25.5' 2HJ+~3772	- 16 (B.T.) 10/21/55 10/23.6 2HJ-3728	- 17 (B.T.) 10/21/55 16 <sup>0</sup> 29.7' 124 <sup>0</sup> 26.0' 2E4-3714	- 18 (B.T.) 10/21/55 46°37.4° 124°20.0° 211,=3912	- 19 (B.T.) 10/22/55 146°125.14° 121.°27.5° 2814-3905	20 (B.T.) 10/22/55 16 <sup>0</sup> 16.0' 124 <sup>0</sup> 32.2' 2BL-3907	21 (B.T.) 10/22/55 146 <sup>0</sup> 18.1 <sup>1</sup> 121 <sup>0</sup> 36.5 <sup>1</sup> 221 <sub>0</sub> -3928	- 22 (B.T.) 10/22/55 16 <sup>0</sup> 51.2' 121 <sup>0</sup> 11.0 211 <sub>0</sub> -3952	23 (B.T.) 10/22/55 16 <sup>0</sup> 51.8' 121 <sup>0</sup> 35.1' 2EL-3970	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124°21.9' 2844011	- 25 (B.T.) 10/28/55 1,7°28.1' 121°1,2.5' 211,-1,253	- 26 (B.T.) 10/28/55 47°26.7' 124,°41.2' 284,-4253
Remarke Drag number Date Latitude N. Loran reading Loran reading Course, magnetic $\frac{2}{}$	- 14, (B.T.) <sup>1</sup> / 10/21/55 46°39.4' 124°27.4' 214-3931 215-3455	- 15 (B.T.) 10/21/55 16 <sup>0</sup> 34+5 <sup>1</sup> 124 <sup>0</sup> 85.5 <sup>1</sup> 284+3772 285-3457	- 16 (B.T.) 10/21/55 10/23.6 2HL-3728 2H5-3L59	- 17 (B.T.) 10/21/55 16 <sup>6</sup> 29.7' 124 <sup>0</sup> 26.0' 284-3714 285-3452	- 18 (B.T.) 10/21/55 46°37.4' 124°20.0' 284–3912 285–3473	- 19 (B.T.) 10/22/55 146°125.14° 121.°27.5° 2814-3905 285-3159	20 (B.T.) 10/22/55 16 <sup>0</sup> 16.0' 12 <sup>0</sup> 32.2' 281-3907 285-34/44	21 (B.T.) 10/22/55 16 <sup>0</sup> 18.1 <sup>1</sup> 121 <sup>0</sup> 36.5 <sup>1</sup> 221 <sub>0</sub> -3928 285-31 <sub>4</sub> 29	- 22 (B.T.) 10/22/55 16 <sup>6</sup> 51.2' 121 <sup>0</sup> 11.0 211 <sub>2</sub> -3952 215-311	23 (B.T.) 10/22/55 16 <sup>6</sup> 951.8' 121 <sup>0</sup> 35.1' 281 <sub>0</sub> -3970 285-31,35	Not not on bottom 24 (B.T.) 10/23/55 46°53.9' 124°21.9' 2144011 215-34.73	- 25 (B.T.) 10/28/55 1,7°28.1' 121,°1,2.5' 211,-1,253 215-3286	- 26 (B.T.) 10/28/55 47°26.7' 124°41.2' 284_4253 285-3305
Remarks Drag number Date Latitude N. Loran reading Loran reading Course, magnetic 2/ Sea	- 14 (B.T.) <sup>1</sup> / 10/21/55 46°39.4' 124.°27.4' 2143331 2153155 145°	- 15 (B.T.) 10/21/55 16 <sup>0</sup> 3145 <sup>1</sup> 121 <sup>0</sup> 25.5 <sup>1</sup> 2HL=3772 2H5=3157 167 <sup>0</sup>	- 16 (B.T.) 10/21/55 10/21/55 121/55 215-31.59 258°	- 17 (B.T.) 10/21/55 16 <sup>0</sup> 29.7' 124 <sup>0</sup> 26.0' 2EL=3714 2E5=3452 1/8 <sup>0</sup>	- 18 (B.T.) 10/21/55 10/21/55 124/920.0' 284-3812 285-3473 248°	- 19 (B.T.) 10/22/55 146°15.14° 121°27.5° 2814=3905 285=3459 273°	20 (B.T.) 10/22/55 1/6°1/6.0° 121/°32.2° 281/-3907 285-31/1/1 291°	- 21 (B.T.) 10/22/55 16°1,B.1. 121,°36.5' 231,-3928 235-31,29 251,°	- 22 (B.T.) 10/22/55 16 <sup>6</sup> 51.2 <sup>1</sup> 121, <sup>0</sup> 11.0 211,-352 215-31,11 01,1 <sup>0</sup>	23 (B.T.) 10/22/55 10 <sup>6</sup> 51.8 <sup>1</sup> 121 <sup>0</sup> 35.1 <sup>1</sup> 281 <sub>0</sub> -3970 285-3435 047 <sup>0</sup>	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124°21+9' 284-4.011 285-34.73 259°	- 25 (B.T.) 10/28/55 147°28.1' 124°42.5' 214-4253 215-3286 254°	- 26 (B.T.) 10/28/55 L(7°26.7' 12L(°LL.2' 2HL=L253 2H5=3305 266°
Remarks Drag number Dats Latitude N. Loran reading Loran reading Course, magnetic $\frac{3}{2}$ Sea Depth range in fathoms	- 14 (B.T.) <sup>1</sup> / 10/21/55 46°39.4' 124°27.4' 214,-3931 215-3155 11,5° Smooth	- 15 (B.T.) 10/21/55 16 <sup>0</sup> 34*5' 121°25.5' 2H2-3457 167° Smooth	- 16 (B.T.) 10/21/55 124°23.6 284-3728 215-3459 258° Smooth	- 17 (B.T.) 10/21/55 16 <sup>6</sup> 29.7' 121,°26.0' 211,-3711, 235-31,52 1),8° Smooth	- 18 (B.T.) 10/21/55 46°37.4° 124°20.0° 2H1=3912 2H5-3473 248° Smooth	- 19 (B.T.) 10/22/55 146°15.4° 124°27.5° 2844-3905 285-3459 273° Slight	20 (B.T.) 10/22/55 16°146.0' 124°32.2' 281.=3907 2875-3444 291° \$11ght	- 21 (B.T.) 10/22/55 16°1,B.,1' 121,°36.5' 221,-3328 2215-31,29 251,° 811,ght	- 22 (B.T.) 10/22/55 121,0(1.0 211,-352 215-31,11 0,40 \$11,64	23 (B.T.) 10/22/55 46°51.8' 124°35.1' 224-3970 225-3435 047° 811ght	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124°21.9' 2844011 285=34.73 259° Slight	- 25 (B.T.) 10/28/55 147°28.1* 124°42.5* 2114-4253 2115-3286 254° \$115t	- 26 (B.T.) 10/28/55 47°26.7' 124,°41.2' 284,-4253 285-3305 266° Slight
Remarks Drag number Date Latitude N. Loran reading Loran reading Course, magnetic 2/ See Depth range in fathoms type of bottom	- 14 (B.T.) <sup>1</sup> / 10/21/55 46°39.4' 124,°27.4' 284,=3831 285=3455 145° Smooth 52=53	- 15 (B.T.) 10/21/55 16°34+5' 121°25.5' 2H1+3772 2H5-3457 167° Smooth 55-61	- 16 (B.T.) 10/21/55 16 <sup>0</sup> 30.8 <sup>1</sup> 121 <sup>9</sup> 23.6 281-3728 285-3159 258 <sup>0</sup> Smooth 19-64	- 17 (B.T.) 10/21/55 16 <sup>6</sup> 29.7' 121,°26.0' 211,=3711, 215–31,52 1),8° Smooth 58–60	- 18 (B.T.) 10/21/55 46°37.4° 124°20.0° 2H_3812 2H5-3473 248° Smooth 41-47	- 19 (B.T.) 10/22/55 46°45.4* 124°27.5* 215-3459 273° S11ght 48-52	20 (B.T.) 10/22/55 1/6 <sup>0</sup> 16.0 <sup>1</sup> 121 <sup>0</sup> 32.2 <sup>1</sup> 281-3907 285-31414 291 <sup>0</sup> Slight 57-61	- 21 (B.T.) 10/22/55 46°4,B.44 124°36.5° 225-3429 254° 814p.t 65-71	- 22 (B.T.) 10/22/55 16 <sup>6</sup> 51.2 <sup>1</sup> 121, <sup>0</sup> (1.0 211,-352 215-31,11 01,4 <sup>0</sup> S11,2* 62-69	- 23 (B.T.) 10/22/55 46°51.8' 124°35.1' 224-3970 225-3435 047° 811ght 51-56	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124°24.9' 284-4011 285-3473 259° 811ght 36-43	- 25 (B.T.) 10/28/55 117°28.1* 121°12.5* 2111_1253 2115_3286 251° 811stt 53_63	- 26 (B.T.) 10/28/55 121,°26.7' 121,°11.2' 281,-1253 285-3305 266° 811ght 50-56
Remarks Drag number Date Atitude N. Longitude W. Loran reading Lourse, megnetic 2/ Los Depth range in fathoms type of bottom	- 14 (B.T.) 1/ 10/21/55 46°39.4' 124,°27.4' 214,-3331 215-3455 145° Smooth 52-53 brgn.M.& 0.	- 15 (B.T.) 10/21/55 16°34.5' 121°25.5' 284.3772 285-34.57 167° Smooth 55-61 gn.W.S.& Sh.	- 16 (B.T.) 10/21/55 146°30.8' 121°23.6 281/-3728 285-3159 258° Smooth 19-64 gp. M. & S.	- 17 (B.T.) 10/21/55 146°29.7' 124°26.0' 284-3714 285-3452 1/18° Smooth 58-60 gn. M. & S.	- 18 (B.T.) 10/21/55 46°37,4° 124°20,0° 284,-3912 285-3473 248° Smooth 11-47 gn. M. & S.	- 19 (B.T.) 10/22/55 46°45.4* 124°27.5* 2843905 285-3459 273° Slight 48-52 gn. M. & S.	20 (B.T.) 10/22/55 16 <sup>0</sup> 16.0 <sup>1</sup> 121 <sup>0</sup> 32.2 <sup>1</sup> 281-3907 285-3141 291 <sup>0</sup> Slight 57-61 gn. 4. & S.	21 (B.T.) 10/22/55 46°4,B,44 124°36.5° 225-3429 254° 811ght 65-71 gn. M. & S.	- 22 (B.T.) 10/22/55 16 <sup>6</sup> 51,2 <sup>4</sup> 121/ <sup>9</sup> (1,0 211/ <sup>9</sup> 52 215-3(11) 01/ <sup>0</sup> 511gat 62-69 ga. W. & S.	- 23 (B.T.) 10/22/55 146°51.8' 121°35.1' 225-3135 01.7° 811ght 51-56 gn. W. & S.	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124°24.9' 284-4011 285-3473 259° 811ght 36-43	- 25 (B.T.) 10/28/55 117°28.1' 121°12.5' 2111-1253 2115-3286 2512° \$114t 53-63 gn. S.	- 26 (B.T.) 10/28/55 L7°26.7' 12L°4L1.2' 2HJ-L253 2H5-3305 266° Slight 50-56 gn. M. & S
Remarks Drag number Date Latitude N. Longitude W. Loran reading	- 14 (B.T.) 1/ 10/21/55 46°39.4° 124°27.4° 214-3831 215-3455 145° Smooth 52-53 brgn.W.& G. Clear	- 15 (B.T.) 10/21/55 16°34.5' 121°25.5' 2HL-3772 2H5-34.57 167° Smooth 55-61 gm.M.S.& Sh. Clear	- 16 (B.T.) 10/21/55 146°30.8' 121,°23.6 2H1,-3728 2H3-31,59 258° Smooth 19-64 gn. M. & S. Clear	- 17 (B.T.) 10/21/55 146°29.7' 124°26.0' 281-3714 285-3452 1/8° Smooth 58-60 gn. W. & S. Clear	- 18 (B.T.) 10/21/55 46 <sup>9</sup> 37,4 <sup>4</sup> 124/20,0 <sup>4</sup> 284,-3912 215-34.73 24,8 <sup>9</sup> Smooth 11-4.7 gn. M. & S. Clear	- 19 (B.T.) 10/22/55 46°45.44 124°27.55 215-3459 273° Slight 48-52 gn. M. & S. Clear	20 (B.T.) 10/22/55 16 <sup>0</sup> 16,0 <sup>1</sup> 121 <sup>0</sup> 32,2 <sup>1</sup> 2815-31,414 291 <sup>0</sup> Slight 57-61 gn. M. & S. Clear	21 (B.T.) 10/22/55 16 <sup>6</sup> 1,8,1,1 121, <sup>0</sup> 36,5 <sup>1</sup> 215,-31,29 251, <sup>0</sup> 811ght 65-71 gn. 4. & 8. Clear	- 22 (B.T.) 10/22/55 166°51.2° 121,°11.0 211,~3952 215-3111 01,1° 511gat 62-69 gn. W. & S. Clear	23 (B.T.) 10/22/55 146°51.8' 121/35.1' 221-3970 225-3435 04.7° 811ght 51-56 gn. W. & S. Clear	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124,°24.9' 2844011 285-34.73 259° 811ght 36-43 -	- 25 (B.T.) 10/28/55 117°28.1* 121°12.5* 2111-1253 2115-3286 2512° \$11ght 53-63 gn. S. Clear	- 26 (B.T.) 10/28/35 L7°26.7' 121°L1.2' 2H1-L253 2H5-3305 266° 811ght 50-56 gn. M. & B Clear
Remarks Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Trawling bottom Trawling bottom Time on bottom in minutes Shrimp catch in pounds: (whole sarimp per pound): 2/	- 14 (B.T.) 1/ 10/21/55 46°39.4° 124°27.4° 214.3331 215-3455 145° Smooth 52-53 brgn.W.& G. Clear 60	- 15 (B.T.) 10/21/55 146°34±5° 124°25.5° 284±3772 285=3457 167° Smooth 55=61 gn.W.S.& Sh. Clear 60	- 16 (B.T.) 10/21/55 146°30.8' 121°23.6 2815-3159 258° Smooth 19-64 gr. M. & S. Clear 60	- 17 (B.T.) 10/21/55 146 <sup>5</sup> 29.7' 124 <sup>5</sup> 26.0' 284-3714 285-3452 1/.8 <sup>6</sup> Smooth 58-60 gr. M. & S. Clear 60	- 18 (В.Т.) 10/21/55 146 <sup>2</sup> 37.4 <sup>1</sup> 124. <sup>0</sup> 20.0 <sup>1</sup> 224. <del>3</del> 3912 2245-34.73 21,8 <sup>0</sup> Smooth 1,1-1,7 gn. M. & S. Clear 60	- 19 (B.T.) 10/22/55 46°45.44 124.°27.55 215-3459 275° 2159 275° 2159 275° 211ght 148-52 gn. M. & S. Clear 60	20 (B.T.) 10/22/55 16 <sup>6</sup> 166,0 <sup>1</sup> 121 <sup>0</sup> 32,2 <sup>1</sup> 2213-3907 2213-31,11,1 291 <sup>0</sup> 511ght 57-61 gn. M. & S. 01ear 60	- 21 (B.T.) 10/22/55 146°148.41° 1210°36.5° 2219-3928 231-3429 2510° 511ght 65-71 gn. M. & S. Clear 60	- 22 (B.T.) 10/22/55 166°51.2' 121,°11.0 211,-3952 215-31.1 01,1° \$11,6% 62-69 gn. W. & S. Clear 60	- 23 (B.T.) 10/22/55 46°51.8' 124°35.1' 285-3435 047° 285-3435 047° 811ght 51-56 gn. W. & S. 01sar 60	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124,°24.9' 2844011 285-34.73 259° 811ght 36-43 -	- 25 (B.T.) 10/28/55 1,7°28.1' 121,°12.5' 211,-1,253 215-3286 251,° \$11ght 53-63 gn. S. Clear 60	- 26 (B.T.) 10/28/55 L7°26.7' 12L°L1.2' 2HL=L253 2H5=3305 266° S11ght 50-56 gn. M. & S Clear 60
Remarks Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic $\frac{2}{2}$ Sea Depth range in fathoms Trawling bottom Trawling bottom Shrimp catch in pounds: (whole sarimp per pounds) $\frac{2}{2}$ Pink	- 14 (B.T.) 1/ 10/21/55 46°39.4° 124°27.4° 214.3331 215-3455 145° Smooth 52-53 brgn.W.& G. Clear 60	- 15 (B.T.) 10/21/55 146°34±5' 124°25.5' 2845=3457 167° Smooth 55=61 ga.M.S.& Sh. Clear 60 65 (139)	- 16 (B.T.) 10/21/55 146°30.8' 121°23.6 2815-3159 258° Smooth 19-64 gr. M. & S. Clear 60	- 17 (B.T.) 10/21/55 146 <sup>5</sup> 29.7' 124 <sup>5</sup> 26.0' 284-3714 285-3452 1/.8 <sup>6</sup> Smooth 58-60 gr. M. & S. Clear 60	- 18 (В.Т.) 10/21/55 146 <sup>2</sup> 37.4 <sup>1</sup> 124. <sup>0</sup> 20.0 <sup>1</sup> 224. <del>3</del> 3912 2245-34.73 21,8 <sup>0</sup> Smooth 1,1-1,7 gn. M. & S. Clear 60	- 19 (B.T.) 10/22/55 46°45.44 124.°27.55 225-3459 273° Slight 18-52 gn. M. & S. Clear 60 75 (150)	20 (B.T.) 10/22/55 16 <sup>6</sup> 16 <sup>6</sup> 0, 0 <sup>1</sup> 121 <sup>0</sup> 32, 2 <sup>1</sup> 2213-3907 2215-31,11,1 291 <sup>0</sup> S11ght 57-61 gn. M. & S. Clear 60 110 (158)	- 21 (B.T.) 10/22/55 146°148.41° 1210°36.5° 2219-3928 231-3429 2510° 511ght 65-71 gn. M. & S. Clear 60	- 22 (B.T.) 10/22/55 166°51.2' 121,°11.0 211,-3952 215-31.1 01,1° \$11,6% 62-69 gn. W. & S. Clear 60	- 23 (B.T.) 10/22/55 46°51.8' 124°35.1' 285-3435 047° 285-3435 047° 811ght 51-56 gn. W. & S. 01sar 60	Net not on bottom 24 (B.T.) 10/23/55 46°53.9' 124,°24.9' 2844011 285-34.73 259° 811ght 36-43 -	- 25 (B.T.) 10/28/55 1,7°28.1' 121,°12.5' 211,-1,253 215-3286 251,° \$11ght 53-63 gn. S. Clear 60	- 26 (B.T.) 10/28/55 L7°26.7' 12L°U1.2' 2EL-L253 2H5-3305 266° S11ght 50-56 gn. M. & S Clear 60

Note: For explanation of footnotes and abbreviations, see p. 20.

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Drag number	27 (B.T.) 1/	28 (B.T.)	29 (B.T.)	30 (0.T.)	31 (0.T.)	32 (B.T.)	33 5/(B.T.)	34 (B.T.)	35 (O.T.)	36 (B.T.)	37 (B.T.)	38 (B.T.)	39 (B.T.)
Date	10/31/55	11/1/55	11/1/55	11/1/55	11/1/55	11/1/55	11/1/55	11/5/55	11/5/55	11/6/55	11/6/55	11/6/55	11/6/55
Latitude N.	4709.11	47°04.81	47°05.1'	47004.70	47°07.3'	47°03.1'	46°58.6*	46°57.3'	47°09.7'	47°47.8'	47044.1.	47°41.0°	47°40.5'
Longitude W.	124040.31	124036.21	124040.61	124037.61	124047.31	124048.7"	1240/11.91	121,942.9	124047.81	124056.81	124°55.7'	12500.61	124°55.5'
Loran reading	284-4115	284-4115	284-4105	284-4110	284-4103	284-4058	284-4033	2H1-4017	284-4122	284-4253	284-1,250	2111-1229	entration 13
Loran reading	285-3400	285-3428	285-3405	285-31,21	285=3362	285-3363	285-3404	285-3400	285-3353	285=3029	285-3070	285-3070	285-3104
Course, magnetio 2/	2470	2470	2390	239°	261°	2730	2770	090°	321°	173°	2410	067°	olitio
Sea	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Rough	Moderate	Moderate	Moderate	Slight	Slight	Slight
Depth range in fathoms	55-61	44-53	. 55=63	48-59	72-80	77-81	64-69	70-71	73-77	62-65	63-72	70-84	57-65
Type of bottom	gn. M.	gn. M. & S.	gn. M.	gn. W. & S.	gn. W.	gn. M.	-	S. & Blds.	gn. M.	gn. M.	gn. M. & S.	gn. M.	gn. M. & I
Trawling bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Bang	Spag	Clear	Clear	Clear	Clear
Time on bottom in minutes	60	60	60	60	60	60	60	7	60	60	60	60	60
Shrimp eatch in pownds:	/												
(whole shrimp per pound) 2/	90 (151)	60 (123)	55 (149)	210 ( )	600 (118)	95 (115)	65 (104)	Trace 4	250 (148)	40 (124)	45 (123)	85 (120)	55 (125)
Pink Side-stripe	90 (191)	00 (12)	55 (149)	240 ()	000 (110)	35 (115) -	05 (104)	Trace J	290 (100)	the (15th)	49 (12))	0) (120)	55 (125)
Total shrimp catch in pounds		60	55	240	600	95	65	-	250	40	- 45	85	55
Remarks	90		22	Etto	000	70	-	Beam broke	Net torn	40	45	-	22
rag mumber	40 (B.T.) 1/	41 (B.T.)	12 (B.T.)	11/7/55	11/7/55	15 (B.T.)	46 (0.T.)	47 (0.T.)	48 (0.T.)	11/8/55	50 (B.T.)	51 (B.T.)	52 (B.T.
Date	11/6/55	11/7/55	11/7/55	11/7/55	11/7/55	11/7/55	11/8/55	11/8/55	11/8/55	11/8/55	11/8/55	11/9/55	11/9/55
Latitude N.	47°40.81	47°35.8*	47033.21	47°32.7'	47026.61	47°23.6"	47032.51	47032.51	47°32.9"	47034.71	47°51.8'	48°00.3'	48°03.6"
Longitude W,	124059.81	124056.21	124053.8"	124947.5'	124044.3"	124043.5"	124048.11	124048.3*	124048.31	124056.51	124055.81	124°56.7'	124058.2
Loran reading	2H1-4231	284-4230	2E4-1230	284-4219	284-1212	281,-1,232	284-4247	284-1246	284-4247	2H1-4225	281-1262	2844270	284-4270
oran reading	285-3077	285-3140	285-3177	285-3218	285-3287	285-3313	285-3216	285-3216	285-3212	285-3148	285-2995	285-2906	285-2866
Course, magnetie 2/	333°	169 <sup>0</sup>	1320	177°	130°	160°	161°	165°	170°	332°	337°	119°	165°
	Slight	Moderate	Moderate	Moderate	Slight	Slight	Slight	Moderate	Slight	Smooth	Smooth	Moderate	Moderate
epth range in fathoms	78-81	78-88	78-79	61-65	57=58	63-65	61-64	61-64	61-63	81-85	54-57	48-51	56-57
ype of bottom	gn.M. & Sh.	gn.M.S.& Sh.	gn.M.S.& Sh.	gn. V. & S.	gn. M. & S.	gn. M. & S.	-		go. N. & S.	. gn. M. à S.	gn. S. & Sh.	gn. 8.	gn. S.
rawling bottom	Clear	Clear	Clear	Clear	Clear	Clear	-		Clear	Clear	Clear	Clear	Clear
ime on bottom in minutes	60	60	60	60	60	60	-	-	30	30	60	60	60
hrimp catch in pounds: (whole shrimp per pound) 2/ Pink	15 (100)	110 (161)	100 (244)	100 (100)								- W	1
	45 (120)	110 (163)	150 (166)	120 (135)	80 (124)	125 (139)	-	-	135 (100)	25 (100)	60 (130)	Trace 4	Trace
					80	125	-		135	25	60		-
Side-stripe	45	110	150	120									
	45	110	150	120	-	1127	Met not on bottom	Net not ca bottom					-

Drag number	1 (G.S.T.) 1/	2 (G.S.T.)	3 (G.S.T.)	4 (G.S.T.)	5 (G.S.T.)	6 (G.S.T.)	7 (G.S.T.)	8 (G.S.T.)	9 (G.S.T.)	10 (G.S.T.)	11 (G.S.T.)	12 (G.S.T.
Date	3/27/56	3/27/56	3/27/56	3/31/56	3/31/56	3/31/56	3/31/56	3/31/56	3/31/56	3/31/56	4/1/56	4/1/56
Latitude N.	47°08.61	47°04.4'	46°51.7'	46°46.5'	46°48.7'	46°48.3'	46°51.8'	46°52.7'	46°54.6'	46°52.3'	46°46.7'	46°43.7'
Longitude W.	124°51.6'	124°39.6'	124°34.7"	124°33.5'	124°36.8'	124°43.1'	124040.0'	124° 36.4'	124°41.5'	124°46.4"	124045.61	124041.11
Loran reading	284-4098	284-4101	2时4-3970	2H4=3911	2时4-3931	2нц=3915	284-3961	2HL-3979	2H4-3990	2표4=3952	284-3891	2H4=3865
Loran reading	285-3333	285-3411	285-3437	285-3440	285-3428	285-3402	285-3415	285-3430	2115-3408	285-3386	285-3392	285-3411
Course, magnetic 2/	073°	090°	084°	307°	254°	266°	055°	298°	246°	229°	116°	138°
Sea	Moderate	Rough	Rough	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight	Slight
Depth range in fathoms	77-78	48 -56	54-56	57-60	65-72	76-83	61-70	60-62	69-77	82-86	82-87	76-84
Type of bottom	gn. M.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M.	S. & hrd.
Trawling bottom	Clear	Snag	Clear	Clear	Clear	Snag	Clear	Clear	Clear	Clear	Clear	Clear
Time on bottom in minutes	60	60	30	60	60	60	60	60	60	60	60	60
Shrimp catch in pounds: (whole shrimp per pound) 2/												
Pink	175 (167)	Trace 4	3	240 (134)	250 (131)	Trace	300 (131)	230 (120)	350 (120)	400 (182)	700 (142)	20 (151)
Side-stripe	-	-	-	-	-	-	-	-	- *	-	-	-
Total shrimp oatch in pounds	175	Trace	3	240	250	Trace	300	230	350	400	700	20
Total shrimp catch, hourly basis	175	Trace	6	240	250	Trace	300	230	350	400	700	20
Remarks	-	Net torn	-	-	-	Net torn	-	-	-	-	-	-
Remarks	-	Net torn	-	-		Net torn	-	•	-	-	-	-
Remarks Drag number	- 13 (G.S.T.) 1/	Net torn 14 (G.S.T.)	- 15 (G.S.T.)	- 16 (G.S.T.)	- 17 (B.T.)	Net torn 18 (B.T.)	- 19 (B.T.)	- 20 (B.T.)	- 21 (B.T.)	- 22 (B.T.)	- 23 (B.T.)	- 24 (B.T.)
Drag number					2.0				1		1	
Drag number Date	13 (G.S.T.) 1/	14 (G.S.T.)	15 (G.S.T.)	16 (G.S.T.)	17 (B.T.)	18 (B.T.)	19 (B.T.)	20 (B.T.)	21 (B.T.)	22 (B.T.)	23 (B.T.)	24 (B.T.)
	13 (G.S.T.) 1/	14 (G.S.T.) 4/1/56	15 (G.S.T.) 4/1/56	16 (G.S.T.) 4/1/56	17 (B.T.) 4/1/56	18 (B.T.) 4/1/56	19 (B.T.) 4/2/56	20 (B.T.) 4/2/56	21 (B.T.) 4/2/56	22 (B.T.)	23 (B.T.) 4/2/56	24 (B.T.) 4/2/56
Drag number Date Latitude N. Longitude W.	13 (G.S.T.) 1/ 4/1/56 46°38.0'	14 (G.S.T.) 4/1/56 46 <sup>0</sup> 39.1'	15 (G.S.T.) Ц/1/56 Ц6 <sup>0</sup> 37.6'	16 (G.S.T.) 4/1/56 46°40.3'	17 (B.T.) 4/1/56 46°41.9'	18 (B.T.) 4/1/56 46°43.5°	19 (B.T.) 4/2/56 46°45.1'	20 (B.T.) 4/2/56 46 <sup>0</sup> 53.4"	21 (B.T.) 4/2/56 46 <sup>0</sup> 54.7'	22 (B.T.) 4/2/56 46 <sup>0</sup> 54.71	23 (B.T.) 4/2/56 46°54.6'	24 (B.T.) 4/2/56 46°52.4°
Drag number Date Latitude N.	13 (G.8.T.) 1/ 4/1/56 46°38.0' 124°39.1'	14 (G.S.T.) 4/1/56 46°39.1° 124°34.8°	15 (G.S.T.) L/1/56 L6 <sup>0</sup> 37.6' 124°28.5'	16 (G.S.T.) 4/1/56 46°40.3' 124°28.3'	17 (B.T.) 4/1/56 46°41.9' 124°35.4'	18 (B.T.) 4/1/56 46°43.5° 124°36.3°	19 (B.T.) 4/2/56 46°45.1° 124°37.7°	20 (B.T.) 4/2/56 46°53.4' 124°43.3'	21 (B.T.) 4/2/56 46°54.7' 124°45.4'	22 (B.T.) 4/2/56 46°54.7' 124°41.4'	23 (B.T.) 4/2/56 46°54+6' 124°44+4'	24 (B.T.) 4/2/56 46°52.4' 124°45.8'
Drag number Date Latitude N. Longitude W. Loran reading	13 (0.8.T.) 1/ 4/1/56 46°38.0' 124°39.1' 2H4-3801	14 (G.S.T.) 4/1/56 46 <sup>0</sup> 39.1' 124°34.8' 284-3819	15 (G.S.T.) 4/1/56 46°37.6' 124°28.5' 284-3809	16 (G.S.T.) 4/1/56 46°40.3' 124°28.3' 2H4-3842	17 (B.T.) 4/1/56 46°41.9' 124°35.4' 2H4-3852	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 284-3870	19 (B.T.) 4/2/56 46°45.1' 124°37.7' 284-3888	20 (B.T.) 4/2/56 46°53.4' 124°43.3' 284-3972	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 284-3980	22 (B.T.) 4/2/56 46°54+7' 124°41.4* 284-3991	23 (B.T.) 4/2/56 46°54.6° 124°44.4° 284-3982	24 (B.T.) 4/2/56 46 <sup>0</sup> 52.4 <sup>1</sup> 124 <sup>0</sup> 45.8 <sup>1</sup> 284-3955
Drag number Date Latitude N. Longitude W. Loran reading Loran reading	13 (0.8.T.) 1/ 4/1/56 46 <sup>0</sup> 38.0' 124 <sup>0</sup> 39.1' 2H4-3801 2H5-3417	14 (0.s.T.) 4/1/56 46°39.1' 124°34.8' 284-3819 285-3432	15 (G.S.T.) 4/1/56 46°37.6' 124°28.5' 284.5' 284.3809 285-3451	16 (G.S.T.) 4/1/56 4/6°40.3' 124°28.3' 2H4-3842 2H5-3453	17 (B.T.) 4/1/56 46°41.9' 124°35.4' 2H4-3852 2H5-3431	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 284-3870 285-3429	19 (B.T.) 4/2/56 46°45.1' 124°37.7' 284-3888 285-3424	20 (B.T.) 4/2/56 46°53.4' 124°43.3' 284-3972 285-3400	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 284.3980 285-3389	22 (B.T.) 4/2/56 46°54.7' 124°41.4' 284.3991 285-3408	23 (B.T.) 4/2/56 46°54.6' 124°44.4' 284.3982 285-3394	24 (В.Т.) 4/2/56 46 <sup>0</sup> 52.4 <sup>1</sup> 124 <sup>0</sup> 45.8 <sup>1</sup> 284-3955 285-3389
Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic 2/	13 (0.8.T.) 1/1/56 1/6°38.0' 121°39.1' 2Hi-3801 2H5-3J17 109°	14 (0.8.T.) 4/1/56 46°39.1' 124°34.8' 2E4-3819 2E5-3432 145°	15 ( <b>4.8.T.</b> ) <u>1</u> ,/1/56 <u>1</u> ,6°37.6' 12,1°28.5' 21,1,2 21,51 30,6°	16 (G.S.T.) 4/1/56 4/6°40.37 124°28.37 2842-34 285-3453 285°	17 (B.T.) 4/1/56 46°41.9' 124°35.4' 2N4-3652 2N5-3431 002°	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 2843870 2853429 304.°	19 (B.T.) L <sub>4</sub> /2/56 L <sub>6</sub> °L <sub>5</sub> .1' 12L <sup>0</sup> 37.7' 2EL-3888 2E5-3L2L 322°	20 (B.T.) 4/2/56 46°53.4' 124°43.3' 284.37 285-3100 157°	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 2843980 285-3389 068°	22 (B.T.) 4/2/56 46°54+7' 124°41.4* 2H4-3991 2H5-3408 248°	23 (B.T.) 4/2/56 46°54+6° 124°14+4° 281-3982 285-3394 085°	24 (B.T.) 4/2/56 46°52-1/1 121/045-81 284-3955 285-3389 231°
Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic 2/ Sea	13 (G.S.T.) 1/1/56 1/6°38.0' 121°39.1' 2H1-3801 2H5-3J17 109° 811ght	14 (0.8.7.) 4/1/56 4/6 <sup>9</sup> 39.1' 124 <sup>9</sup> 34.8' 284-3619 285-3432 145 <sup>9</sup> Noderate	15 ( <b>4.8.T.</b> ) <u>1</u> ,/1/56 <u>1</u> ,6°37.6' 12,1°28.5' 28,15' 28,15' 30,6° Moderate	16 (G.S.T.) 4/1/56 4/6°40.37 124°28.37 2849-342 285-3453 285° Moderate	17 (B.T.) 1/1/56 1,6°11.9' 121°35.1' 2H1-3852 2H5-3131 002° Moderate	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 284-3870 285-3429 304° Moderate	19 (B.T.) 4/2/56 46°45.1° 124°37.7° 284-3888 285-3424 322° \$11ght	20 (B.T.) 4/2/56 46°53.4' 124°43.3' 284.37 285-31,00 157° 811ght	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 2843980 285-3389 068° 811ght	22 (B.T.) 4/2/56 46°54+7' 124°4,1.4* 2H4-3991 2H5-3408 248° \$11ght	23 (B.T.) 4/2/56 46°54*6' 124°44*4' 2114-3982 2115-3394 085° 8mooth	24 (В.Т.) 4/2/56 46°52.4.° 124°45.8° 284-3955 285-3389 231° Вmooth
Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms	13 (G.S.T.) 1/1/56 1/6°38.0' 124°39.1' 2HL-3801 2H5-3JL7 109° 811ght 90-105	14 (0.8.7.) 4/1/56 4/6 <sup>9</sup> 39.1' 121 <sup>0</sup> 34.8' 2814-3619 285-3432 145 <sup>0</sup> Moderate 73-74	15 (0.8.T.) 1/1/56 1/1/56 121°28.5' 2114=3809 215=3151 306° Moderate 60=62	16 (G.S.T.) 4/1/56 4/5°40.37 124°28.37 2845-342 285-3453 285° Moderate 54-60	17 (B.T.) 1/1/56 1,6°11.9' 121°35.1' 211,-3652 215-31,31 002° Moderate 68-72	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 2843-3870 285-3429 304° Moderate 72-74	19 (B.T.) 4/2/56 46°45.1° 124°37.7° 2845-3424 322° \$11ght 69-74	20 (B.T.) 4/2/56 46°55.4' 124°43.3' 284.3972 285-31,00 157° 811ght 73-75	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 284.3980 285.3389 068° \$11ght 69-78	22 (B.T.) 4/2/56 46°54.7' 124°4.1.4' 2843991 285-3408 248° \$11ght 68-77	23 (B.T.) 4/2/56 46°54.6° 124°44.4° 214.944.4° 215.394 085° 8mooth 76-82	24 (В.Т.) 4/2/56 46°52.4.° 124°45.8° 2844-3955 285-3389 231° Втоотh 82-86
Drag number Date Latitude N. Longitude N. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Travling bottom	13 (G.S.T.) 1/1/56 1/6°38.0' 121°39.1' 2H1=3801 2H5=3J17 109° Slight 90-105 Cl. S. & Blds.	14 (0.8.7.) 4/1/56 46 <sup>9</sup> 39.1' 124 <sup>0</sup> 34.8' 284-3819 285-3432 145 <sup>9</sup> Moderate 73-74 Blds. & hrd.	15 (G.S.T.) L <sub>4</sub> /1/56 L <sub>16</sub> °37.6' 12L°28.5' 2EL=3809 2E5=3151 306° Moderate 60=62 gn. M. & S.	16 (G.S.T.) 4/1/56 46°40.3' 124°28.3' 285-342 285-342 285- 302 Moderate 54-60 gn.S.Blds.& G.	17 (B.T.) 1/1/56 1,6°11.9' 121°35.1' 211,-3652 215-31,31 002° Moderate 68-72 gn. M. & S.	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 2843-3870 285-3429 304° Moderate 72-74 gr. M. & S.	19 (B.T.) 4/2/56 46°45.1° 124°37.7° 2845-3424 322° \$11ght 69-74 gn.8.01.4 hrd.	20 (B.T.) 4/2/56 46°55.4° 124°43.3° 2815-31,00 157° 811ght 73-75 gn. M. & S.	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 284.3980 285.3389 068° \$11ght 69-78 gr. M. & S.	22 (B.T.) 4/2/56 46°54.7' 124°41.4' 2H4-3991 2H5-3408 248° \$11ght 68-77 gr. M. & S.	23 (B.T.) 4/2/56 46°54.6° 124°44.4° 2114-3982 215-3394 085° 8mooth 76-82 gr. M. & S.	24 (B.T.) 4/2/56 46°52.4" 124°45.8" 284-3955 285-3389 231° 3mooth 82-86 gn. M. & S
Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom	13 (G.S.T.) 1/1/56 1/6°38.0' 121°39.1' 2H1=3801 2H5=3J17 109° Slight 90-105 Cl. S. & Blds. Sbag	14 (0.8.7.) 4/1/56 46 <sup>9</sup> 39.1' 124 <sup>0</sup> 34.8' 284-3819 285-3432 145 <sup>9</sup> Moderate 73-714 Blds. & hrd. Snag	15 (G.S.T.) L/1/56 L6°37.6' 12L°28.5' 2EL=3809 2E5=3451 306° Moderate 60-62 gn. M. & S. Clear	16 (G.S.T.) 4/1/56 4/5°40.37 121°28.37 2815-342 285-345 285° Moderate 54-60 ga.S.B1ds.& G. Snag	17 (B.T.) 1/1/56 1,6°11.9' 121°35.1' 211,-3652 215-31,31 002° Moderate 68-72 gn. M. & S. Clear	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 2843-3870 285-3429 304° Moderate 72-74 gr. M. & S. Clear	19 (B.T.) 4/2/56 46°45.1° 124°37.7' 2845-3424 322° \$11ght 69-74 gn.8.01.4 hrd. 01ear	20 (B.T.) 4/2/56 46°53.4° 124°43.3° 285-3400 157° Slight 73-75 gn. M. & S. Clear	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 284.3980 285.3389 068° Slight 69-78 gn. M. & S. Clear	22 (B.T.) 4/2/56 46°54.7' 124°41.4' 2H4-3991 2H5-3408 248° Slight 68-77 gr. M. & S. Clear	23 (B.T.) 1/2/56 146°54.6' 124°44.4' 2514-3982 255-3394 085° Bmooth 76-82 gn. M. & B. Clear	24 (B.T.) 4/2/56 46°52.4? 124°45.8? 284-3955 285-3389 231° Smooth 82-86 gn. M. & S Clear
Drag number Date Latitude N. Longitude N. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Trawling bottom Time on bottom in minutes	13 (G.S.T.) 1/1/56 1/6°38.0' 121°39.1' 2H1=3801 2H5=3J17 109° Slight 90-105 Cl. S. & Blds. Sbag	14 (0.8.7.) 4/1/56 46 <sup>9</sup> 39.1' 124 <sup>0</sup> 34.8' 284-3819 285-3432 145 <sup>9</sup> Moderate 73-714 Blds. & hrd. Snag	15 (G.S.T.) L/1/56 L6°37.6' 12L°28.5' 2EL=3809 2E5=3451 306° Moderate 60-62 gn. M. & S. Clear	16 (G.S.T.) 4/1/56 4/5°40.37 121°28.37 2815-342 285-345 285° Moderate 54-60 ga.S.B1ds.& G. Snag	17 (B.T.) 1/1/56 1,6°11.9' 121°35.1' 211,-3652 215-31,31 002° Moderate 68-72 gn. M. & S. Clear	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 2843-3870 285-3429 304° Moderate 72-74 gr. M. & S. Clear	19 (B.T.) 4/2/56 46°45.1° 124°37.7' 2845-3424 322° \$11ght 69-74 gn.8.01.4 hrd. 01ear	20 (B.T.) 4/2/56 46°53.4° 124°43.3° 285-3400 157° Slight 73-75 gn. M. & S. Clear	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 284.3980 285.3389 068° Slight 69-78 gn. M. & S. Clear	22 (B.T.) 4/2/56 46°54.7' 124°41.4' 2H4-3991 2H5-3408 248° Slight 68-77 gr. M. & S. Clear	23 (B.T.) 1/2/56 146°54.6' 124°44.4' 2514-3982 255-3394 085° Bmooth 76-82 gn. M. & B. Clear	24 (B.T.) 4/2/56 46°52.4* 124°45.8* 284-3955 285-3389 231° Smooth 82-86 gn. M. & 4 Clear
Drag number Date Latitude N. Longitude W. Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Frawling bottom Fine on bottom in minutes Shrimp eatch in pounds: (whole shrimp per pound) 2/	13 (G.S.T.) 1/ 1/1/56 1/6 <sup>0</sup> 38.0' 121/ <sup>0</sup> 39.1' 2EL=3801 2E5=3/17 109 <sup>0</sup> Slight 90-105 Cl. S. & Blds. Smag 60	14 (G.S.T.) 4/1/56 46°39.1' 124°34.8' 284-3819 285-3432 145° Woderate 73-74 Blds. & hrd. Snag 7	15 (0.8.T.) 1/1/56 1/6°37.6' 121/°28.5' 2111-3809 215-31,51 306° Moderate 60-62 gn. M. & B. Clear 60	16 (G.S.T.) Ц/1/56 Ц6°Ц0.3' 12Ц°28.3' 2НЦ-38Ц2 2Н5-3Ц53 285° Moderate 5Ц=60 gr.S.B1ds.& G. Snag ЦЦ	17 (B.T.) 1/1/56 1/6°11.9' 121°35.1' 2H1-3652 2H5-3131 002° Moderate 68-72 gn. M. & S. Olear 60	18 (B.T.) 4/1/56 46°43.5' 124°36.3' 284-3870 285-3429 304° Moderate 72-74 gn. M. & S. Clear 60	19 (B.T.) 4/2/56 46°45.1° 124°37.7° 281-3088 285-3424 322° Slight 69-74 gn.S.Cl.& hrd. Clear 60	20 (B.T.) 4/2/56 46°53.41° 124°43.3° 2843.3° 2845.3100 157° 811ght 73-75 gn. M. & S. Clear 60	21 (B.T.) 4/2/56 46°54.7' 124°45.4' 284-3980 285-3389 068° Slight 69-78 gn. M. & S. Clear 60	22 (B.T.) L/2/56 L6°54.7' 1219/11.4' 2H1-3991 2H5-3408 248° Slight 68-77 gn. M. & S. Clear 60	23 (B.T.) 4/2/56 46°54.6' 124°144.4' 28143982 285-3394 085° 8mooth 76-82 gn. M. & B. Clear 60	24 (B.T.) 4/2/56 46°52.4' 124°45.8' 284-3955 285-3389 231° Smooth 82-86 gn. M. & 1 Clear 60
Drag number Date Latitude N. Longitude W. Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Frawling bottom Fime on bottom in minutes Shrimp eatch in pounds: (whole shrimp per pound) 2/ Fink	13 (0.8.T.) 1/1/56 1/6°38.0' 124°39.1' 2HJ-3801 2H5-3/17 109° \$11ght 90-105 Cl. S. & Blds. Sbag 60 5 (116)	14 (G.S.T.) 4/1/56 46°39.1' 124°34.8' 284-3619 285-3432 145° Woderate 73-74 Blds. & hrd. Snag 7	15 (0.8.T.) 1/1/56 1/6°37.6' 121/°28.5' 2111-3809 215-31,51 306° Moderate 60-62 gn. M. & B. Clear 60	16 (G.S.T.) Ц/1/56 Ц6 <sup>0</sup> Ц0.3 <sup>7</sup> 124 <sup>0</sup> 28.3 <sup>7</sup> 2815-3453 285 <sup>9</sup> Моderate 54-60 g2.S.B1ds.& G. Bnag Ц4	17 (B.T.) 1/1/56 1/6°11.9' 121°35.1' 2H1-3652 2H5-3131 002° Moderate 68-72 gn. M. & S. Olear 60	18 (B.T.) 4/1/56 46°4,3.5' 124°36.3' 2845-3429 304° Moderate 72-74 gr. M. & S. Clear 60 25 (109)	19 (B.T.) 4/2/56 46°45.1° 124°37.7° 2815-3424 322° \$11ght 69-74 gn.S.Cl.& hrd. Clear 60 3	20 (B.T.) 4/2/56 46°53.41° 124°43.3° 2843.3° 2845.3100 157° 811ght 73-75 gn. M. & S. Clear 60	21 (B.T.) 4./2/56 4.6°54.7' 124°45.4' 2H3980 2H5-3389 068° Slight 69-78 gn. M. & S. Olear 60 120 (133)	22 (B.T.) L/2/56 L6°54.7' 1219/11.4' 2H1-3991 2H5-3408 248° Slight 68-77 gn. M. & S. Clear 60	23 (B.T.) 4/2/56 46°54.6° 124°14.4' 2113982 215-3394 085° 8mooth 76-82 gn. M. & S. Clear 60 200 (142)	24 (B.T.) 4/2/56 46°52.4' 124°45.8' 284-3955 285-3389 231° Smooth 82-86 gn. M. & 1 Clear 60

Note: For explanation of footnotes and abbreviations, see p. 24.

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Drag number	25 (B.T.) 1/	26 (B.T.)	27 (B.T.)	28 (B.T.)	29 (B.T.)	30 (B.T.)	31 (B.T.)	32 (B.T.)	33 (B.T.)	34 (0.7.)	35 (0.T.)	36 (0.T.)
Date	4/2/56	4/3/56	4/3/56	4/3/56	4/3/56	4/3/56	4/3/56	4/3/56	4/3/56	4/4/56	4/4/56	4/4/56
Latitude N.	46°51.8'	46°50.1'	46°46.71	46°46.6'	46°44.91	46°48.8*	46°49.1'	46°49.5'	46°52.3'	46°54.81	46°52.0'	46°49.0'
Longitude W.	124°48.9'	124°50.4*	12/10/16.1'	124°45.7"	124°42.8'	124°45.9"	124°39.3'	124°35.8'	124°36.5'	124042.0'	124°42.5'	124°38.81
Loran reading	284-3940	2нц-3918	2нЦ-3890	2нц-3890	2н4-3876	2H4-3914	2нц=3931	2114-3942	2нц-3973	2нц-3990	2нц=3958	284-3931
Loran reading	2H5-3374	2H5=3369	2H5=3390	2H5-3393	2H5-3404	2H5-3390	2H5-3418	285-3432	2H5-3429	285-3405	285-3404	2H5-3420
Course, magnetic 2/	055°	119 <sup>0</sup>	111°	109°	298°	050 <sup>0</sup>	074°	325°	249°	202°	124°	101°
Sea	Smooth	Smooth	Smooth	Smooth	Slight	Slight	Slight	Slight	Moderate	Rough	Moderate	Moderate
Depth range in fathoms	82-86	92-93	87-88	82-87	82-85	76-82	64-71	62-63	62=65	70-74	72-75	65-69
Type of bottom	gn. M. & S.	gn. S. & St.	gn.M. & gy.Cl.	gn. M.	gn. M.	gn. M.	gn. M. & St.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. & S.	gn. M. å
Trawling bottom	Clear	Clear	Clay bank	Clear	Clear	Clear	Clear	Clear	Soft	Clear	Clear	Clear
lime on bottom in minutes	60	60	10	60	60	60	60	60	60	30	60	60
Shrimp catch in pounds: (whole shrimp per pound) 3/										A Telester -	1963	
Pink	90 (156)	40 (163)	-	150 (153)	275 (123)	40 (125)	120 (116)	90 (110)	120 (118)	300	150 (121)	325 (120
Side-stripe	-	Trace 4	-		-	-	-	-	-	-	-	-
otal shrimp oatch in pounds	90	40	-	150	275	40	120	90	120	300	150	325
otal shrimp catch, hourly basis	90	40		150	275	40	120	90	120	600	150	325

Drag number	37 (B.T.) 1	38 (B.T.)	39 (B.T.)	Цо (B.T.)	41 (B.T.)	42 (B.T.)	43 (B.T.)	LL (B.T.)	45 (B.T.)	46 (B.T.)	47 (B.T.)	48 (B.T.)
Date	4/7/56	4/7/56	4/7/56	4/7/56	4/8/56	4/8/56	4/8/56	4/8/56	4/8/56	1/8/56	4/9/56	4/9/56
Latitude N.	46°56.1'	46°58.4'	46059.21	4700.61	46°57.9'	46°56.0'	46°59.5'	47°00.8'	47°08.5'	47007.4"	47°29.7'	47°30.7'
Longitude W.	124°37.6'	124°38.4'	124943.2"	124044.3*	124044.81	124045.71	124°49.2'	124052.11	124052.01	124°48.4	124°48.0'	124048.21
Loran reading	2нЦ-4017	SH11-110/10	284-4036	284-4047	214-4018	2HL1-3995	284-4021	284-4025	284-4096	284-4100	2844-4238	284-4241
Loran reading	285-3425	285-3421	2H5-3397	2H5=3390	285-3390	285-3387	285-3366	285-3348	285-3331	285-3356	285+3240	285-3230
Course, magnetic 2/	338°	2900	053°	0670	130°	333°	236°	31.3°	150°	125°	007°	307°
Sea	Moderate	Moderate	Moderate	Moderate	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth	Slight
Depth range in fathoms	57-58	56-59	59-69	60-69	72-78	78-81	85-91	89-91	78-81	70-73	58-65	64-66
Type of bottom	gn. M.	gn. M. & S.	gn. M. & S.	gn.M.S. & St.	gn. M. & S.	gn. M. & Cl.	gn.W.S. & St.	Er. M. & C.	gn. M. & S.	gn. M.	gn. M. & S.	gn. M. & S
Trawling bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Time on bottom in minutes	60	60	60	60	60	60	60	60	60	60	60	60
Shrimp catch in pounds: (whole shrimp per pound) 3/					1.4.4.4					-		
Pink	10 (102)	35 (103)	30 (119)	65 (104)	55 (125)	4	25 (156)	50	90 (157)	125	140	250 (163)
Side-stripe	-		-	-	-	-	Trace 4	Trace	-			-
Total shrimp catch in pounds	10	35	30	65	55	L.	25	50	90	125	140	250
Total shrimp oatch, hourly basis	10	35	30	65	55	4	25	50	90	125	140	250
Remarks	_	-		_				-		1.1.1		

ns, see p. 24. -12 es and al

Drag number	49 (B.T.) 1/	50 (B.T.)	51 (G.S.T.)	52 (G.S.T.)	53 (G.S.T.)	54 (G.S.T.)	55 (G.S.T.)	56 (G.S.T.)	57 (G.S.T.)	58 (B.T.)	59 (B.T.)	60 (B.T.)
Date	4/9/56	4/9/56	4/9/56	4/9/56	4/9/56	4/9/56	4/12/56	4/12/56	4/12/56	4/12/56	4/13/56	4/13/56
Latitude N.	47°31.5'	47°34.5'	47°34.9'	47°32.1'	47028.11	47°23.1'	46°36.0'	46°29.9'	46°26.0"	46°22.6'	46°23.2"	46°31.6'
Longitude W.	124052.81	124°55.5'	124056.21	124049.7	124°45.8"	124°43.5'	121,032.21	12/ 26.91	121°29.1.	121,023.6	124°32.0'	124029.9
Loran reading	284-428	2144-4228	2844-4227	284-4240	SHT-Tistis	284-4230	2114-3785	284-3715	284-3665	2出上=3628	284-3630	2нц-3733
Loran reading	285-3197	2H5=3155	2H5=3148	285-3210	285-3266	2H5=3317	2215=3139	2H5-3450	2H5-3141	245-3453	2H5=31:32	2H5-34/3
Course, magnetio 2/	3120	306°	1290	1330	1300	1590	1100	135°	1220	0890	0330	0230
Sea.	Slight	Moderate	Moderate	Moderate	Rough	Rough	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
and the second of the second second	79=81	82-84	82-83	64=66	58-60	62-65	75-80	62-71	69-80	48-60	76-77	85-103
Depth range in fathoms				gn. ¥. & S.		and the second	15=00 M.	V. S. & St.	C1. & M.	gy.M.S. & Cl.	M. & S.	C1.
Type of bottom	gn. M. & S.	gn. V. & S.	gn. M. & S.		gn. M.	gn. ₩. & S.					Clear	The states
Trawling bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Snag	Snag	Clear		Clay ban
Time on bottom in minutes	60	60	60	60	60	30	60	60	60	90	60	60
Shrimp catch in pounds: (whole shrimp per pound) 3/			1.5.0.5		1. 19 19	13 122						1999
Pink	240 (198)	180 (198)	590 (214)	720 (161)	Trace	Trace	315 (133)	100 (114)	Trace	Trace	10 (170)	Trace
Side-stripe		Trace 4	Trace		-	-	-	-		-	-	- 14
Total shrimp catch in pounds	5710	180	590	720	Trace	Trace	315	100	Trace	Trace	10	Trace
					-		7315	100	Trace	Trace	10	Trace
Total shrimp catch, hourly basis	240	180	590	720	Trace	Trace	315	100	Trace	IFACe	10	IFace
Total shrimp catch, hourly basis Remarks	- 240	-		-	Trace -	Trace -		Net torn	Net torn	-		Beam brol
	-			-						-	-	
	240 -										71 (G.S.T.)	Beam bro
Remarks		-		-	-	-	-	Net torn	Net torn	-	-	
Remarks Drag number Date	- 61 (C.S.T.) 1/	- 62 (0.5.T.)		- 64 (B.T.)	- 65 (B.T.)	- 66 (B.T.)	- 67 5/ (G.S.T.)	Net torn 68 2/ (G.S.T.)	Net torn 69 (G.S.T.)	- 70 (G.S.T.)	- 71 (G.S.T.)	Beam bro
Remarks Drag number Date Latitude N.	- 61 (0.5.T.) 1/ 1/15/56	- 62 (0.s.T.) 4/15/56	- 63 (G.S.T.) 4/15/56	- 64 (B.T.) 4/15/56	- 65 (B.T.) 4/15/56	- 66 (B.T.) 14/15/56	- 67 5/ (g.s.t.) 4/15/56	Net torn 68 2/ (G.S.T.) 4/15/56	Net torn 69 (G.S.T.) 4/16/56	- 70 (G.S.T.) 4/16/56	71 (G.S.T.) 4/16/56	Beam bro 72 (G.S. 4/16/56
Remarks Drag number Date Latitude W.	- 61 (0.8.T.) 2/ 14/15/56 147°04.5' 124°143.3'	- 62 (0.s.t.) 14/15/56 147°06.5'	63 (0.8.7.) L/15/56 L/7°0L+9' 12L°53.5'	- 64 (B.T.) 4/15/56 4/7°08.0' 124°55.4'	- 65 (B.T.) 4/15/56 47°10.2* 124°56.6*	- 66 (B.T.) 1/15/56 1/7°14.8' 124°50.9'	- 67 5/ (a.s.r.) 4/15/56 4/°06.3' 124°49.1'	Net torn 68 5/ (0.s.t.) 14/15/56 147°06.0° 124°49.1°	Net torn 69 (G.S.T.) 1/16/56 1/7°06.1' 121,919.1'	- 70 (G.S.T.) 1,/16/56 1,7°01,.8' 121, <sup>0</sup> 1,9.2'		Beam bro 72 (G.S. 4/16/56 47°22.2' 124°43.8
Remarks Drag number Date Latitude W. Longitude W. Lorgitude W.	- 61 (G, S, T, ) <u>1</u> / L(15/56 L(7°0L+5' 12L°L3-3' 2EL(-1,090	- 62 (0.s.T.) 14/15/56 147°06.5' 124°19.4' 2HJ-1088	- 63 (0, 8, 7, ) 4/15/56 4/7°04, 9° 124°53, 5° 284, 4059	- 64 (B.T.) 14/15/56 14/7°08.0° 121°55.1° 2814-3:080	- 65 (B.T.) 4,/15/56 4,7°10.2° 124°56.6° 2H1=4093	- 66 (B.T.) 1/15/56 1/7°14.8° 121°50.9° 2814-1150	- 67 <sup>\$\[2]</sup> (G.S.T.) 4\[15/56 4\[7^06.3' 12L <sup>0</sup> 49.1' 2HL087	Net torn 68 2/ (0.5.7.) 14/15/56 147°06.0° 124°49.1° 2844-4084	Net torn 69 (G.S.T.) 14/16/56 147°06.1' 124°19.1,' 2141,084	- 70 (G.S.T.) 14/16/56 14/ <sup>0</sup> 01 <sub>+</sub> 8 <sup>+</sup> 121 <sup>0</sup> 1 <sub>2</sub> 9.2 <sup>+</sup> 2H1 <sub>4</sub> -1073	- 71 (G.S.T.) 4/16/56 47°10.0' 124°46.5' 2H4-4130	Веат bro 72 (G.S. 4/16/56 4/7°22.2° 124°43.8 2нц1/225
Remarks Drag number Date Latitude N. Longitude W. Loran reading Loran reading	- 61 (0.8.T.) 2/ 14/15/56 147°04.5' 124°143.3'	- 62 (0.s.t.) 14/15/56 147°06.5' 121°19.4'	63 (0.8.7.) L/15/56 L/7°0L+9' 12L°53.5'	- 64 (B.T.) 14/15/56 14/ <sup>0</sup> 08.0' 121 <sup>0</sup> 55.L' 2814	- 65 (B.T.) 4/15/56 47°10.2* 124°56.6*	- 66 (B.T.) 1/15/56 1/7°14.8' 124°50.9'	- 67 5/ (a.s.r.) 4/15/56 4/°06.3' 124°49.1'	Net torn 66 2/ (0.5.7.) 1/15/56 1/7°06.0' 121°19.1' 2HL-L08L 2H5-3355	Net torn 69 (G.S.T.) 1/16/56 1/7°06.1' 121,919.1'	- 70 (G.S.T.) 1,/16/56 1,7°01,.8' 121, <sup>0</sup> 1,9.2'		Beam bro 72 (G.S. 4/16/56 4/7°22.2' 124°43.8 2844-3/225 285-3321
Remarks Drag number Date Latitude W. Longitude W. Lorgitude W.	- 61 (0.8.7.) <sup>1</sup> / 14/15/56 147°014.5' 121°014.5' 121°014.5' 121°014.5' 121°013.3' 211,-1,090 215-3391	- 62 (0.5.T.) 4/15/56 1/7°06.5' 121°19.4' 2H4-4068 2H5-3352	- 63 (0, 8, 7, ) L/15/56 L/7°0L,9' 12L°53.5' 2HL-L059 2H5-3332	- 64 (B.T.) 14/15/56 14/7°08.0° 121°55.1° 2814-3:080	- 65 (B.T.) 4/15/56 4/7°10.2° 124°56.6° 284.4093 285-3297	- 66 (B.T.) L/15/56 L/7 <sup>0</sup> JL.8 <sup>1</sup> 12L <sup>0</sup> 50.9 <sup>1</sup> 2BL-L150 2B5-3315	- 67 <sup>\$\[2]</sup> (q.s.T.) 4\[15/56 4\[7^006.3' 121 <sup>0</sup> 49.1' 244L087 245-3354	Net torn 68 2/ (0.5.7.) 14/15/56 147°06.0° 124°49.1° 2H4-4084	Net torn 69 (G.S.T.) 1/16/56 1/7°06,1' 121,°19,1,' 211,-1.084 2115-3353	- 70 (G.S.T.) U/16/56 U/ <sup>0</sup> 0181 124 <sup>0</sup> 0.9.21 2H1L073 2H5-3357	- 71 (G.S.T.) 1/16/56 1/7 <sup>0</sup> 10.0 <sup>1</sup> 121 <sup>0</sup> 16.5 <sup>1</sup> 2HJ-L130 2H5-3360	Веат bro 72 (G.S. 4/16/56 4/7 <sup>0</sup> 22.2* 124 <sup>0</sup> 43.8 2H1,=J.225
Remarks Drag number Date Latitude W. Longitude W. Loran reading Loran reading Course, magnetic <u>2</u> / Sea	- 61 (0.8.7.) 2/ 14/15/56 11°0145' 121°0145' 121°0145' 121°0145' 121°0145' 121°0145' 121°00 215-3391 348°	- 62 (0.5.T.) 1/15/56 1/2 <sup>0</sup> 06.5 <sup>1</sup> 121 <sup>0</sup> 1g.li <sup>1</sup> 2HL-1068 2H5=3352 160 <sup>0</sup>	63 (0,8,7.) 4/15/56 4/ <sup>0</sup> 04.9' 124 <sup>0</sup> 53.5' 211.4059 2115-3322 128 <sup>0</sup>	- 64 (B.T.) 4/15/56 4/7°08.0' 124°55.4' 284	- 65 (B.T.) 4/15/56 4/7°10.2° 121°56.6° 2H1-4093 2H5-3297 004°	- 66 (B.T.) L/15/56 L/7 <sup>0</sup> 11.8' 124 <sup>9</sup> 50.9' 281L150 2815-3315 293 <sup>0</sup>	- 67 <sup>\$\[2]</sup> (G.S.T.) 4\(15\)/56 4\(7^{0}C6.3') 124\(^{0}49.1') 244\(-4.087) 245-3354 160 <sup>0</sup>	Net torn 66 2/(0.5.7.) 1/15/56 1/706.0' 121,°49.1' 2H1-4,084 2B5-3355 330°	Net torn 69 (0.8.7.) 1/16/56 1/7 <sup>0</sup> 06.1' 121. <sup>0</sup> 19.1' 2Hi1.084 2H5-3353 151. <sup>0</sup>	- 70 (G.S.T.) 4/16/56 4/7°01+8° 124°919-2° 2H1-4073 2H5-3357 336°		Веат bro 72 (G.S. Ц/16/56 Ц7 <sup>0</sup> 22.2 <sup>1</sup> 12Ц <sup>0</sup> Ц3.8 2HJ_3225 2H5-3321 337 <sup>0</sup>
Remarks Drag number Date Latitude W. Longitude W. Loran reading Loran reading Course, magnetic 2/	- 61 (0.8.7.) 2/ 14/15/56 14/ <sup>0</sup> 0145 <sup>1</sup> 1210 <sup>0</sup> 13.3 <sup>1</sup> 2211,-1,090 2315-3391 34,8 <sup>0</sup> Moderate	- 62 (0.5.T.) 1/15/56 1/7°06.5' 121°16.4' 2H1-1/068 2H5-3352 160° Moderate	- 63 (0.8.7.) 4/15/56 4/7°04.9' 124°53.5' 2144059 215-3332 128° \$11ght	- 64 (B.T.) 4/15/56 4/7°08.0' 1214°55.4' 2814	- 65 (B.T.) 4/15/56 4/7°10.2° 121°56.6° 2H1-4093 2H5-3297 004° Slight	- 66 (B.T.) L/15/56 L/7 <sup>0</sup> 11.8' 124 <sup>9</sup> 50.9' 281L150 2815-3315 293 <sup>0</sup> Slight	- 67 2/ (G.S.T.) 4/15/56 4/7°06.3' 124°49.1' 234,-4087 285-3354 160° \$light	Net torn 66 2/(0.5.7.) 1/15/56 1/706.0' 121,°49.1' 281,-4,084 285-3355 330° \$11ght	Net torn 69 (0.8.7.) 1/16/56 1/7°06.1' 121.°019.1' 2HJ-1.084 2H5-3353 151.° Slight	- 70 (G.S.T.) 4/16/56 4/7°01.8° 124°91.9.2° 2H1-4073 2H5-3357 336° Slight	 71 (G.S.T.) 1/16/56 1/7°10.0° 121°16.5° 2H4-L130 2H5-3360 339° Slight	Beam bro 72 (G.S. 4/16/56 4/7°22.2° 124°43.8 284
Remarks Drag number Date Latitude W. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom	- 61 (0.8.T.) 2/ 14/15/56 11°01.5' 121°01.5' 121°01.5' 121°01.5' 121°01.5' 121°01.5' 121°01.5' 121°01.5' 2215-3391 34,8° Moderate 62-62	- 62 (0.5.T.) 1/15/56 1/7°06.5' 121°19.4' 2H1-1088 2H5-3352 160° Moderate 76-78	63 (0,8,7.) 4/15/56 4/7°04.9' 124°53.5' 234.4059 295-3332 128° \$11ght 83-86	- 64 (B.T.) 4/15/56 4/7°08.0' 121°55.1' 2814	- 65 (B.T.) 4/15/56 4/7°10.2° 121°56.6° 2H1-4093 2H5-3297 co4° \$11ght 126-139	- 66 (B.T.) 4/15/56 4/7°14.8' 124°50.9' 2B14-4150 2B5-3315 293° S11ght 100-111	- 67 2/ (0.s.r.) 4/15/56 4/7°06.3' 124°49.1' 2449.4087 245-3354 160° \$11ght 76-78	Net torn 66 5/ (c.s.7.) 4/15/56 4/15/56 4/1004 124°49.1' 285-3355 330° Slight 75-76	Net torn 69 (0.5.7.) 1/16/56 1/7°06.11 121.°04,11 2HJ1.084 2H5-3353 151.° Slight 76-77	- 70 (G.S.T.) U/16/56 U/7°Ol <sub>4</sub> B* 12L <sup>9</sup> U <sub>5</sub> 2* 2HU-U73 2H5-3357 336° \$112ht 7U-76	 71 (0.8.7.) 1/16/56 1/7°10.0° 121°16.5° 2HJ-L130 2H5-3360 339° \$11ght 69-70	Beam bro 72 (G.S. 4/16/56 4/16/56 4/16/56 4/16/56 24/92.2* 124.943.8 274.943.8 274.943.8 275.9321 337° Smooth 63-65
Remarks Drag number Date Latitude W. Longitude W. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom	- 61 (0.8.T.) 2/ 4/15/56 4/7°04.5' 124°64.5' 124°64.3' 22444090 234.9° Moderate 62-62 gr. M.	- 62 (0.5.T.) 1/15/56 1/7006.5' 121019.4' 2H1-1088 2H5=3352 160° Moderate 76-78 ga. M.	- 63 (0,8,7.) 4/15/56 4/7°04.9' 124°53.5' 234.4059 295-3332 128° \$11.6t 83-86 <b>EV. M.</b>	- 64 (B.T.) 4/15/56 4/7°08.0° 121°55.1° 2814	- 65 (B.T.) 4/15/56 4/7°10.2° 121°56.6° 2H1-4093 2H5-3297 co4° \$11ght 126-139 gy. M. & S.	- 66 (B.T.) 4/15/56 4/7°14.8" 124°50.9" 2B14-4150 2B5-3315 293° S11ght 100-111 gn. W. & S.	- 67 2/ (0.s.r.) 4/15/56 4/7°06.3' 124°49.1' 2449.4087 245-3354 160° Slight 76-78 gn. M.	Net torn 66 2/ (c.s.r.) 14/15/56 14/°06.0° 121,°19.1° 281,-1,084 285-3355 330° Slight 75-76 gn. W.	Net torn 69 (0.5.7.) 1/16/56 1/7°06.11 121.°04.1 2HJ1.084 2H5-3353 151.° Slight 76-77 gn. M.	- 70 (G.S.T.) 1/16/56 1/7°01,.8' 121°19.2' 2H1-4073 2H5-3357 336° Slight 71-76 gr. M.	 71 (G.S.T.) L/16/56 L/7 <sup>0</sup> 10.0 <sup>4</sup> 12L <sup>0</sup> L6.5 <sup>4</sup> 2HL-L130 2H5-3360 339 <sup>9</sup> Slight 69-70 gp. M.	Beam bro   72 (G.S.   L/16/56   L/16/56   L/16/56   State   State   Smooth   63-65   gn. M.
Remarks Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Trawling bottom Time on bottom in minutes	- 61 (0.8.T.) 2/ 4/15/56 4/7°04.5' 124°64.3' 22444,090 234.9° Moderate 62-62 gr. M. Clear	- 62 (0.5.T.) 1/15/56 1/7006.5' 121049.4' 2H1-4068 2H5-3352 1600 Moderate 76-78 gr. M. Clear	- 63 (0.s.T.) Ц/15/56 Ц/7°0Ц.9' 12Ц°53.5' 2НЦ-Ц059 2Н5-3332 128° Slight 83-86 gy. M. Clear	- 64 (B.T.) 4/15/56 4/7°08.0' 121°55.4' 2814	- 65 (B.T.) 4/15/56 4/7°10.2° 124°56.6° 2H4-4093 2H5-3297 004° Slight 126-139 gy. M. & S. Clear	- 66 (B.T.) 4/15/56 47°14.8° 124°50.9° 284-4150 285-3315 293° \$11ght 100-111 gr. W. & S. Clear	- 67 2/ (0.s.r.) 4/15/56 47°06.3' 124°49.1' 249.49.1' 249.4087 249.5-3354 160° Slight 76-78 gn. M. Clear	Net torn 66 2/ (c.s.7.) 14/15/56 14/°06.0° 121,°19.1° 281,-1,084 285-3355 330° Slight 75-76 gn. M. Clear	Net torn 69 (0.5.7.) 1/16/56 1/7°06.1' 121°19.1' 211-1.084 215-3353 1512° Slight 76-77 gn. M. Clear	- 70 (G.S.T.) 1/16/56 1/7°Ol <sub>1+</sub> 8' 121°19.2' 2H1-4073 2H5-3357 336° Slight 7U-76 gr. M. Clear	 71 (G.S.T.) L/16/56 L/7 <sup>0</sup> 10.0 <sup>4</sup> 12L <sup>0</sup> L6.5 <sup>4</sup> 2HL-L130 2H5-3360 339 <sup>9</sup> Slight 69-70 gr. M. Olear	Beam bro   72 (G.S.   L <sub>4</sub> /16/56   L <sub>7</sub> <sup>0</sup> 22.2*   12L <sub>1</sub> <sup>0</sup> L <sub>3</sub> .8   2HL <sub>4</sub> -1.225   2H <sub>4</sub> -1.225   337 <sup>6</sup> Smooth   63-65   gr. M.   Clear
Remarks Drag number Date Latitude W. Longitude W. Loran reading Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Trawling bottom Time on bottom in minutes Bhrimp catch in pounds; (whole shrimp per pound) 3/	- 61 (0.s.T.) 1/ 1/15/56 1/7°0145' 121°13.3' 2111-1090 215-3391 348° Moderate 62-62 gn. M. Clear 30	- 62 (0.5.T.) 1/15/56 1/7°06.5' 121. <sup>0</sup> 19.1' 2H1-1088 2H5-3352 160° Moderate 76-78 gr. M. Clear 30	- 63 (0, S.T.) L/15/56 L/7°0L-9' 124°53.5' 2HL-L059 2H5-3332 128° Slight 83-86 gy. M. Clear 30	- 64 (B.T.) 14/15/56 17°08.0° 121°55.1° 2814J:080 285-3312 345° 811ght 90-914 M. & S. Clear 60	- 65 (B.T.) 4/15/56 4/1°10.2° 124°56.6° 2H1-4093 2H5=3297 004° Slight 126-139 gy. M. & S. Clear 30	- 66 (B.T.) L/15/56 L/7°JL.8' 121°50.9' 2BL-L150 2B5-3315 293° Slight 100-111 gn. W. & S. Clear L5	- 67 2/ (G.S.T.) 4/15/56 4/7°06.3' 121°49.1' 2149-1'	Net torn 66 2/ (0.5.7.) 1/15/56 1/7°06.0° 1210/19.1° 281,-1081, 285-3355 330° Slight 75-76 gn. M. Clear 30	Net torn 69 (G.S.T.) 1/16/56 1/7°06.1' 121.4°19.1' 2111.084 2115-3353 151.° Slight 76-77 gn. M. Clear 30	- 70 (G.S.T.) L/16/56 L/7°018' 124°0.9.2' 2HL-L073 2H5-3357 336° Slight 7L-76 gn. M. Clear 30	 71 (G.S.T.) 1//16/56 1/7°10.0' 121°106.5' 2H4-L130 2H5-3360 339° Slight 69-70 gr. M. Clear 30	Beam bro   72 (0.8.   14/16/56   1/7°22.2'   121°13.6   2815=3321   337°   Smooth   63=65   gr. M.   Clear   30
Remarks Drag number Date Latitude N. Longitude W. Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Type of bottom Trawling bottom Time on bottom in minutes	- 61 (0.8.T.) 2/ 4/15/56 4/7°04.5' 124°64.3' 22444,090 234.9° Moderate 62-62 gr. M. Clear	- 62 (0.5.T.) 1/15/56 1/7006.5' 121049.4' 2H1-4068 2H5-3352 1600 Moderate 76-78 gr. M. Clear	- 63 (0.s.T.) Ц/15/56 Ц/7°0Ц.9' 12Ц°53.5' 2НЦ-Ц059 2Н5-3332 128° Slight 83-86 gy. M. Clear	- 64 (B.T.) 4/15/56 4/7°08.0' 121°55.4' 2814	- 65 (B.T.) 4/15/56 4/1°10.2° 124°56.6° 2845-3297 004° Slight 126-139 gy. M. & S. Clear 30 Trace	- 66 (B.T.) L/15/56 L/7°JL.8' 121°50.9' 2BL-L150 2B5-3315 293° Slight 100-111 gn. W. & S. Clear L5 Trace	- 67 2/ (0.s.r.) 4/15/56 47°06.3' 124°49.1' 249.49.1' 249.4087 249.5-3354 160° Slight 76-78 gn. M. Clear	Net torn 66 2/ (c.s.7.) 14/15/56 14/°06.0° 121,°19.1° 281,-1,084 285-3355 330° Slight 75-76 gn. M. Clear	Net torn 69 (0.5.7.) 1/16/56 1/7°06.1' 121°19.1' 211-1.084 215-3353 1512° Slight 76-77 gn. M. Clear	- 70 (G.S.T.) 1/16/56 1/7°Ol <sub>1+</sub> 8' 121°19.2' 2H1-4073 2H5-3357 336° Slight 7U-76 gr. M. Clear	 71 (G.S.T.) L/16/56 L/7 <sup>0</sup> 10.0 <sup>4</sup> 12L <sup>0</sup> L6.5 <sup>4</sup> 2HL-L130 2H5-3360 339 <sup>9</sup> Slight 69-70 gr. M. Olear	Beam bro   72 (G.S.   L <sub>4</sub> /16/56   L <sub>7</sub> <sup>0</sup> 22.2*   12L <sub>1</sub> <sup>0</sup> L <sub>3</sub> .8   2HL <sub>4</sub> -1.25   2H <sub>4</sub> -1.25   2H <sub>5</sub> -3.321   337 <sup>6</sup> Smooth   63-65   gr. M.   Clear
Remarks Drag number Date Latitude N. Longitude N. Lorgn reading Loran reading Loran reading Course, magnetic 2/ Sea Depth range in fathoms Fype of bottom Frawling bottom Frawling bottom in minutes Bhrimp catch in pounds; (whole shrimp per pound) 3/	- 61 (0.8.7.) 2/ 14/15/56 14/°014.5' 121.°113.3' 21111,090 215-3391 34,8° Moderate 62-62 gn. M. Clear 30 80 (139) -	- 62 (0.5.T.) 1/15/56 1/7°06.5' 121/ <sup>0</sup> 16.1' 2HJ-1/088 2H5-3352 160° Moderate 76-78 gn. W. Clear 30 8000 (131) -	- 63 (0, S.T.) L/15/56 L/7°0L-9' 124°53.5' 2HL-L059 2H5-3332 128° Slight 83-86 gy. M. Clear 30	- 64 (B.T.) 14/15/56 17°08.0° 121°55.1° 2814J:080 285-3312 345° 811ght 90-914 M. & S. Clear 60	- 65 (B.T.) 4/15/56 4/1°10.2° 124°56.6° 2H1-4093 2H5=3297 004° Slight 126-139 gy. M. & S. Clear 30	- 66 (B.T.) L/15/56 L/7°JL.8' 121°50.9' 2BL-L150 2B5-3315 293° Slight 100-111 gn. W. & S. Clear L5	- 67 2/ (G.S.T.) 4/15/56 4/7°06.3' 121°49.1' 2149.1'	Net torn 66 2/ (0.5.7.) 1/15/56 1/7°06.0' 121°19.1' 2811081. 285-3355 330° Slight 75-76 gn. M. Clear 30 7 (121) -	Net torn 69 (0.5.7.) 1/16/56 1/7°06.1' 1214 <sup>0</sup> 19.1' 2H1-1/084 2H5-3353 1514° Slight 76-77 gn. M. Clear 30	- 70 (G.S.T.) L/16/56 L/7°018' 124°0.9.2' 2HL-L073 2H5-3357 336° Slight 7L-76 gn. M. Clear 30	 71 (G.S.T.) 1//16/56 1/7°10.0' 121°106.5' 2H4-L130 2H5-3360 339° Slight 69-70 gr. M. Clear 30	Beam bro   72 (G.S.   14/16/56   1/7°22.2°   121°13.8   2815-3321   337°   Smooth   63-65   gn. M.,   Clear   30
Remarks Drag number Date Latitude W. Longitude W. Loran reading Loran reading Course, magnetic <u>2</u> / Sea Depth range in fathoms Type of bottom Trawling bottom Trawling bottom in minutes Shrisp catch in pounds: (whole shrisp per pound) <u>2</u> / Pink	- 61 (0.8.7.) 2/ 14/15/56 14/°014.5' 121.°113.3' 2111.~1,090 21553391 34.8° Moderate 62-62 gn. M. Clear 30 80 (139)	- 62 (0.5.T.) 1/15/56 1/7°06.5' 121/ <sup>0</sup> 16.1' 2H1-4088 2H5-3352 160° Moderate 76-78 gn. W. Clear 30 800 (131)	- 63 (0, 8, 7.) L/15/56 L/7 <sup>0</sup> 0L,9 <sup>1</sup> 12L <sup>0</sup> 53.5 <sup>1</sup> 2HL-L059 2H5-3332 128 <sup>0</sup> Slight 83-86 gy. M. Clear 30	- 64 (B.T.) 4/15/56 4/7°08.0' 124°55.4' 284.4000 285.3312 345° 811ght 90-94 M. & S. Clear 60 Trace 4/	- 65 (B.T.) 4/15/56 4/1°10.2° 124°56.6° 2845-3297 004° Slight 126-139 gy. M. & S. Clear 30 Trace	- 66 (B.T.) L/15/56 L/7°JL.8' 121°50.9' 2BL-L150 2B5-3315 293° Slight 100-111 gn. W. & S. Clear L5 Trace	- 67 2/ (G.S.T.) 4/15/56 4/7°06.3' 124°49.1' 2249.49.1' 2249.49.1' 2249.49.1' 235.354 160° \$11ght 76-78 gr. M. Clear 30 4 (135)	Net torn 66 2/ (0.5.7.) 1/15/56 1/7°06.0' 121°19.1' 2H1-L081 2H5-3355 330° Slight 75-76 gn. M. Clear 30 7 (121)	Net torn 69 (0.5.7.) 1/16/56 1/7°06.11 1214 <sup>0</sup> 19.11 2HL-1.084 2H5-3353 1514° Slight 76-77 gn. M. Clear 30	- 70 (G.S.T.) L/16/56 L/7°018' 124°0.9.2' 2HL-L073 2H5-3357 336° Slight 7L-76 gn. M. Clear 30	 71 (G.S.T.) 1/16/56 1/7°10.0° 121°14.5° 2H4-L130 2H5-3360 339° Slight 69-70 gn. M. Clear 30	Beam bro   72 (G.S.   14/16/56   117°22.2*   121°13.8   2215-3321   337°   Smooth   63-65   ga. M.   Clear   30   210 (169)

Note: For explanation of footnotes and abbreviations, see p.  $\overline{24}$ .

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Drag number	73 (G.S.T.) 1/	74 (G.S.T.)	75 (G.S.T.)	76 (G.S.T.)	77 (G.S.T.)	78 (G.S.T.)	79 (G.S.T.)	80 (G.S.T.)	81 (G.S.T.)	82 (G.S.T.)	83 5/ (G.S.T
Date	4/16/56	4/16/56	4/16/56	4/17/56	4/17/56	4/17/56	4/17/56	4/17/56	4/17/56	4/17/56	4/17/56
Latitude N.	4/10/50 47°24.5*	147°26.9'	4/10/30 47°21.5'	47005.21	47210.6	4711/30	47°11.8'	4709.61	4707.3	47°03.01	4708.71
Longitude W.	124°42.5'	124044.5	124045.5	124°44.9'	124°46.5"	124047.4	124052.4	124°50.5'	124°48.6'	124°47.4'	124049.51
	124 42.5	2H11-15/15	244,-42.5			A CONTRACT		2HL-L111	284-40.099	284-47.4	2114-1107
Loran reading	-			SHT-7035	2H4-4135	284,-4,160	2844=44123		285-3354	285=3370	285-3345
Course, magnetic 2/	- 314°	2H5-3283 309 <sup>0</sup>	2H5-3315 156°	2H5=3381	2H5-3358 3L2 <sup>0</sup>	2H5-3340	2H5=3318	2H5-3337 117°	1220	1620	2950
Sea				328°		1720	178°		-	Moderate	Moderate
	Smooth	Smooth	Smooth	Slight	Slight	Slight	Slight	Moderate	Moderate		77=80
Depth range in fathoms	57-58	58-60	77-82	65-66	69-70	76-78	86-86	76-79	70-74	75-77	
Type of bottom	gn. M. & S.	gn. M.	gn. M.	gn. W.	gn. M.	gn. M.	gn. S.	gn. M.	gn. M.	hrd.	gn. M.
Trawling bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Snag	Clear
Time on bottom in minutes	30	30	30	30	30	30	30	30	30	10	30
Shrimp oatch in pounds: (whole shrimp per pound) 3/											
Pink	185 (175)	360 (208)	125 (197)	125 (138)	610 (132)	490 (148)	2 1/2	900 (141)	430 (130)	10	5 (111)
Side-stripe	-	-	Trace 4	-	-	-	-	-	-	-	-
Total shrimp catch in pounds	185	360	125	125	610	490	2 1/2	900	430	10	5
Total shrimp catch, hourly basis	370	720	250	250	1220	980	5	1800	860	60	10
Remarks	-	-	-	-		-	-	-	-	Net tora Hung up	-
	and a second		-				-				
Drag mumber	84 5/ (G.B.T.)1/	85 (G.S.T.)	86 (G.S.T.)	87 (G.S.T.)	88 (0.S.T.)	89 (0.8.7.)	90 (G.8.T.)	91 (G.S.T.)	92 (0,1,)	93 (B.T.)	94 (B.T.)
Date .	4/17/56	4/18/56	4/18/56	4/18/56	4/18/56	4/18/56	4/18/56	4/18/56	4/19/56	4/19/56	4/19/56
Latitude W.	47°08.9'	47008,31	47°09,4*	4708.21	4709.41	4708.01	4709.01	4708.11	4708.81	47012.6'	47040.51
Longitude W.	124°49.9'	124°48.4"	124°49.8"	124°19.4	124°49,21	124°10.9'	124049.71	124°50,2"	124°19.8'	124°48.21	125°00,0'
oran reading	2H4=4108	2H1-4108	2H1,-1,113	2844-41203	284-4115	2H1-4100	2H1_110	284-4100	284-4108	284-4115	284-4230
oran reading	2H5-3343	2H5-3353	285-3342	285-3347	285-3345	205-3345	285-3343	205-3343	2H5-3343	285-3341	285-3078
course, magnetic 2/	1380	2970	1280	3320	1550	355°	1440	0070	324°	357°	355°
los	Moderate	Moderat e	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Slight	Slight	Slight
epth range in fathoms	76-78	75-79	74-78	76-78	74-77	76-77	74-77	75-77	78-81	75-77	77-83
ype of bottom	gn. M.	gn. M.	gn. M.	gn. N.	gn. N.	gn. H.	go. W.	gn. N.	gn. M.	gn. ¥.	gn. M.
rawling bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
ime on bottom in minutes	30	30	30	30	30	30	30	30	30	60	60
hrimp catch in pounds: (whole shrimp per pound) 2/											
Pink	5 (96)	1050 (128)	650 (125)	925 (142)	855 (124)	560 (117)	590 (141)	580 (148)	35	200	70
Side-stripe	-	-	-		-	-		-		-	-
otal shrimp catch in pounds	5	1050	650	925	855	560	590	580	35	200	70
otal shrimp ontoh, hourly basis	10	2100	1300	1850	1710	1120	1180	1160	70	200	70
marks	-	-	-	-	-	-		-	-	-	
icates type of gear; B.T bea urse given is between starting p ures in parentheses indicate nu race" - less than one pound of s tht drag.	wint and end poin unber of whole at	t.		rimp trawl.			vel S m	ard nud and			

January 1957

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# MULTIMILLION-DOLLAR MEAT PROMOTION PLAN

Programs conducted by competing protein producers, such as outlined below, emphasize the need for the commercial fishing industry to collaborate on national promotional programs to maintain and increase its markets. In today's competitive market, local, regional, and national fish-producing groups cannot overlook any opportunity to make the consumer want to buy fish in preference to other competing products.

If the attitudes of several hundred livestock producers are representative, the livestock industry may be ready to indorse a multimillion-dollar national livestock meat promotion plan. A recent survey revealed that nearly 99 percent of the persons polled by the Iowa Beef Producers Association indicated a further need for research, education, and promotion to increase the consumption of meat The program would be financed by a uniform check-off on all livestock sold for slaughter. At the end of each calendar month, these funds would be forwarded to a national livestock promotion commission for distribution. A straight acrossthe-board five cents per 100-pound-weight assessment is being considered which will raise about \$28,000,000 yearly. Of the funds so derived, 40 percent would be slated for the National Livestock and Meat Board; another 40 percent will be distributed among the National Livestock Councils, e.g., the National Beef Council, and the National Lamb Feeders Association; and the remaining 20 percent of the funds would go to the State producer councils.