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SHELLFISH EXPLORATIONS IN CERTAIN SOUTHEASTERN ALASKAN WATERS BY THE JOHN N. COBB, SPRING 1952

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SUMMARY

The fourth in a series of shellfish explorations in southeastern Alaska was made during the late winter and the early spring of 1952. Fishing operations were carried out between March 8 and April 28. A 20-foot beam trawl and various types of shrimp traps were used throughout this exploration.

Of the areas explored, the best shrimp catches were made in Glacier Bay. Shrimp were taken in good quantities in most of the localities dragged and results indicate this region would support a commercial shrimp fishery. The best catches, up to 330 pounds per one-hour drag, were taken between South Marble Island and the entrance of Muir Inlet. Other localities in Glacier Bay where catches exceeded 225 pounds per one-hour drag included Geikie Inlet, Queen Inlet, between Geikie and Hugh Miller Inlets, and Muir Inlet. The bottom in Glacier Bay was found to be generally free of obstructions; however, some difficulty was experienced from "mudding down" in certain inlets. Although numerous icebergs were encountered in certain parts of Glacier Bay, they at no time curtailed the fishing activities of the John N. Cobb.

Fair catches of shrimp were also taken in Affleck Canal and Port Althorp. Best catches in these areas were 142 and 172 pounds per one-hour drag, respectively. Other regions explored yielded only small amounts of shrimp. Trap sets resulted in poor catches of shrimp throughout the exploration.

INTRODUCTION

Since the spring of 1950, the U. S. Fish and Wildlife Service's exploratory fishing vessel John N. Cobb has been engaged in a series of investigations to explore the shellfish potentialities of certain southeastern Alaskan waters. The fourth exploration in this series was carried out during March and April 1952. The main objective was to investigate the shrimp resources in areas which had not been commercially fished for shrimp.

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FIG. 1 - SOUTHEASTERN ALASKA. SHADED AREAS WERE EXPLORED FOR SHELLFISH IN MARCH AND APRIL 1952.

The vessel left Seattle on March 3 and returned on May 3. Fishing operations were conducted from March 8 to April 28. Areas explored for the first time by the John N. Cobb included Lisianski Inlet, Lisianski Strait, Port Althorp, Glacier Bay, Kelp Bay, Tebenkof Bay, Affleck Canal, Davidson Inlet, Sea Otter Sound, and the Point Baker area of Sumner Strait. In addition, further work and testing of shrimp traps was carried on in certain areas previously explored by the John N. Cobb (Schaefers 1951, Ellson and Livingstone 1952). These areas were Peril Strait, Tenakee Inlet, Sitka Sound, and Keku Strait (fig. 1).

During the trip 96 drags were made with a beam trawl, and 365 individual shrimp traps were set. The locations of drags and trap sets are shown in figures 7, 9, 12, and 15. Detailed information on the size, quantity, and commercial var-

Table 1 - Shrimp Trap Catches By John N. Cobb, Tenakee Inlet, (Comparison of Fall 1950 with Spring 1952)

Location	Year	No. of Traps Set	Depth Range in Fathoms	Total Hours Out	Shrimp Catch			
					Spot		Coon-stripe	
					Size ¹	Lbs.	Size ¹	Lbs.
Near Drag No. 74	1950	6	15-17	39	8	26	33	7 ³ / ₄
	1952	7	17-38	23	10	2	47	10 ³ / ₄
Off entrance of Seal Bay	1950	3	20	38	10	18	-	-
	1952	6	20-36	28	15	6 ¹ / ₄	-	3 ³ / ₄
Between Saltery and Seal Bay	1950	3	15	38	15	2	-	-
	1952	6	16-32	28	-	(10) ² / ₄	-	(15) ² / ₄
Between Crab and Saltery Bay	1950	6	20-24	41	20	15	-	(29) ² / ₄
	1952	13	19-44	20	23	11 ¹ / ₂	56	2 ³ / ₄

¹/NUMBER OF WHOLE SHRIMP PER POUND.

²/NUMBER OF SHRIMP CAUGHT INSTEAD OF WEIGHT IN POUNDS.

ieties of shrimp taken in each drag is presented in table 2. Data concerning shrimp trap sets are given in tables 1 and 3.

GEAR

All drags were made with a 20-foot beam trawl. The net was constructed with 36-thread 1 ¹/₂-inch stretched-mesh cotton webbing, 150 meshes deep (for detailed specifications of the beam trawl see Ellson and Livingstone 1952). The beam was a hemlock pole approximately 8 inches in diameter and cut down to 6 inches at each end to allow for attachment of the "D" frames. In areas where hemlock poles were not available, a 6 x 6-inch milled fir beam was used.

Four types of shrimp traps were fished experimentally: two- and four-tunnel non-collapsible iron traps, four-tunnel collapsible iron traps, and two-tunnel non-collapsible wooden traps.

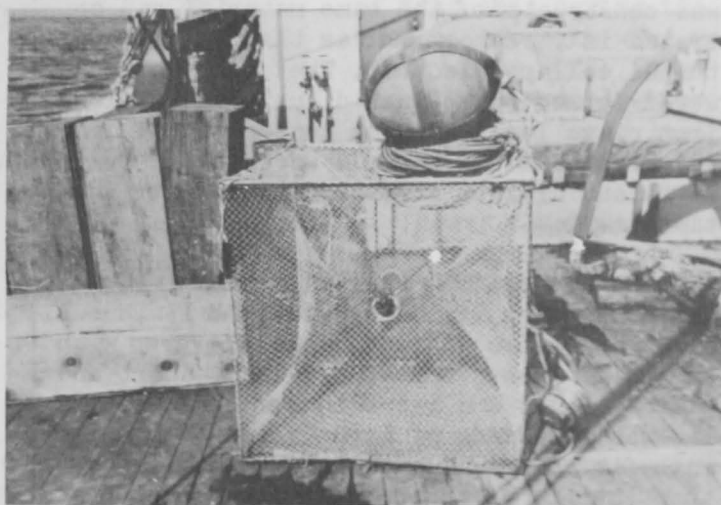


FIG. 2 - FOUR-TUNNEL NON-COLLAPSIBLE-TYPE SHRIMP TRAP.

The four-tunnel non-collapsible trap (fig. 2) was also fished during the John N. Cobb's 1950 shellfish explorations and was described by Schaefers (1951).

The four-tunnel collapsible trap was cubic in shape with sides 24 inches square (fig. 3). The top frame was $\frac{1}{2}$ x $1\frac{1}{4}$ -inch galvanized iron; the bottom frame $\frac{3}{4}$ x 1-inch galvanized iron; and the four vertical supports were $\frac{5}{8}$ -inch-diameter galvanized iron rods. Holes were drilled through each corner of the top and bottom frame for insertion of the rods. Hexagonal nuts at the ends of each rod secured them to the top and bottom frame (fig. 4). The trap could be collapsed by removing the outside nuts and the vertical rods. The lid frame was $\frac{3}{8}$ -inch-diameter galvanized iron. Three holes were drilled in one side of the top frame and a 14-gauge wire was passed through these holes and wound around one side of the lid frame to form hinges. The lid was secured on the other side with twine. The

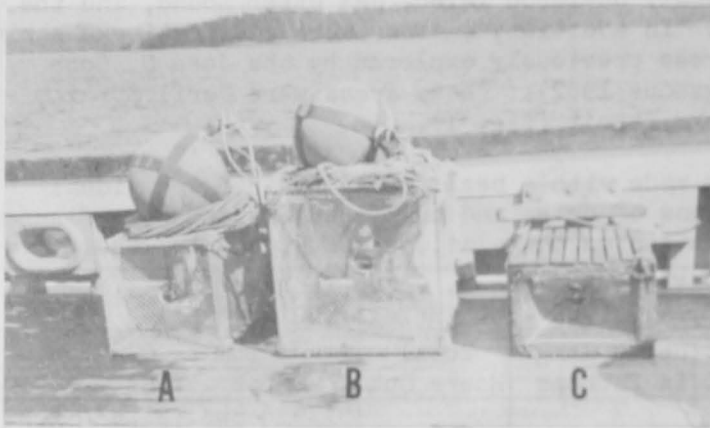


FIG. 3 - THREE TYPES OF SHRIMP TRAPS USED DURING THIS EXPLORATION. A - TWO-TUNNEL NON-COLLAPSIBLE TRAP. B - FOUR-TUNNEL COLLAPSIBLE TRAP. C - TWO-TUNNEL NON-COLLAPSIBLE WOODEN TRAP.

tunnel entrances were formed by 3-inch-diameter galvanized iron rings, located in the center of each vertical side. The tunnel indentations were formed by crossing the opposing rings with seine twine. This procedure was also used in the other types of traps. The frame and the tunnels were covered with 15-thread $1\frac{1}{4}$ -inch stretched-mesh cotton netting.

The two-tunnel non-collapsible trap (fig. 5) was rectangular in shape, 24 inches long, 18 inches wide, and 16 inches high. The top frame was $\frac{1}{2}$ x 1-inch galvanized iron, and the bottom frame $\frac{3}{8}$ x 1-inch galvanized iron. Four $\frac{1}{2}$ -inch-diameter galvanized iron rods, welded at each end to the corners of the top and bottom frame, formed the sides of the frame. The lid frame was constructed of the same material and operated in the same manner as that of the four-tunnel collapsible trap. The tunnel entrances were formed by 3-inch-diameter galvanized iron rings located in the center of each end. The frame and the tunnels were covered with 15-thread $1\frac{1}{4}$ -inch stretched-mesh cotton netting.

The wooden trap was rectangular in shape, 24 inches long, 18 inches wide, and 13 inches high. The sides and bottom were covered with strips of lath, spaced $\frac{3}{8}$ -inch apart and nailed to $1\frac{5}{8}$ x $1\frac{5}{8}$ -inch end frames. The lid was also made of lath nailed to $\frac{3}{4}$ x $1\frac{3}{4}$ inch fir boards located near each end of the trap. Strips of leather were used as hinges for the lid. The tunnel entrances were formed by 3-inch-diameter galvanized iron rings, located in the center of each end. The tunnels were covered with 15-thread $1\frac{1}{4}$ -inch stretched-mesh cotton webbing.

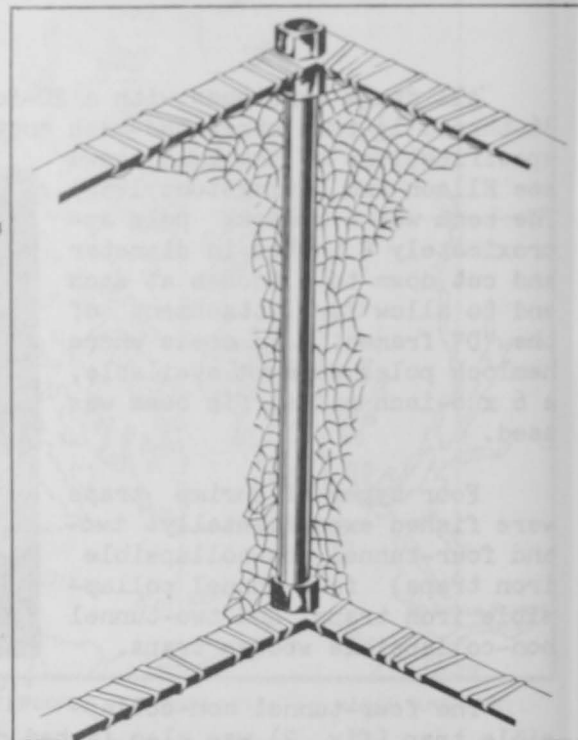


FIG. 4 - PORTION OF FOUR-TUNNEL COLLAPSIBLE SHRIMP TRAP SHOWING METHOD OF SECURING VERTICAL ROD TO THE TOP AND BOTTOM FRAME.

Frozen herring was used as bait in all trap sets. The herring was cut into pieces, placed in a net bait bag, and suspended from the tunnel crossties. A motor launch was frequently used simultaneously with the John N. Cobb in setting and hauling shrimp traps. The launch had a capstan operated by means of a power take-off from the launch's engine (fig. 8). In areas inaccessible to the John N. Cobb, the traps were set and hauled exclusively by the launch.

RESULTS OF GEAR TESTS

To obtain a comparison of the effectiveness of the four types of shrimp traps used, two sets were made in Keku Strait (fig. 7) where spot (Pandalus platyceros) and coon-stripe (Pandalus hypsinotus) shrimp are fished commercially.

Eight traps, two of each type, were fished off Pup Island and the same number were fished near the Keku Islands. In each location the traps were set at the same depths and as close to each other as practicable. All traps caught shrimp but no significant difference in amount

was noted. The set off Pup Island caught 23 pounds of coon-stripe shrimp and a trace of spot and pink shrimp, while that off the Keku Islands produced 18½ pounds of spot and 2 pounds of coon-stripe. Results of trap sets during the rest of the trip were generally poor. The four-tunnel collapsible-type iron trap suffered less damage to the frames than the other types because of its heavy construction.

FISHING RESULTS

The findings reported in this paper apply to the period March 8 to April 28,

1952. Since the gear used during this period was a 20-foot beam trawl, the catches are smaller than probable with a commercial-size trawl, which normally has a 40- or 50-foot beam. By far the best catches of shrimp were made in Glacier Bay.

GLACIER BAY AREA

Glacier Bay is 56 miles long and varies from 2 to 9 miles in width. It has numerous inlets or arms, most of which were fished by the John N. Cobb. Of the 49 drags made in Glacier Bay (fig. 10), 48 were made north of Strawberry Island.

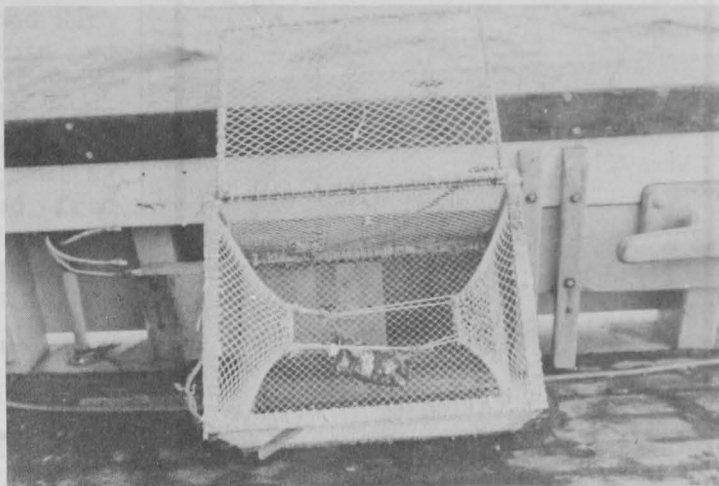


FIG. 5 - TWO-TUNNEL NON-COLLAPSIBLE SHRIMP TRAP WITH TOP OPEN AND BAIT IN PLACE.



FIG. 6 - HAULING A SHRIMP TRAP ABOARD THE JOHN N. COBB.

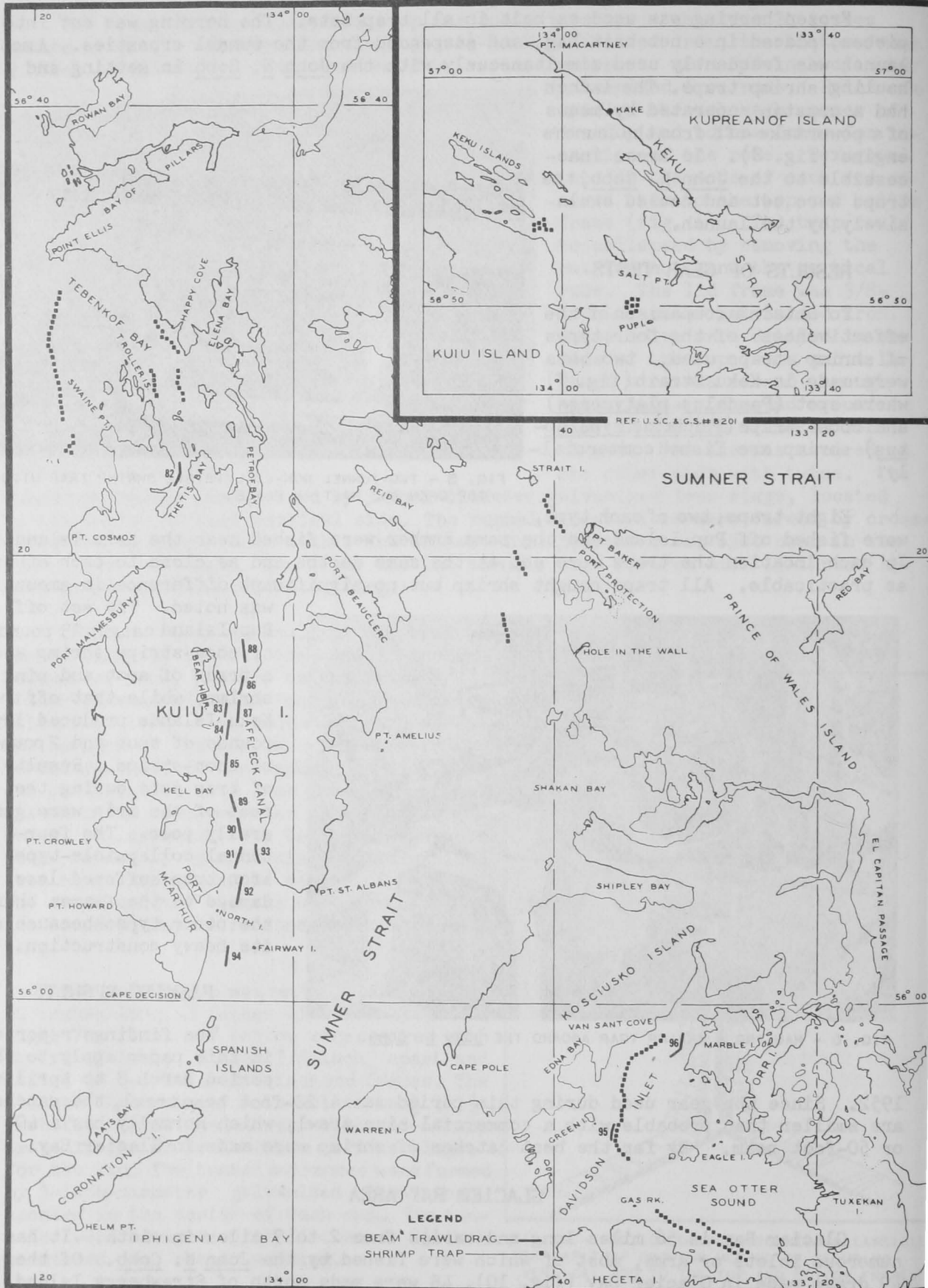


FIG. 7 - LOCATION OF SHRIMP-TRAP SETS IN KEKU STRAIT, SEA OTTER SOUND, AND SUMNER STRAIT; BEAM TRAWL DRAGS IN AFFLECK CANAL AND BEAM-TRAWL DRAGS AND SHRIMP-TRAP SETS IN TEBENKOF BAY AND DAVIDSON INLET.

The extensive area and the wide distribution of drags which produced good catches indicate that Glacier Bay would support a commercial shrimp fishery. Catches of shrimp in excess of 225 pounds per hour^{1/} were taken in Geikie Inlet, Queen Inlet, and Muir Inlet; between Geikie Inlet and Hugh Miller Inlet; and between South Marble and Sebree Islands. With the exception of rocky bottom in the Drake Island and Willoughby Island areas, the bottom dragged was predominately mud and adaptable for beam trawling. However, difficulty was experienced from "mudding down" in some localities. A strong tidal condition exists from Willoughby Island to the entrance, and the bottom is unfavorable for dragging.

Although icebergs were quite numerous in Glacier Bay, they did not curtail fishery operations. Ice covered the head of Geikie Inlet, the narrow southeast arm of Charpentier Inlet, and the upper reaches of Muir and Adams Inlets. Navigation of Glacier Bay should be undertaken with extreme caution as it has not been completely surveyed above the line from Francis Island to the western entrance point of Muir Inlet. There are no navigational aids within the Bay, and no large-scale chart of the area is available.

Good catches were made in all drags in Geikie Inlet. Drags near the entrance of the inlet encountered snags, but those made approximately halfway between the entrance and the head encountered no difficulty and averaged 261 pounds of shrimp per hour. The catch consisted of 89 percent pink (*Pandalus borealis*)^{2/} and 11 percent coon-stripe.^{3/} Drags between Geikie Inlet and Hugh Miller Inlet averaged 267 pounds per hour (66 percent pink and 34 percent side-stripe, *Pandalopsis dispar*). The bottom dragged was generally favorable. Suitable dragging grounds were not located in Hugh Miller Inlet.

The drags made in Queen Inlet averaged 167 pounds of mixed pink and side-stripe shrimp per hour. A soft mud bottom caused the first drag to mud down after 8 minutes towing time. In an attempt to prevent this condition in future drags, the chain was removed from the "D" frames and the sweep rope was wrapped with 3-inch-circumference manila line. After this, drags No. 33 to 35 were towed 30 minutes and less mud was encountered in the net. Mud picked up by the trawl was removed by towing the gear behind the vessel before bringing the catch on board.

Considerable difficulty from soft mud was also experienced in Rendu Inlet. Drag No. 36 caught 70 pounds of pink shrimp in 10 minutes before mudding down. When the net was taken aboard, a foul smell was detected and an estimated 5 percent of the shrimp were dead. Only a trace of pink and side-stripe shrimp (nearly

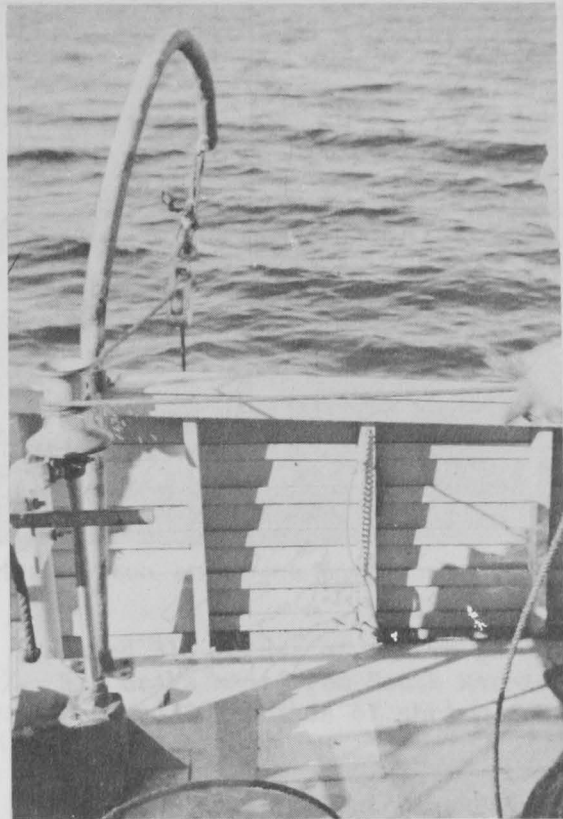


FIG. 8 - HAULING ARRANGEMENTS ON THE MOTOR LAUNCH.

^{1/}CATCH RESULTS HAVE BEEN CONVERTED TO A RATE-PER-HOUR BASIS TO PERMIT READY CATCH COMPARISON AS SOME VARIATION OCCURRED IN THE DURATION OF INDIVIDUAL DRAGS. SEE TABLE 2 FOR DETAILS OF ALL DRAGS.

^{2/}SPECIES WHICH APPEARED IN INSIGNIFICANT QUANTITIES HAVE BEEN INCLUDED AS PINK SHRIMP IN THE DISCUSSION AND FISHING LOG. THESE SPECIES WERE *PANDALUS MONTAGUITRIDENS*, *PANDALUS JORDANI*, AND "HUMPY" SHRIMP (*PANDALUS GONIURUS*).

^{3/}FOR COMPLETE DETAILS OF NUMBER OF WHOLE SHRIMP PER POUND BY SPECIES FOR ALL DRAGS SEE TABLE 2.

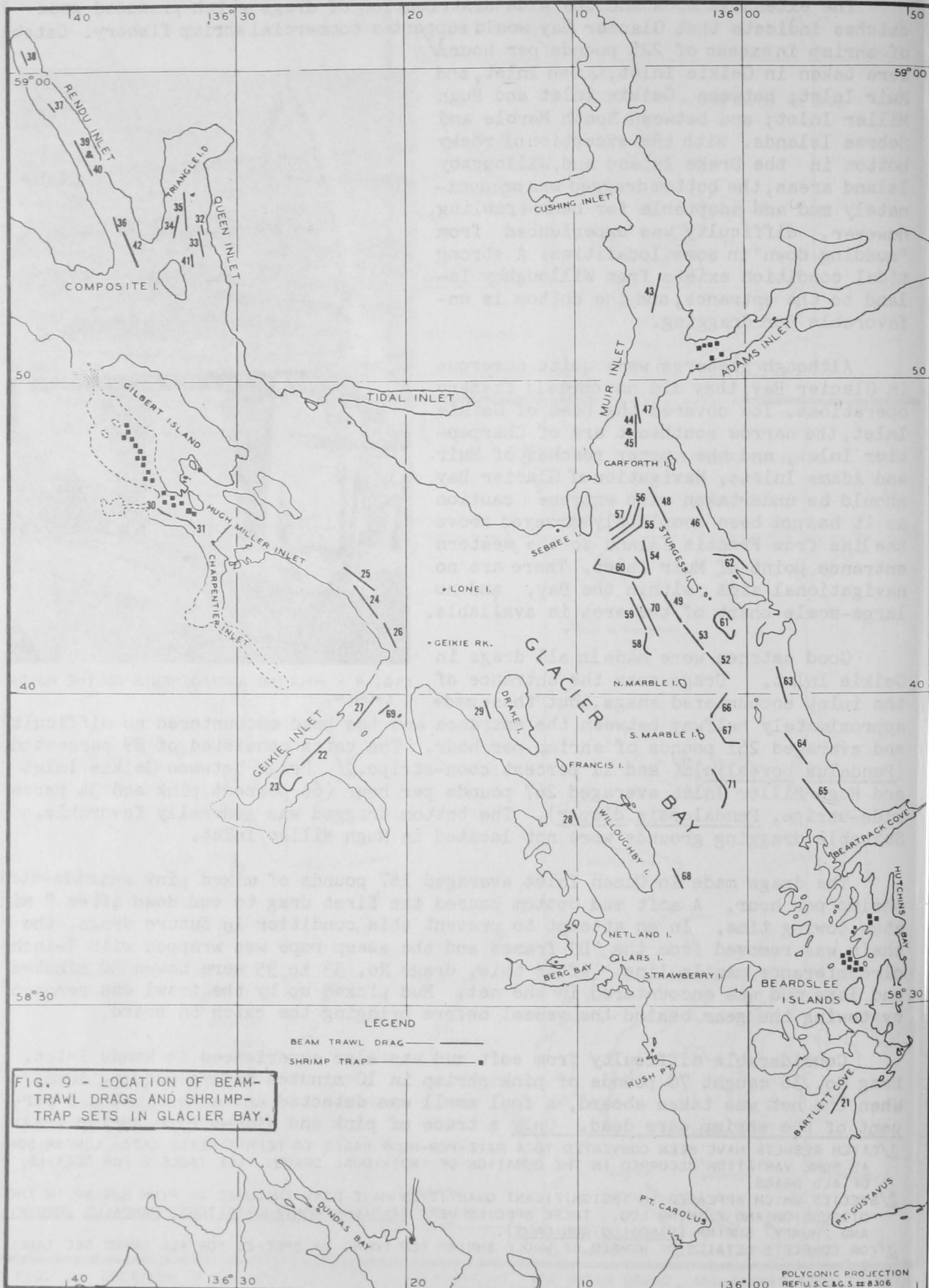


FIG. 9 - LOCATION OF BEAM-TRAWL DRAGS AND SHRIMP-TRAP SETS IN GLACIER BAY.

LEGEND

- BEAM TRAWL DRAG —————
- SHRIMP TRAP ■

all of which were dead) were caught by drags No. 40 in Rendu Inlet and No. 43 in Muir Inlet. Other locations in both of these inlets produced catches of live shrimp of good quality, with two drags (No. 45 and 47) in Muir Inlet averaging 216 pounds of shrimp per hour (41 percent pink and 59 percent side-stripe).

The region from Bear-track Cove to the entrance of Muir Inlet proved to be one of the best regions explored in Glacier Bay. This area was predominately gray mud bottom, for the most part free of obstructions, and suitable for drags of several hours duration. With the exception of six drags, catches were relatively free of miscellaneous invertebrates, scrap fish, and debris. Two of the best drags in this area (No. 54 and 60) averaged 313 pounds of shrimp per hour (61 percent pink and 39 percent side-stripe). Six drags made from South Marble Island to Sturgess Island in 80 to 96 fathoms averaged 207 pounds of shrimp per hour (50 percent pink and 50 percent side-stripe).

Shrimp traps set in Hugh Miller Inlet, Adams Inlet, and the Hutchins Bay area produced small quantities of coon-stripe shrimp.

LISIANSKI INLET AND LISIANSKI STRAIT

Catches in Lisianski Inlet (fig. 12) were poor with suitable dragging bottom limited mainly to mid-channel locations from Soloma Point to the vicinity of Miner Island. The best catch, made near Pelican City produced 70 pounds of mixed pink and side-stripe shrimp per hour. The head of Lisianski Inlet was covered with ice.

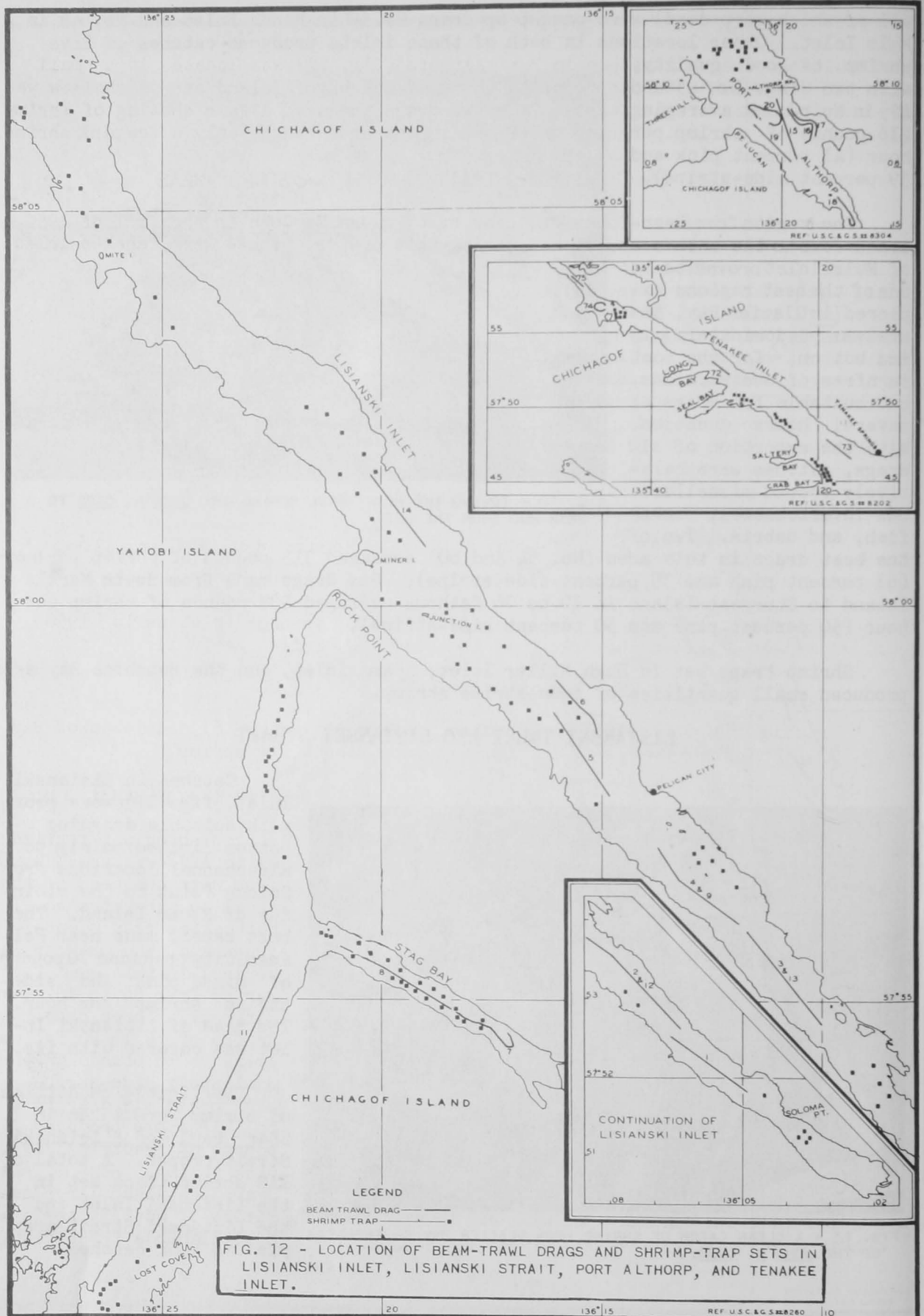
Negligible quantities of shrimp were taken in Stag Bay and Lisianski Strait proper. A total of 118 shrimp traps set in the Lisianski Inlet and the Lisianski Strait area yielded poor catches.



FIG. 10 - TOWING THE BEAM TRAWL BEHIND THE JOHN N. COBB TO WASH MUD FROM THE NET.



FIG. 11 - A CLEAN CATCH OF SHRIMP FROM GLACIER BAY ON THE DECK OF THE JOHN N. COBB.



PORT ALTHORP

Suitable dragging bottom in Port Althorp (fig. 12) was located in a small area off Point Lucan to the opposite shore of Chichagof Island and in shallow water near the head of the inlet. Only two drags produced a fair showing of shrimp (drags No. 15 and 16). Shrimp traps set in the area caught only a few pink shrimp.

TENAKEE INLET, PERIL STRAIT, AND SITKA SOUND AREAS

Some areas which had been explored by the John N. Cobb in the fall of 1950 (Schaefers 1951) were again fished during this cruise. These were Tenakee Inlet (fig. 12) and portions of Peril Strait and Sitka Sound (fig. 15).

Drags in Tenakee Inlet and Fish Bay (Peril Strait) made in approximately the same locations as drags in 1950, yielded generally smaller catches than those of the previous survey. However, drag No. 74 in Tenakee Inlet produced 110 pounds of coon-stripe shrimp, which was several pounds greater than the best catch made in Tenakee Inlet in 1950. Catches from Deadman Reach (Peril Strait) and Silver Bay (Sitka Sound) were negligible,



FIG. 13 - A SMALL ICEBERG IN GLACIER BAY, ALASKA.

which correspond with the 1950 results.

Results of trap sets in the same localities of Tenakee Inlet as in 1950 yielded smaller catches than those of the previous cruise (table 1).

KELP BAY AND TEBENKOF BAY AREAS

Suitable dragging bottom was limited in Kelp Bay (fig. 15) and Tebenkof Bay (fig. 7). Drags and trap sets in these regions caught few shrimp.

AFFLECK CANAL AREA

Fishing was carried on in Affleck Canal (fig. 7) from near the head of the canal to the entrance. The bottom was predominately green mud, and no gear was damaged in this area. Catches varied from 64 to 142 pounds per hour. Three drags at depths of 74 to 96 fathoms averaged 80 pounds of predominately side-stripe shrimp and one drag in 40 to 60 fathoms produced 142 pounds of predominately pink shrimp. Most of the drags contained large quantities of bottom debris and miscellaneous trash fish.



FIG. 14 - SHRIMP TRAPS ON THE DECK OF THE JOHN N. COBB.

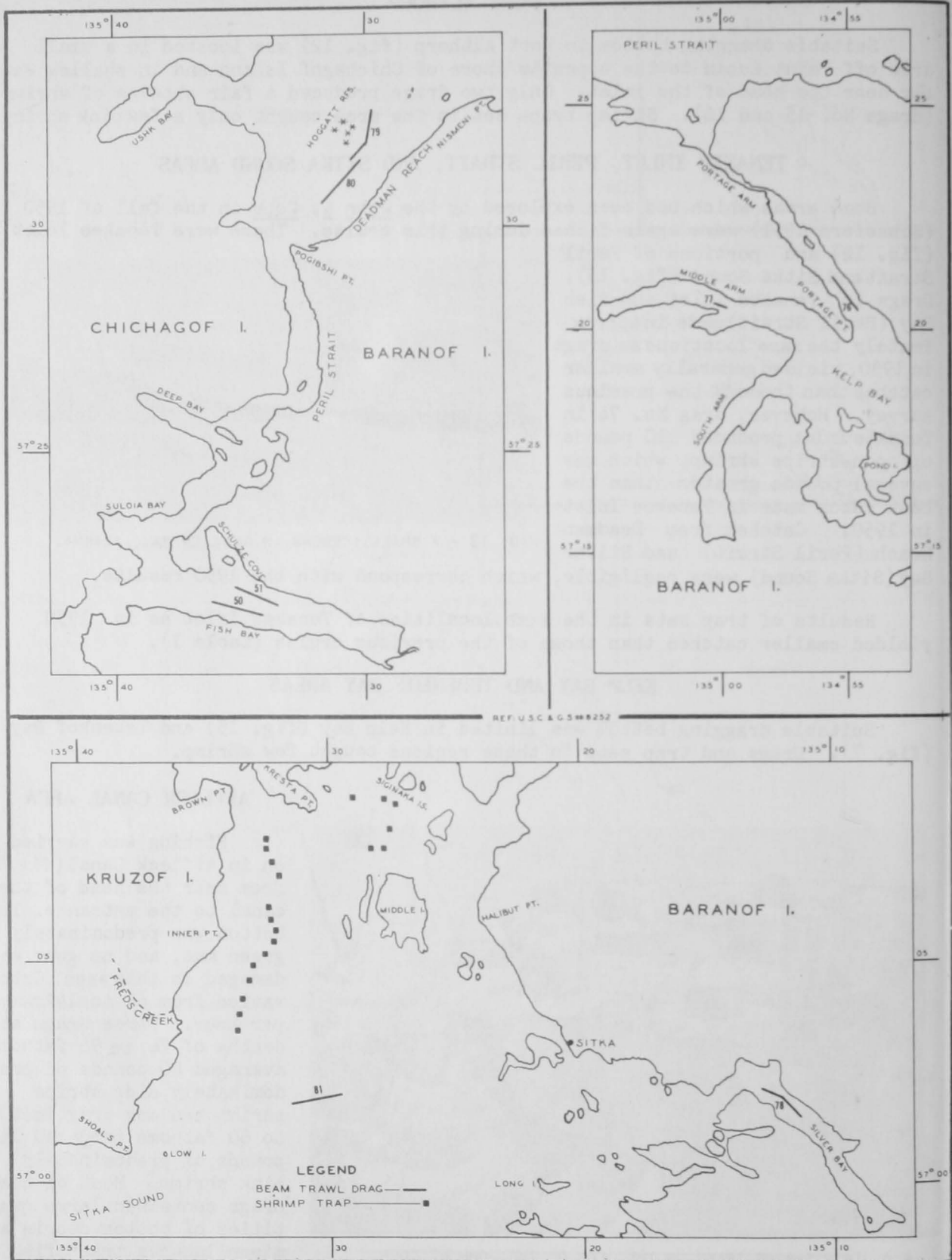


FIG. 15 - LOCATION OF BEAM-TRAWL DRAGS IN PERIL STRAIT AND KELP BAY, AND BEAM-TRAWL DRAGS AND SHRIMP-TRAP SETS IN THE SITKA SOUND AREA.

DAVIDSON INLET AND SEA OTTER SOUND

Because of the limited amount of dragging bottom in Davidson Inlet (fig. 7), only two drags were made, both of which produced insignificant quantities of shrimp.

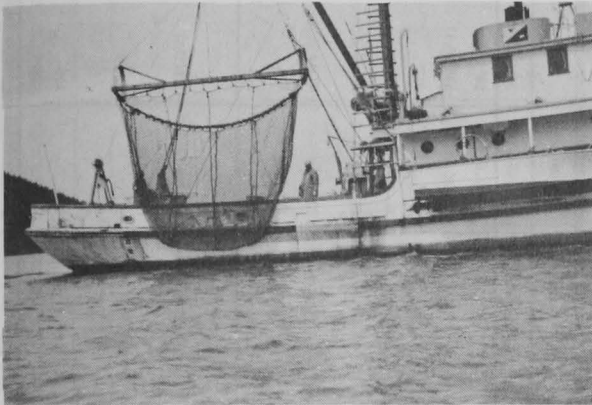


FIG. 16 - HOISTING THE BEAM TRAWL ABOARD THE JOHN N. COBB.

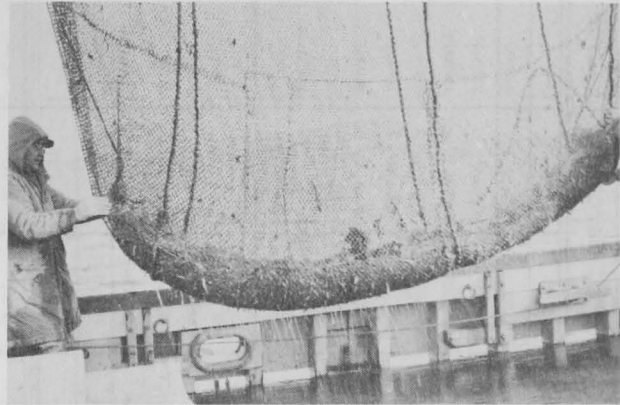


FIG. 17 - A GOOD CATCH OF SHRIMP IN THE NET BEING LOWERED TO THE DECK OF THE JOHN N. COBB.

No suitable dragging bottom was located off Heceta Island in Sea Otter Sound, and the remainder of the area was not explored. Shrimp traps set in Davidson Inlet and Sea Otter Sound had negligible results.

POINT BAKER AREA OF SUMNER STRAIT

Of the 19 shrimp traps set in the Point Baker area (fig. 7), 11 were lost. The traps were set at depths of 24 to 80 fathoms near the edges of relatively steep slopes, and those lost evidently were carried away by the swift current prevailing in the area. The eight traps recovered yielded a total of 2½ pounds of spot shrimp.

MISCELLANEOUS CATCHES

Marine life commonly found in beam-trawl catches included the arrow-toothed flounder (Atheresthes stomias), eel pouts (Zoarcidae), flathead "sole" (Hippoglossoides elassodon), sculpins (Cottidae), sea poachers (Agonidae), and rockfish (Scorpaenidae). Small whiting (Theragra chalcogramma) were common in most areas, and tanner crab (Chionoecetes bairdii) were encountered frequently in Glacier Bay. No commercial quantities of food fish were taken.

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FOOTNOTES FOR TABLE 2

"TRACE" - LESS THAN ONE POUND OF SHRIMP.

1/COURSES AND POSITIONS GIVEN WERE RECORDED AT THE BEGINNING OF EACH DRAG. COURSES WERE OFTEN VARIED BECAUSE OF CHANGING BOTTOM CONDITIONS.

SYMBOLS FOR TYPES OF BOTTOM

BLDS. - BOULDERS	GY. M. - GRAY MUD	S. - SAND
BK. M. - BLACK MUD	GN. M. - GREEN MUD	SH. - SHELLS
BR. M. - BROWN MUD	G. - GRAVEL	ST. - STONES
BU. M. - BLUE MUD	RKY. - ROCKY	

Table 2 - Fishing Log--Beam-Trawl Drags by the John N. Cobb in Southeastern Alaska, March-April 1952

Drag Number	1	2	3	4	5	6	7	8	9	10	11	12
Date	3/10/52	3/10/52	3/11/52	3/11/52	3/12/52	3/13/52	3/13/52	3/13/52	3/13/52	3/14/52	3/15/52	3/16/52
Latitude N.	57°51.8'	57°52.6'	57°54.7'	57°56.0'	57°58.7'	57°59.1'	57°54.6'	57°54.9'	57°56.0'	57°52.0'	57°53.8'	57°52.6'
Longitude W.	136°04.9'	136°06.4'	136°10.0'	136°11.9'	136°16.1'	136°16.0'	136°17.2'	136°18.4'	136°11.9'	136°25.2'	136°23.7'	136°06.4'
Course, Magnetic	288°	288°	293°	277°	117°	107°	116°	272°	277°	356°	355°	288°
Depth Range in Fathoms	20-30	38-43	60-72	74-80	82-85	46-50	40-50	52-68	74-80	126-136	118-140	38-43
Type of Bottom	gn. M.	gn. M. & Sh.	gn. M.	gn. M.	gn. M.	gn. M. & St.	gn. M. & St.	gn. M.	gn. M.	gn. M.	gn. M.	gn. M. & Sh.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	High slack	Ebb	Flood	Flood	High slack	Low slack	Flood	Flood	Ebb	Ebb	Low slack	Ebb
Time on Bottom in Minutes	30	30	30	30	30	30	30	33	30	30	30	30
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES)												
Pink	-	-	-	-	15(99)	Trace	-	-	Trace	-	Trace	-
Side-stripe	-	-	-	-	20(39)	-	-	-	4(30)	2(25)	5(34)	-
Coon-stripe	-	-	-	-	-	-	Trace	-	-	-	-	-
Spot	-	-	-	-	Trace	Trace	Trace	-	-	-	-	-
Total Shrimp Catch in Pounds	-	-	-	-	35	-	-	-	4	2	5	-
Total Shrimp Catch Hourly Basis	-	-	-	-	70	-	-	-	8	4	10	-
Remarks	-	Net not on bottom	Net not on bottom	Net not on bottom	-	-	-	-	-	-	-	-
Drag Number	13	14	15	16	17	18	19	20	21	22	23	24
Date	3/16/52	3/16/52	3/17/52	3/17/52	3/17/52	3/18/52	3/18/52	3/18/52	3/18/52	3/19/52	3/19/52	3/19/52
Latitude N.	47°54.7'	58°00.7'	58°08.2'	58°09.5'	58°09.5'	58°07.3'	58°08.1'	58°09.3'	58°27.3'	58°37.6'	58°37.2'	58°43.4'
Longitude W.	136°10.0'	136°19.0'	136°19.3'	136°19.8'	136°19.6'	136°17.5'	136°19.6'	136°21.1'	135°54.2'	136°26.2'	136°26.1'	136°23.0'
Course, Magnetic	293°	295°	312°	116°	114°	116°	287°	315°	178°	015°	217°	114°
Depth Range in Fathoms	60-72	80-85	64-80	60-68	48-55	15-26	80	80-90	25-30	64-68	52-56	104-108
Type of Bottom	gn. M.	gn. M.	bu. M.	bu. M.	bu. M. & "Clay pipe"	gn. M. & St.	bu. M.	bu. M.	M.	gy. M.	gy. M.	gy. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Snag	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	Low slack	Ebb	Ebb	Flood	Flood	Ebb	Ebb	Ebb	Flood	Ebb	Ebb	Flood
Time on Bottom in Minutes	30	30	30	30	21	30	30	30	30	30	30	30
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES)												
Pink	Trace	4(112)	62(83)	52(67)	-	-	Trace	Trace	3(163)	113(128)	118(142)	84(101)
Side-stripe	Trace	9(34)	24(29)	Trace	-	-	24(32)	15(26)	Trace	Trace	-	56(38)
Coon-stripe	-	-	-	-	-	-	-	-	-	8(21)	22(20)	Trace
Spot	-	Trace	-	-	-	-	-	-	-	-	-	-
Total Shrimp Catch in Pounds	-	13	86	52	-	-	24	15	3	121	140	140
Total Shrimp Catch Hourly Basis	-	26	172	104	-	-	5	30	6	242	280	280
Remarks	-	-	-	-	Net torn	-	-	-	-	-	-	-

NOTE: FOR EXPLANATION OF FOOTNOTES, SEE P. 13.

Table 2 - Fishing Log--Beam-Trawl Drags by the John N. Cobb in Southeastern Alaska, March-April 1952 (Contd.)

Drag Number	25	26	27	28	29	30	31	32	33	34	35	36
Date	3/19/52	3/20/52	3/20/52	3/24/52	3/24/52	3/25/52	3/25/52	3/26/52	3/26/52	3/27/52	3/27/52	3/27/52
Latitude N.	58°44.0'	58°42.2'	58°39.0'	58°36.2'	58°39.2'	58°46.0'	58°45.6'	58°55.0'	58°54.8'	58°55.4'	58°56.1'	58°55.3'
Longitude W.	136°23.6'	136°21.2'	136°23.0'	136°10.2'	136°15.0'	136°34.8'	136°33.6'	136°32.1'	136°33.5'	136°33.1'	136°33.1'	136°37.3'
Course, Magnetic	096°	126°	097°	126°	311°	090°	085°	140°	141°	158°	136°	130°
Depth Range in Fathoms	104-106	108-112	80-88	62	80	48	52-54	88-92	88-94	84-90	72-80	92
Type of Bottom	gy. M.	gy. M.	gy. M.	Rky.	gn. M. & Bids.	gy.-bu. M.	gy.-bu. M. & Bids. Snag	gy. M. & St.	gy. M. & St.	gy. M.	gy. M.	gy. M.
Trawling Bottom	Snag	Clear	Snag	Snag	Snag	Snag	Snag	Soft	Clear	Clear	Clear	Soft
Tide	Flood	High slack	Ebb	Flood	High slack	Flood	High slack	Flood	Flood	Ebb	Low slack	Flood
Time on Bottom in Minutes	20	30	30	17	11	08	30	08	30	30	30	10
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES):												
Pink	96(92)	36(94)	34(97)	-	Trace	-	27(121)	12(112)	42(107)	52(88)	57(137)	70(87)
Side-stripe	36(31)	27(32)	Trace	Trace	8(22)	-	Trace	8(41)	36(33)	88(41)	28(59)	-
Coon-stripe	-	-	Trace	-	-	-	5(40)	-	-	-	Trace	-
Spot	-	-	-	-	-	-	-	-	-	-	-	-
Total Shrimp Catch in Pounds	132	63	34	-	8	-	32	20	78	140	85	70
Total Shrimp Catch Hourly Basis	396	126	68	-	44	-	64	150	156	280	170	420
Remarks	Net mudded down	-	Net torn	Net torn	Beam broke	Net torn	Net torn	Net mudded down after 8 minutes	Much mud in net	Much mud in net	Much mud in net	Some shrimp dead. Net mudded down
Drag Number	37	38	39	40	41	42	43	44	45	46	47	48
Date	3/27/52	3/27/52	3/27/52	3/27/52	3/28/52	3/28/52	3/29/52	3/29/52	3/29/52	3/29/52	3/30/52	3/30/52
Latitude N.	58°59.0'	59°00.7'	58°57.8'	58°57.8'	58°51.2'	58°53.7'	58°53.4'	58°47.9'	58°47.9'	58°46.0'	58°46.6'	58°46.6'
Longitude W.	136°41.2'	136°42.9'	136°39.8'	136°39.8'	136°32.7'	136°35.9'	136°05.0'	136°06.4'	136°06.4'	136°02.9'	136°06.2'	136°05.7'
Course, Magnetic	116°	138°	125°	125°	145°	308°	160°	329°	329°	125°	321°	125°
Depth Range in Fathoms	80	56-63	100	100	90-92	90-92	164	51-62	51-62	104	52-70	36-62
Type of Bottom	gy. M. & St.	gy. M. & St.	gy. M.	gy. M.	gy. M. & St.	gy. M. & St.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M. & St.	gy. M.
Trawling Bottom	Soft	Soft	Clear	Clear	Soft & St.	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	Flood	Flood	High slack	Ebb	Low slack	Flood	Low slack	Flood	Flood	High slack	Ebb	Low slack
Time on Bottom in Minutes	08	09	30	30	17	30	30	30	30	30	40	30
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES):												
Pink	8(108)	35(134)	-	Trace	10(90)	35(101)	Trace	6(138)	18(144)	62(122)	94(151)	21(113)
Side-stripe	Trace	Trace	-	Trace	12(36)	27(32)	Trace	8(26)	84(30)	Trace	58(31)	Trace
Coon-stripe	Trace	Trace	-	-	-	-	-	-	-	-	-	-
Spot	-	-	-	-	-	-	-	-	-	-	-	-
Total Shrimp Catch in Pounds	8	35	-	-	22	62	-	14	102	62	152	21
Total Shrimp Catch Hourly Basis	60	233	-	-	78	124	-	28	204	124	228	42
Remarks	Net mudded down	Net mudded down	Net not on bottom	Shrimp dead	Net mudded down	-	Shrimp dead	Net fouled on beam	End of net fouled on beam	-	-	-

NOTE: FOR EXPLANATION OF FOOTNOTES, SEE P. 13.

Table 2 - Fishing Log--Beam-Trawl Drags by the John N. Cobb in Southeastern Alaska, March-April 1952 (Contd.)

Drag Number	49	50	51	52	53	54	55	56	57	58	59	60
Date	3/30/52	3/31/52	3/31/52	4/3/52	4/3/52	4/3/52	4/4/52	4/4/52	4/4/52	4/4/52	4/4/52	4/4/52
Latitude N.	58°12.3'	57°22.3'	57°22.9'	58°10.5'	58°11.4'	58°14.9'	58°15.9'	58°16.1'	58°16.0'	58°11.2'	58°12.0'	58°14.1'
Longitude W.	136°03.8'	135°34.1'	135°35.3'	136°01.0'	136°02.5'	136°06.0'	136°06.0'	136°06.2'	136°06.6'	136°05.6'	136°05.9'	136°06.5'
Course, Magnetic	309°	216°	081°	291°	292°	170°	151°	165°	169°	244°	304°	108°
Depth Range in Fathoms	85-88	40-44	34-38	92-94	92-96	80-82	64-74	60	50	60	60	70-84
Type of Bottom	gy. M.	br.-gn. M. & Sh.	br.-gn. M. & Sh.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M. & Bids.	gy. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Snag	Clear
Tide	Flood	Flood	Flood	Ebb	Ebb	Low slack	Flood	High slack	Ebb	Ebb	Ebb	Low slack
Time on Bottom in Minutes	30	30	30	30	30	30	30	30	30	30	30	60
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES)												
Pink	32(103)	7(138)	-	35(120)	41(111)	83(74)	76(88)	155(100)	102(116)	98(84)	59(80)	217(73)
Side-stripe	60(34)	-	-	37(31)	33(34)	77(30)	7(43)	8(10)	Trace	22(24)	3(30)	88(33)
Coon-stripe	-	-	Trace	Trace	-	-	-	Trace	Trace	6(38)	5(31)	-
Spot	-	-	Trace	-	-	-	-	-	-	-	-	-
Total Shrimp Catch in Pounds	92	7	-	72	74	160	83	163	102	126	67	305
Total Shrimp Catch Hourly Basis	184	14	-	144	148	320	166	326	204	252	134	305
Remarks	-	-	-	-	-	-	-	-	-	-	Net torn	-
Drag Number	61	62	63	64	65	66	67	68	69	70	71	72
Date	4/5/52	4/5/52	4/5/52	4/5/52	4/5/52	4/6/52	4/6/52	4/6/52	4/6/52	4/6/52	4/6/52	4/9/52
Latitude N.	58°12.0'	58°14.0'	58°10.8'	58°38.6'	58°37.2'	58°10.0'	58°39.0'	58°33.7'	58°39.3'	58°13.6'	58°36.2'	57°53.0'
Longitude W.	136°00.7'	135°59.9'	135°58.2'	135°57.8'	135°56.7'	136°01.1'	136°02.0'	136°03.8'	136°01.6'	136°06.6'	136°01.1'	135°32.7'
Course, Magnetic	153°	292°	135°	117°	111°	186°	118°	309°	021°	126°	350°	097°
Depth Range in Fathoms	68-74	88-90	130	130	130	80-88	88-94	58-64	86-88	80-86	90-96	72-74
Type of Bottom	gy. M.	bu. M.	bu. M.	bu. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M.	gy. M. & St.	br. M.
Trawling Bottom	Clear	Snag	Clear	Clear	Clear	Clear	Clear	Snag	Snag	Clear	Clear	Clear
Tide	Flood	High slack	Ebb	Ebb	Ebb	Flood	Flood	High slack	Ebb	Flood	Flood	Ebb
Time on Bottom in Minutes	60	30	30	30	30	30	30	30	13	60	30	30
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES)												
Pink	164(115)	67(117)	6(80)	2(80)	Trace	53(117)	51(107)	-	68(101)	198(113)	Trace	Trace
Side-stripe	11(44)	11(50)	37(31)	17(31)	17(25)	60(29)	51(30)	-	7(48)	130(30)	Trace	-
Coon-stripe	6(24)	Trace	-	-	-	Trace	-	-	-	-	Trace	-
Spot	Trace	-	-	-	-	-	-	-	-	-	-	-
Total Shrimp Catch in Pounds	181	78	43	19	17	115	102	-	75	330	-	-
Total Shrimp Catch Hourly Basis	181	156	86	38	34	230	204	-	346	330	-	-
Remarks	-	Net torn	-	-	-	-	-	Beam broke	Beam broke hung up	-	Net flipped over beam	-

NOTE: FOR EXPLANATION OF FOOTNOTES, SEE P. 13.

Table 2 - Fishing Log--Beam-Trawl Drags by the John N. Cobb in Southeastern Alaska, March-April 1952 (Contd.)

Drag Number	73	74	75	76	77	78	79	80	81	82	83	84
Date	4/10/52	4/10/52	4/10/52	4/11/52	4/11/52	4/11/52	4/16/52	4/16/52	4/17/52	4/20/52	4/22/52	4/22/52
Latitude N.	57°47.8'	57°56.5'	57°58.7'	57°21.2'	57°20.6'	57°02.1'	57°33.5'	57°32.4'	57°01.8'	56°21.1'	56°13.4'	56°12.6'
Longitude W.	135°18.9'	135°15.5'	135°19.6'	134°55.5'	135°00.1'	135°12.9'	135°29.6'	135°30.1'	135°31.5'	134°08.8'	134°05.1'	134°05.0'
Course, Magnetic	100°	220°	105°	112°	083°	088°	160°	191°	049°	146°	159°	162°
Depth Range in Fathoms	86-88	42-54	34-38	50-66	92-96	46-48	44-47	44-45	63-65	18-20	66-72	78-82
Type of Bottom	br. M.	bk. M.	bk. M. & Sh.	gn. M.	bk. M.	gn. M.	gn. M. & G.	gn. M. & Sh.	gn. M.	gn. M.	br. M.	br. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Soft M.	Clear	Clear	Clear	Snag	Clear	Soft M.	Clear
Tide	Low slack	Flood	High slack	Flood	High slack	Low slack	Low slack	Flood	Flood	Flood	Flood	Flood
Time on Bottom in Minutes	30	30	30	30	05	30	30	30	27	30	25	30
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES):												
Pink	Trace	Trace	Trace	Trace	Trace	Trace	Trace	-	3(72)	-	2½(68)	Trace
Side-stripe	Trace	-	-	-	Trace	-	-	-	-	-	1½(37)	3½(36)
Coon-stripe	-	55(35)	22(34)	Trace	-	-	2½(61)	-	-	-	-	-
Spot	-	-	-	Trace	-	-	3½(15)	-	-	-	Trace	Trace
Total Shrimp Catch in Pounds	-	55	22	-	-	-	6½	-	3	-	4½	3½
Total Shrimp Catch Hourly Basis	-	110	44	-	-	-	12½	-	6½	-	10	7
Remarks	-	-	-	-	Muddled down	-	-	-	Hung up	-	Muddled down	-
Drag Number	85	86	87	88	89	90	91	92	93	94	95	96
Date	4/22/52	4/22/52	4/22/52	4/23/52	4/23/52	4/23/52	4/23/52	4/23/52	4/25/52	4/25/52	4/25/52	4/26/52
Latitude N.	56°11.2'	56°14.7'	56°13.5'	56°16.3'	56°09.2'	56°08.2'	56°07.0'	56°05.6'	56°07.1'	56°02.5'	55°54.6'	55°57.6'
Longitude W.	134°05.2'	134°03.9'	134°04.2'	134°04.0'	134°04.9'	134°04.3'	134°04.0'	134°04.0'	134°02.8'	134°05.0'	133°35.4'	133°31.2'
Course, Magnetic	155°	161°	154°	143°	132°	138°	167°	160°	174°	155°	167°	023°
Depth Range in Fathoms	88-96	74-78	76-78	40-60	96-104	96-100	92-100	76-86	52-64	72	56-60	64-70
Type of Bottom	gn.-gy. M.	gn.-gy. M.	gn.-gy. M.	gn. M.	gn. M.	gn. M.	gn. M.	gn. M.	gn. M.	G.	gn. S. & G.	gn. M.
Trawling Bottom	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Tide	Flood	High slack	Ebb	Flood	Flood	High slack	Ebb	Ebb	Low slack	Flood	Ebb	Ebb
Time on Bottom in Minutes	30	30	30	30	30	30	30	30	30	30	30	30
Shrimp Catch in Pounds: (SIZE--NUMBER OF WHOLE SHRIMP PER POUND--APPEARS IN PARENTHESES):												
Pink	2(136)	4(77)	5(112)	71(90)	Trace	Trace	-	-	Trace	2(87)	9(93)	1(78)
Side-stripe	38(49)	34(37)	37(39)	Trace	9(4)	35(40)	50(40)	42(40)	30½(24)	6(40)	-	1½(33)
Coon-stripe	-	-	-	Trace	-	-	-	-	-	-	-	-
Spot	-	-	-	-	-	Trace	-	-	1½(15)	Trace	4½(28)	-
Total Shrimp Catch in Pounds	40	38	42	71	9	35	50	42	32	8	13½	2½
Total Shrimp Catch Hourly Basis	80	76	84	142	18	70	100	84	64	16	27½	5
Remarks	-	-	-	-	-	-	-	-	-	-	-	-

NOTE: FOR EXPLANATION OF FOOTNOTES, SEE P. 13.

Table 3 - Shrimp Trap Catches by John N. Cobb, March-April 1952

Area	Set Number	Date	Tide	Depth in Fathoms	Number of Traps	Total Hours Out	Bait	Shrimp Catch				Total Shrimp Catch in Pounds	Remarks
								Spot Shrimp		Coon-stripe Shrimp			
								Pounds ^{1/}	No. of whole shrimp per lb.	Pounds ^{1/}	No. of whole shrimp per lb.		
Keku Strait off Pup Island	1	3/8/52 - 3/9/52	Flood	56	8	25	Frozen herring	(5)	-	23	(41)	23	Few pink shrimp.
Keku Strait off Keku Island	1-A	3/8/52 - 3/9/52	Ebb	46	8	21	Frozen herring	18 $\frac{1}{2}$	(18)	2	(70)	20 $\frac{1}{2}$	Hermit crabs common.
Lisianski Inlet - Soloma Point	2	3/10/52 - 3/11/52	Ebb	14 - 35	12	24	Frozen herring	-	-	-	-	-	----
Lisianski Inlet - Near drag No. 4 to off Miner Island	2-A	3/11/52 - 3/12/52	High slack	17 - 80	19	29	Frozen herring	(22)	(45)	-	-	(22)	Few pink shrimp.
Lisianski Inlet - Near drag No. 5 to Junction Island	2-B	3/12/52 - 3/13/52	Flood	38 - 88	14	31	Frozen herring	(6)	(32)	-	-	(6)	Few pink shrimp, gastropods common.
Lisianski Strait - Stag Bay	2-C	3/13/52 - 3/14/52	Flood	24 - 60	22	25	Frozen herring	4 $\frac{1}{2}$	(10)	-	-	4 $\frac{1}{2}$	Few pink shrimp, 5 starfish.
Lisianski Strait - Between Stag Bay and Rock Point	2-D	3/14/52 - 3/15/52	Flood	23 - 62	13	23	Frozen herring	(5)	-	-	-	(5)	Hermit crabs, gastropods and starfish common.
Lisianski Strait - Near Lost Cove	2-E	3/14/52 - 3/15/52	High slack	30 - 90	18	22	Frozen herring	(24)	(48)	-	-	-	Sea urchins common.
Near end of drag No. 14 to entrance	2-F	3/15/52 - 3/16/52	Ebb	30 - 79	20	23	Frozen herring	4	(20)	-	-	4	Few pink shrimp.
Port Althorp	3	3/17/52 - 3/18/52	Ebb	35 - 68	19	29	Frozen herring	-	-	-	-	-	Few pink shrimp, starfish common.
Hugh Miller Inlet	4	3/24/52 - 3/25/52	Ebb	24 - 42	19	23	Frozen herring	-	-	25	(29)	25	Few pink shrimp.
Adams Inlet	4-A	3/29/52 - 3/30/52	Ebb	32 - 45	6	24	Frozen herring	-	-	2	(39)	2	Few pink shrimp.
Beardslee Islands	4-B	4/7/52 - 4/8/52	Ebb	8 - 45	13	23	Frozen herring	(1)	-	19 $\frac{1}{2}$	(43)	19 $\frac{1}{2}$	Few hermit crabs.
Between Crab and Saltery Bay	5	4/9/52 - 4/10/52	High slack	19 - 44	13	20	Frozen herring	11 $\frac{1}{2}$	(23)	2 $\frac{1}{2}$	(56)	14 $\frac{1}{2}$	Few hermit crabs.
Tenaka Inlet, Near drag No. 74.	5-A	4/9/52 - 4/10/52	Ebb	17 - 38	7	23	Frozen herring	2	(10)	10 $\frac{1}{2}$	(47)	12 $\frac{1}{2}$	----
Between Saltery and Seal Bay	5-B	4/9/52 - 4/10/52	High slack	16 - 32	6	28	Frozen herring	(10)	-	(15)	-	-	Spider crabs common.
Off Entrance of Seal Bay	5-C	4/9/52 - 4/10/52	Ebb	20 - 36	6	28	Frozen herring	6 $\frac{1}{4}$	(15)	$\frac{1}{2}$	(52)	7	Spider crabs common.
Sitka Sound, East Coast of Kruxof Island and off Siginaka Islands	6	4/17/52 - 4/18/52	Flood	24 - 72	20	20	Frozen herring	(2)	-	(4)	-	-	Hermit crabs common.
Entrance Tebenkof Bay	7	4/19/52 - 4/20/52	High slack	30 - 64	27	25	Frozen herring	1 $\frac{1}{2}$	(25)	-	-	1 $\frac{1}{2}$	Hermit crabs common.
Tebenkof Bay - Troller Islands	7-A	4/20/52 - 4/21/52	Ebb	20 - 60	20	18	Frozen herring	1 $\frac{1}{2}$	(20)	-	-	1 $\frac{1}{2}$	Few pink shrimp, hermit crabs common.
Sea Otter Sound, Gas Rock	8	4/25/52 - 4/26/52	High slack	22 - 64	28	21	Frozen herring	-	-	-	-	-	Hermit crabs common.
Davidson Inlet, Green Island to Van Sant Cove	8-A	4/26/52 - 4/27/52	Flood	24 - 64	28	23	Frozen herring	14	(23)	-	-	14	----
Summer Strait - Point Baker area	9	4/27/52 - 4/28/52	High slack	24 - 80	19	22	Frozen herring	2 $\frac{1}{2}$	(16)	-	-	2 $\frac{1}{2}$	11 Traps lost.

^{1/} FIGURES IN PARENTHESES REPRESENT NUMBERS OF SHRIMP INSTEAD OF WEIGHT IN POUNDS.