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A summary description of US fisheries in Subarea 5 and Statistical Area 6 for the period 1969-72¹

by

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A. Fishing fleet composition by vessel class.

For the period 1969 through 1972 all active United States fishing craft operating in ICNAF Subarea 5 and Statistical Area 6 have been summarized by vessel tonnage class, by the type of fishing gear employed, number of vessels, average gross tonnage and number of trips (Tables 1 and 2). It must be pointed out, however, that refinements in data reporting and processing procedures have been made periodically during the past several years making direct comparisons of data between years difficult and perhaps misleading. Nevertheless, several general statements can be made and are as follows:

1. Vessels of ICNAF gross tonnage classes 2, 3 and 4 engaged in side otter trawling, while showing a progressive downward trend in physical numbers each year since 1968, remain the primary constituent of the U.S. fleet.
2. There appears to be an increasing trend during the later years (1971-72) for vessels of classes 2 and 3 to become more diversified as to the types of fishing gear employed; the most dramatic change can be noted during 1972 for class 3 (51-150 gross tonnage) vessels.
3. The data shown for 1972 indicates that for the first time, vessels of gross tonnage classes 2, 3 and 4 were significantly engaged in the offshore lobster pot fishery. Other than side otter trawling, the number of vessels reported in the offshore lobster fishery was the second largest for vessels of gross tonnage classes 3 and 4 (151-500 GT).
4. The total number of fishing vessels of gross tonnage class 2, 3 and 4, for all types of fishing gear, operating in Statistical Area 6 appear to have fluctuated less dramatically during the period 1968 through 1972 than in Subarea 5 during the same period.
5. In Subarea 5, hand line, line trawl and scallop dredge tonnage class 2 vessels were the second, third and fourth most important (in terms of number of vessels) vessel categories during the period 1969 through 1971; however, in 1972, scallop dredge, line trawl and offshore lobster pot vessels were second, third and fourth, respectively. Tonnage classes 3 and 4 scallop dredge vessels during the period 1969 through 1971 were second only to side otter trawl vessels (of the same tonnage classes) but were replaced in 1972 by offshore lobster pot vessels.

B. Species sought (directed) and seasonality of selected fisheries.

The following summary presents a series of graphs (figures 1-7) showing the landings (Subarea 5 and Statistical Area 6) of selected species for

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the period 1968 through 1972 by month, quarter, and year during those times when that particular species was sought. In addition, the total annual landings of each species (sum of landings in the directed fishery and by-catch made while fishing for other species) has been included.

Cod.--during the period 1968 through 1972 total cod landings have ranged from a high in 1969 of 24,939 metric tons to a low in 1972 of 20,016 metric tons. While total landings in 1969 were the highest of the five year period, only 7 percent of all cod landed resulted from the directed fishery. On the other hand, while total landings during 1972 were at their lowest point, nearly 48 percent of all landings were made when cod was the main species sought (figure 1).

Flounders (mixed).--during the years preceding 1972, flounder landings in the directed fishery ranged from a low in 1971 to a high in 1970 of 43.3 percent and 65.8 percent, respectively; however, in 1972, flounder landings resulting from the directed fishery made up 84.2 percent of the total landings for that year. Annual flounder landings have on the whole been steadily decreasing while (with the exception of 1971) the directed fishery for these species has been on the increase (figure 2).

Haddock.--the trend in this fishery is characterized by the rapid decline in overall annual landings from a high in 1968 (28,914 metric tons) to a low in 1972 (4,772 metric tons). Unlike other declining fisheries (cod, herring, red fish and silver hake) landings of haddock in the directed fishery fell in 1972 to only slightly more than 11 percent of all haddock landed during the year (figure 3).

Herring.--total annual landings of this species have fluctuated from a low in 1970 (30,973 metric tons) to a high in 1968 (42,234 metric tons), but recovered to the point that in 1972 a total of 40,574 metric tons were landed. Since 1970, when 65.7 percent of the total annual landings resulted from the directed fishery (species sought), it has increased to the point that in 1972 96.5 percent of all herring landed were the result of the directed fishery (figure 4).

Other groundfish.--this species category contains only those species recognized by ICNAF and which appear in the "Statistical Bulletin, Vol. 21, 1971". Annual landings of this species group has continued to decline from a high in 1968 (46,202 metric tons) to a low in 1971 (24,184 metric tons). Corresponding landings resulting from the directed fishery (species sought) have decreased as well, but to a much lesser degree. While both total annual landings and landings from the directed fishery have been progressively on the decline, the percentage of difference between the two figures has generally been on the increase; in 1968 the directed fishery accounted for 45.4 percent of the total annual landings whereas in 1971 it contributed slightly more than 71 percent to the total annual landings (figure 5).

Redfish.--annual landings of this species have increased from 6,578 in 1968 to 16,267 metric tons in 1971; a decrease of slightly more than 3,000 metric tons from the 1971 level was noted during 1972. Landings in the directed fishery (species sought) reached a high in 1972 and accounted for nearly 87 percent of the total annual landings (figure 6).

Silver hake.--typical of this fishery has been the overall dramatic decline in total annual landings from a high of 39,320 metric tons in 1968 to a low of 8,313 metric tons in 1972 (73 percent reduction). During the period 1968 through 1971, the directed fishery landings for this species constituted a relatively small portion of the total annual landings which ranged from a high in 1968 of 6.4 percent to a low in 1969 of 0.6 percent. However, as noted for several other species (flounders, herring and redfish), silver hake landings in the directed fishery during 1972 made up 73 percent of the total annual landings for this species, at a time when the total annual landings were at their lowest level during the five year period (figure 7).

C. Principal gear used.

Otter trawls.--otter trawl vessels of the U.S. fleet fishing Sub-area 5 and Statistical Area 6 generally use a "flat", two-seam trawl of the "Yankee" design or type. Several sizes of these applicable to the various fisheries and vessel sizes have become quite standardized and are designated by numbers; they are available from local gear supply houses and are ordered (along with spare standardized sections) by number, e.g. No. 41, 36, etc. Diagrams and specifications of these are presented in the appendix of this section. See the appendix for dimensions, twine sizes and construction details of these trawls.

The Yankee No. 41, 79-foot headrope and 100-foot footrope is used by the largest (class 4) side trawlers and stern trawlers. It is also employed aboard some of the higher powered class 3 vessels, particularly when fishing groundfish on the more offshore banks.

The Yankee No. 36, 60-foot headrope and 80-foot footrope is used largely by class 3 vessel fishing groundfish, the hakes and some semi-pelagic species, and mixed industrial fish particularly in the southern part of Subarea 5.

The "60-80" trawl represents an example of the various modifications of the No. 36. Fishing captains frequently make minor alterations of the basic No. 36 to suit their particular vessel, certain fishing grounds and personal preferences.

The smallest of the relatively standardized "Yankee" trawls is the No. 35, 50-foot headrope and 70-foot footrope. It is used almost exclusively by the smaller (class 2 and 3) vessels of the Northeast U. S. fleet. Some of the lower powered vessels in this class use an even smaller net designated a 3/4 No. 35, 37.5-foot headrope and 52.5 footrope. Some No. 35 and 3/4 35 trawls with various modifications are designated "Whiting trawls" as they are used for fishing silver hake. Some of these are modified for higher opening by use of side panels between the upper and lower bellies and wings of greater depth.

Otter trawls for shrimp fishing are generally similar in construction to the No. 36 and 35 trawls described but with smaller mesh netting. Typical New England shrimp trawls use 1½-inch mesh (stretched measure) in the body sections and 1¼-inch mesh in the cod end.

Pelagic trawls.--several experimental attempts have been conducted with large pelagic trawl of West German (Herman Engel-Schärfe) and Canadian (W. Johnson "Diamond Trawl") design during recent years for herring fishing in the Gulf of Maine (5Y). None of these trawls have, to date, proven an economic success and there is no commercial pelagic trawl fishery in this area to date.

Smaller "Irish" wing trawls have been employed as pair (two boat) trawls during the past few years fishing for herring during Winter months in waters South of New England (5ZW). Prospects appear good for continuation of this seasonal fishery by several (3-10) pairs of boats using medium-sized wing trawls.

Scallop dredges.--offshore scallop fishing is conducted with a steel-framed "New Bedford Type" scallop dredge of approximately 10-foot width. The bag of the dredge is constructed of 3-inch I.D. steel rings in the lower and upper-bag parts and heavy braided nylon cord in the upper-forward part of the bag. A diagram of the frame of this dredge is included in the appendix.

Long line - line trawls.--bottom set line trawls are typically fished in near shore water, to 20 miles offshore from open stern (cockpit) vessels of 30 to 45-foot length. The basic unit of gear is a "tub" (half a barrel) of trawl consisting of ten 50-fathom sections of 3/16- or 1/4-inch nylon ground line. Lengths of ganging, with No. 6/0 hooks are fastened to the ground line at 1-fathom intervals. Thus there are about 500 hooks per tub of trawl; 1½ to two tubs are normally set in a single string. Two to four strings may be set during a day's fishing.

Hooks are baited with squid, cut herring, mussels or sea clams as available. Principal species sought by line trawlers are cod, haddock, white hake, wolffish and halibut.

Purse seines.--purse seines are used in Subarea 5 and Statistical Area 6 for taking herring, mackerel tunas and menhaden. Tuna seines are of large mesh, 4 to 5-inches, stretched measure. They are typically 350 to 500 fathoms long and 40 to 45 fathoms deep. They are set from a mothership of 100 to 160-foot length (in this area) with the aid of a heavy powered seine skiff. Fishing targets are primarily bluefin tuna and skipjack.

Mackerel and herring seines are generally shorter, approximately 250 fathoms length, and from 30 to 50 fathoms depth. Mackerel-herring seines have a mesh size of 1 to 2 inches. They are similarly set from a mothership with assistance from a powered seine skiff.

Menhaden purse seines are set from pairs of powered seine boats of approximately 35-foot length that are carried to the fishing grounds aboard the mothership. The seines are of approximately 200 fathoms length and 10-15 fathoms depth. Mesh sizes are 1 1/2" to 2 1/8". Menhaden are taken as they school near the surface in shallow coastal and estuarine waters.

Lobster pots (traps)--lobster pots are set in inshore coastal waters individually with separate buoys or in small strings with approximately 7-12 pots between two buoys attached to a groundline. These pots, measuring approximately 3-feet by 2-feet by 1 1/2 feet may be set by boats ranging from small outboards to 45-foot diesel powered boats.

Offshore lobster pots are larger, measuring 3-feet by 4-feet by 18- to 24-inches. They are set at the edge of the continental shelf in depths of 40 to 250 fathoms by larger vessels, mostly converted trawlers of class 2, 3 and 4 size. Long strings of up to 80 pots per string are set, attached to wire-rope groundlines. The most popular type of offshore pot is constructed of a hardwood frame, similar to the smaller inshore pots (illustration, appendix, figure 5) but with vinyl-clad wire-mesh side and top panels instead of wood laths. Another type of offshore pot is constructed of steel-bar frame and wire-mesh panels, the entire trap being clad with a hard vinyl coating.

Sink gill nets.--bottom set gill nets are fished in some coastal waters mostly from low powered (120 -165 hp) vessels of the class 2 size. The nets are generally 1 fathom high and are made up in sections of 110 to 115 fathoms length. Two sections tied together are placed in a "gill net box" for convenient handling. Twelve to sixteen boxes make up a string and 3 strings may comprise a normal "set" for an individual boat. Thus a set may be approximately 4,000 fathoms long. The nets are paid out rapidly from the stern of the boat and normally left in place overnight. They are hauled aboard by means of a powered automatic net lifter. The gill netting twine was originally made up of 12/3 to 16/4 linen thread; this has now been largely supplanted by nylon twines of similar size. A 6" mesh size is used for catching cod and pollock (saithe) and 8" mesh is used for cod.

Other gear.--Relatively minor quantities of fish are currently taken (1972+) with several miscellaneous types of gear. These include: hand lines, harpoons, troll lines, floating traps, dip nets, drift gill nets, pound nets and fyke nets. Most of these are fished in shallow near-shore waters or estuaries.

Table 1. Summary of United States Fishing Effort by Vessel Tonnage Class and by Principal Fishing Gear Used in ICNAF Subarea 5 and Statistical Area 6 during the years 1969 and 1970.

Tonnage class (Gross tons)	Vessel category (by type of gear fished)	1969						1970					
		Subarea 5			Statistical Area 6			Subarea 5			Statistical Area 6		
		Number of vessels	Average gross tonnage ^{1/}	Number of trips	Number of vessels	Average gross tonnage	Number of trips	Number of vessels	Average gross tonnage	Number of trips	Number of vessels	Average gross tonnage	Number of trips
Class 2 5-50 G.T.	line trawl	1218	6	2363.0	-	-	-	131	5	2954.0	-	-	-
	hand line	2046	4	3859.6	-	-	-	186	4	4205.0	-	-	-
	harpoon	96	15	43.0	-	-	-	35	13	70.0	-	-	-
	long line	1	4	13.0	-	-	-	-	-	-	-	-	-
	side otter trawl	2859	24	23806.4	44	33	466.6	607	23	28509.6	40	34	320.4
	stern otter trawl	5	31	547.0	2	43	11.0	7	25	582.0	2	43	10.0
	troll line	1	4	61.0	-	-	-	13	4	95.0	-	-	-
	haul seine	1	4	42.0	-	-	-	1	4	100.0	-	-	-
	floating trap	4	14	149.0	-	-	-	6	10	246.0	-	-	-
	sink gill net	111	16	1262.0	-	-	-	18	16	1045.0	-	-	-
	drift gill net	1	4	171.0	-	-	-	12	4	33.0	-	-	-
	purse seine	-	-	-	-	-	-	5	38	107.0	-	-	-
	scallop dredge	1088	8	1452.0	1	19	2.0	70	7	1683.0	-	-	-
	pound net	61	4	533.0	-	-	-	5	4	389.0	-	-	-
	shrimp pot	-	-	-	-	-	-	5	5	44.0	-	-	-
Class 3 51-150 G.T.	harpoon	1	71	3.0	-	-	-	1	71	3.0	-	-	-
	long line	1	62	1.0	-	-	-	-	-	-	-	-	-
	side otter trawl	214	78	7016.7	35	74	131.0	213	78	7955.3	26	70	131.0
	stern otter trawl	3	74	189.0	1	55	50.0	3	77	149.0	1	55	34.0
	purse seine	5	130	53.0	3	142	6.0	4	98	46.0	3	135	17.0
	scallop dredge	29	112	309.0	26	118	165.0	20	119	283.0	9	113	68.0
	Danish seine	1	51	3.0	1	51	3.0	-	-	-	-	-	-
	lobster pot (inshore)	1	119	18.0	-	-	-	3	118	29.0	-	-	-
Class 4 151-500 G.T.	long line	-	-	-	1	170	4.0	-	-	-	1	170	1.0
	side otter trawl	58	198	971.8	1	176	1.0	48	200	902.9	4	192	6.0
	stern otter trawl	2	283	59.9	-	-	-	2	276	54.3	-	-	-
	purse seine	1	180	46.0	-	-	-	2	181	76.0	-	-	-
	scallop dredge	10	174	112.0	12	169	100.0	10	174	118.0	10	173	69.0
	lobster pot (inshore)	2	265	48.0	-	-	-	1	264	8.0	-	-	-
Class 7 Over 1800 G.T.	stern otter trawl	-	-	-	-	-	-	1	1800+	0.1	1	1800+	-

^{1/} Weighted average used to calculate "Average Gross Tonnage".

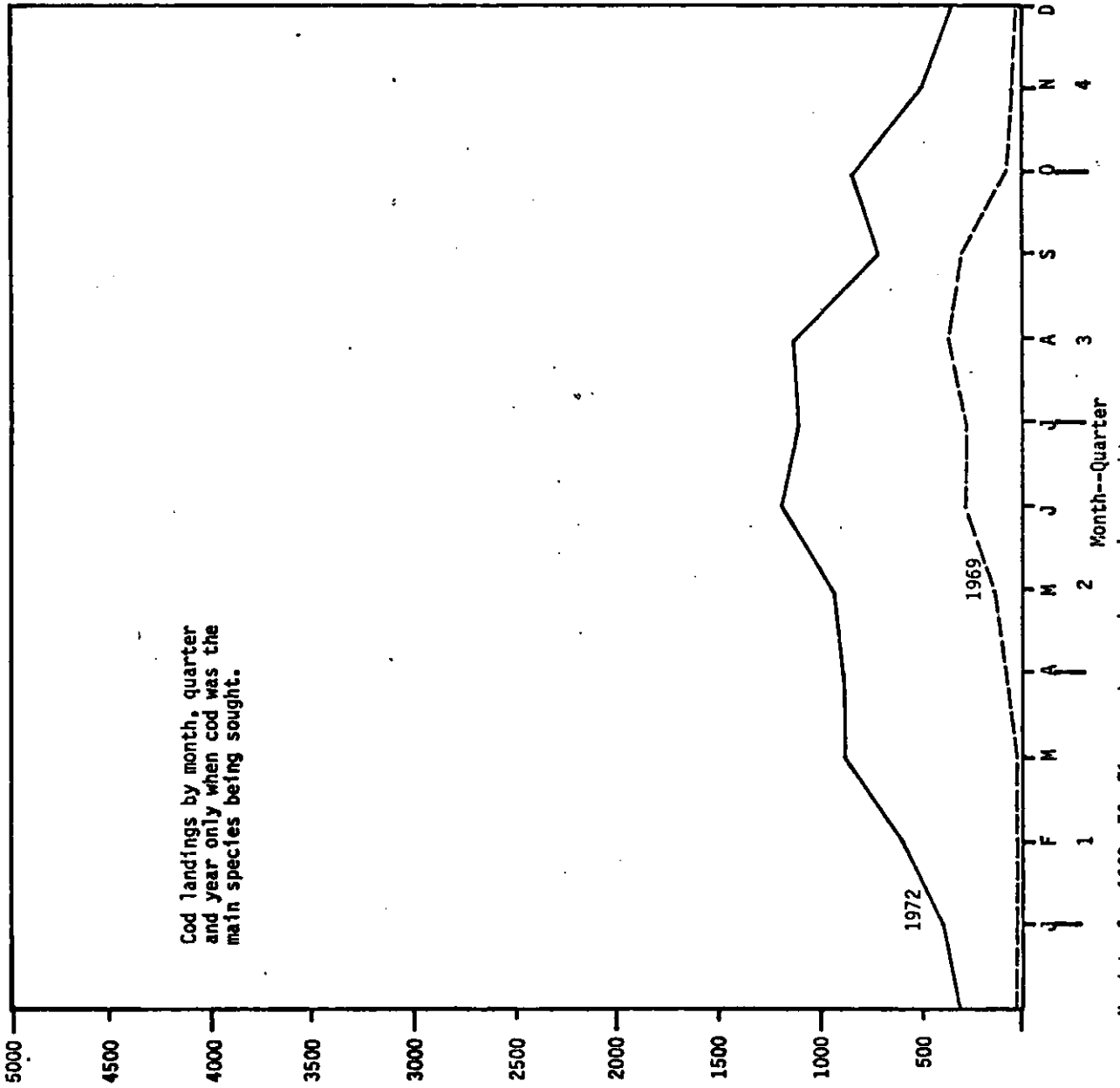
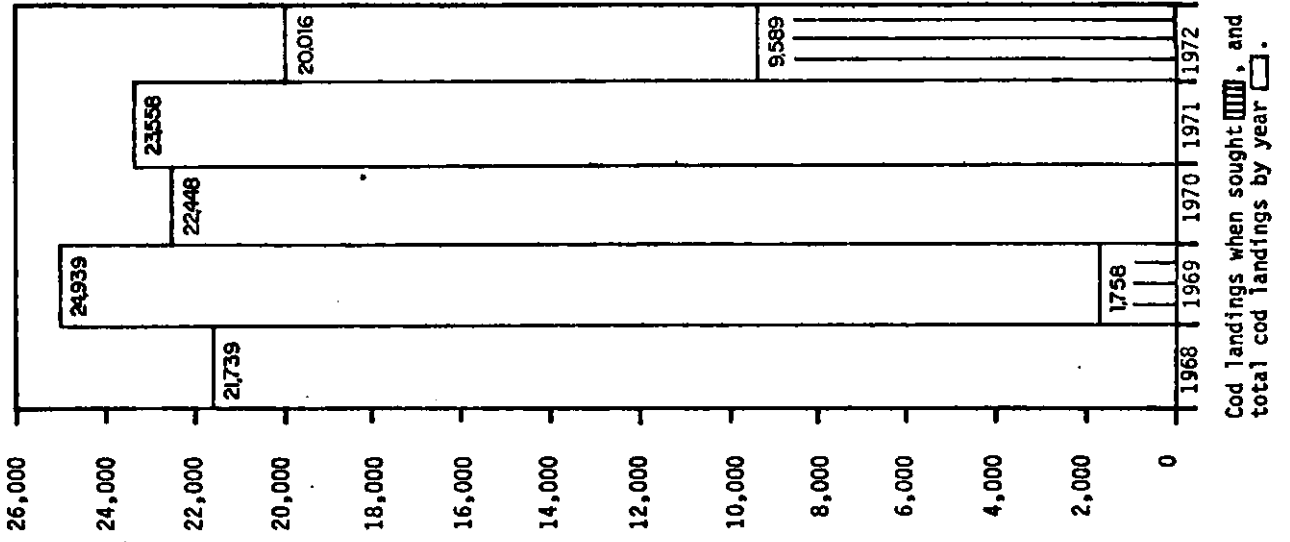
Table 2.
Summary of United States Fishing Effort by Vessel Tonnage Class and By Principal Fishing Gear Used in ICNAF Subarea 5 and Statistical Area 6 During the Years 1971 and 1972

Tonnage Class (Gross Tons)	Vessel Category (by type of gear fished)	1971						1972					
		Subarea 5			Statistical Area 6			Subarea 5			Statistical Area 6		
		Number Of Vessels	Average Gross Tonnage ^{1/}	Number Of Trips	Number Of Vessels	Average Gross Tonnage	Number Of Trips	Number Of Vessels	Average Gross Tonnage	Number Of Trips	Number Of Vessels	Average Gross Tonnage	Number Of Trips
Class 2 5-50 G.T	line trawl	194	7	4322.0	-	-	-	22	17	732.0	-	-	-
	hand line	176	4	3231.0	-	-	-	10	NC ^{2/}	407.0	-	-	-
	harpoon	64	4	255.0	-	-	-	4	NC	277.0	1	43	1.0
	side otter trawl	524	23	25782.9	60	31	574.4	294	30	18540.5	52	31	645.5
	stern otter trawl	6	27	410.0	3	39	58.0	8	29	388.0	5	35	34.0
	troll line	12	6	134.0	-	-	-	5	NC	86.0	1	30	1.0
	haul seine	1	4	87.0	-	-	-	1	4	55.0	-	-	-
	floating trap	7	12	142.0	-	-	-	3	7	195.0	-	-	-
	dip net	2	4	11.0	-	-	-	1	4	16.0	-	-	-
	sink, gill net	19	14	1310.0	-	-	-	19	18	1318.0	-	-	-
	drift gill net	7	4	97.0	-	-	-	1	4	45.0	-	-	-
	purse seine	8	15	119.0	1	44	18.0	9	27	81.0	-	-	-
	scallop dredge	117	6	3460.0	-	-	-	25	NC	1400.0	-	-	-
	pound net	4	4	450.0	-	-	-	3	NC	423.0	-	-	-
	mid-water (pair trawl)	-	-	-	-	-	-	4	NC	40.0	-	-	-
	by hand	-	-	-	-	-	-	1	4	58.0	-	-	-
	fyke net	-	-	-	-	-	-	1	4	2.0	-	-	-
lobster pot (inshore)	2	32	17.0	-	-	-	1	4	4.0	-	-	-	
lobster pot (offshore)	-	-	-	-	-	-	21	NC	458.0	1	34	1.0	
Class 3 51-150 G.T	long line	-	-	-	-	-	-	2	135	3.0	-	-	-
	hand line	-	-	-	-	-	-	1	53	1.0	-	-	-
	harpoon	-	-	-	-	-	-	5	72	10.0	-	-	-
	side otter trawl	206	79	7398.8	43	81	315.7	217	79	7490.2	58	79	330.7
	stern otter trawl	5	80	134.0	2	56	42.0	7	87	141.0	4	113	13.0
	troll line	1	135	1.0	-	-	-	2	88	2.0	-	-	-
	floating trap	1	61	34.0	-	-	-	-	-	-	-	-	-
	sink gill net	1	61	1.0	-	-	-	2	65	9.0	-	-	-
	purse seine	9	91	142.0	7	89	89.0	8	NC	186.0	6	NC	53.0
	scallop dredge	16	116	274.0	6	117	36.0	13	119	171.0	12	120	105.0
	Danish seine	1	51	16.0	1	51	11.0	1	51	30.6	1	51	18.4
	lobster pot (inshore)	2	119	68.0	-	-	-	3	118	54.0	-	-	-
	lobster pot (offshore)	1	119	1.0	-	-	-	30	NC	446.0	7	NC	24.0
mid-water (pair trawl)	-	-	-	-	-	-	5	NC	42.0	-	-	-	
otter trawl (lobster)	-	-	-	-	-	-	1	135	1.0	-	-	-	
Class 4 151-500 G.T	side otter trawl	51	205	747.5	2	195	3.0	46	197	569.2	2	198	5.0
	stern otter trawl	2	291	56.7	-	-	-	6	291	97.2	-	-	-
	purse seine	1	180	57.0	-	-	-	4	NC	117.0	2	NC	2.0
	scallop dredge	11	171	149.0	10	178	64.0	9	172	118.0	9	175	90.0
	lobster pot (inshore)	1	264	3.0	-	-	-	4	207	9.0	-	-	-
	lobster pot (offshore)	1	163	1.0	-	-	-	10	183	152.0	-	-	-

^{1/} Weighted Average used to calculate "Average Gross Tonnage".

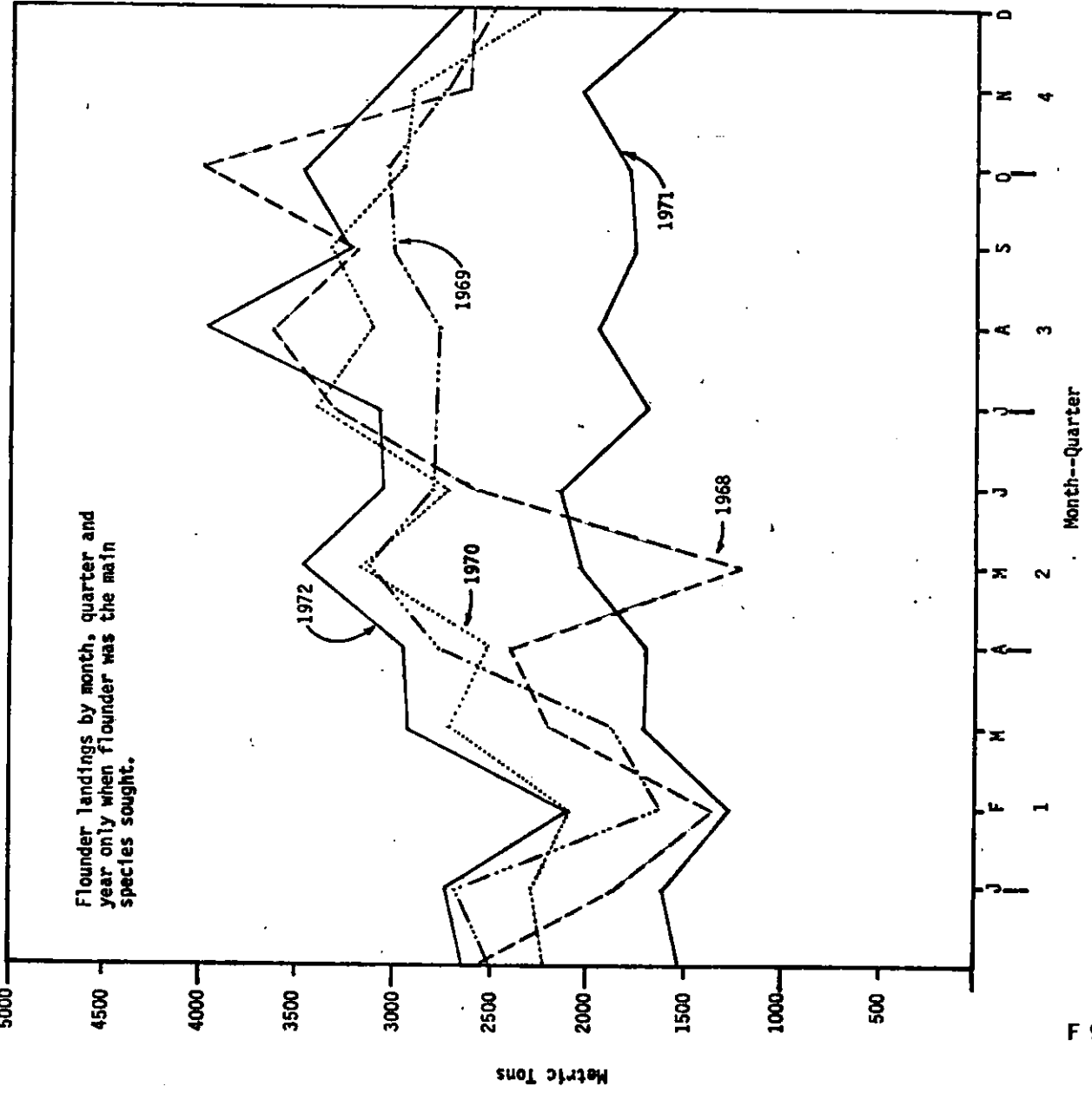
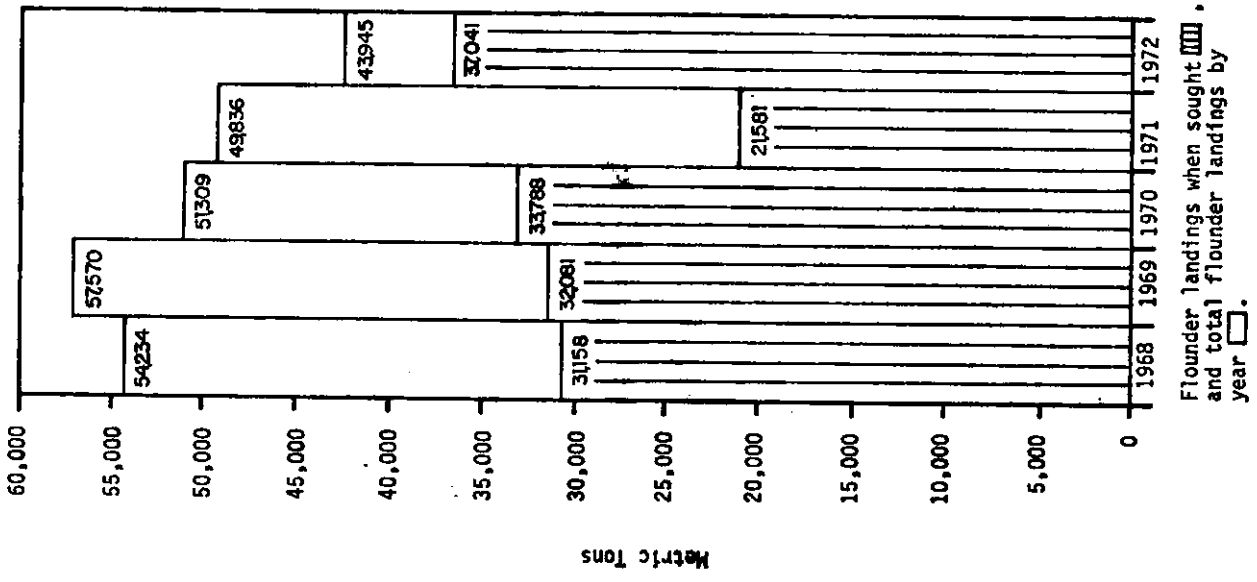
^{2/} Not calculated (NC)

SPECIES: COD



No data for 1968, 70, 71 on cod as main species sought.

SPECIES: FLOWNDERS (MIXED)*



*includes ICHAF categories "yellowtail"; "other flounders" (does not include any yellowtail); and "flounders" (includes some yellowtail).

Fig. 2.

SPECIES: HADDOCK

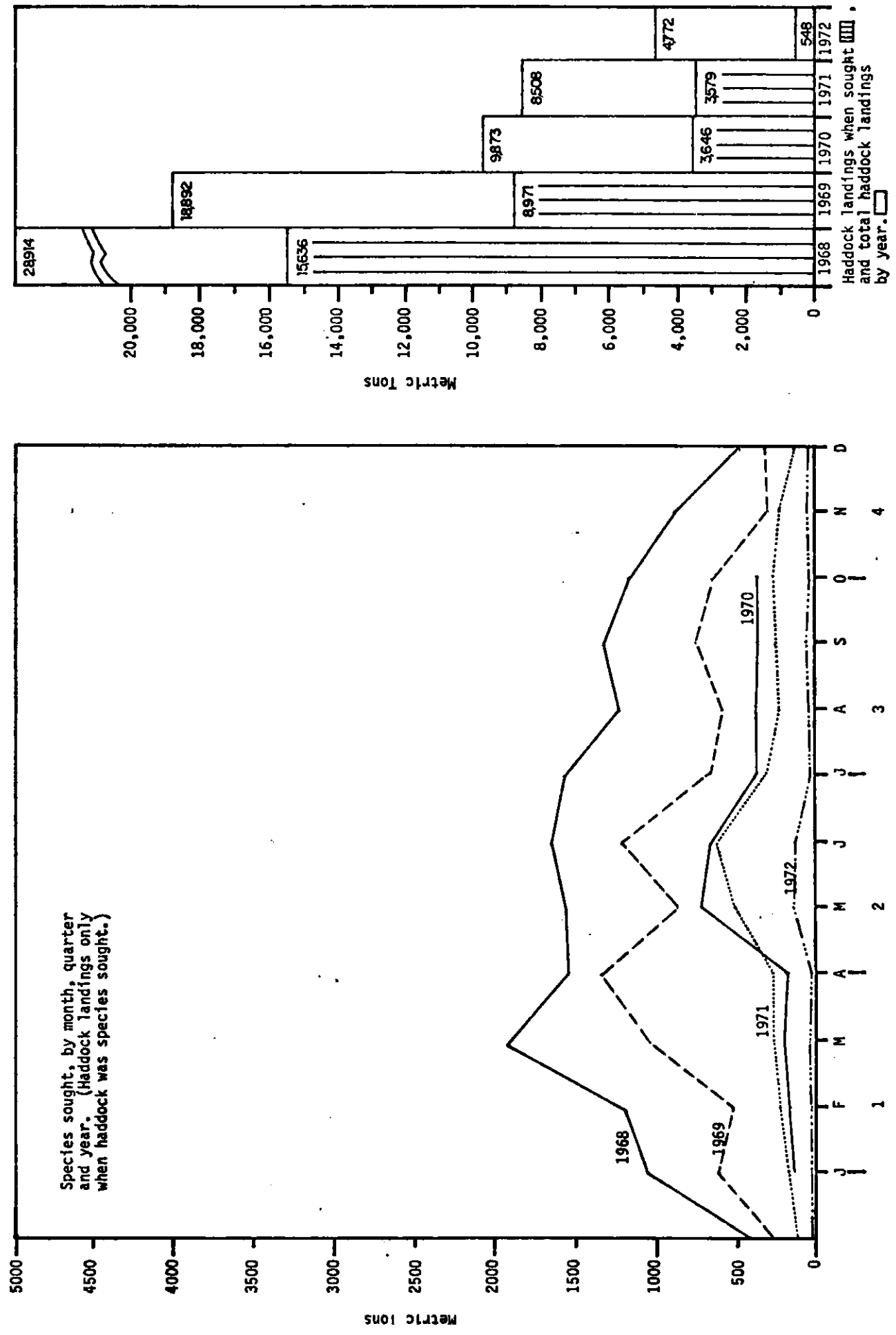
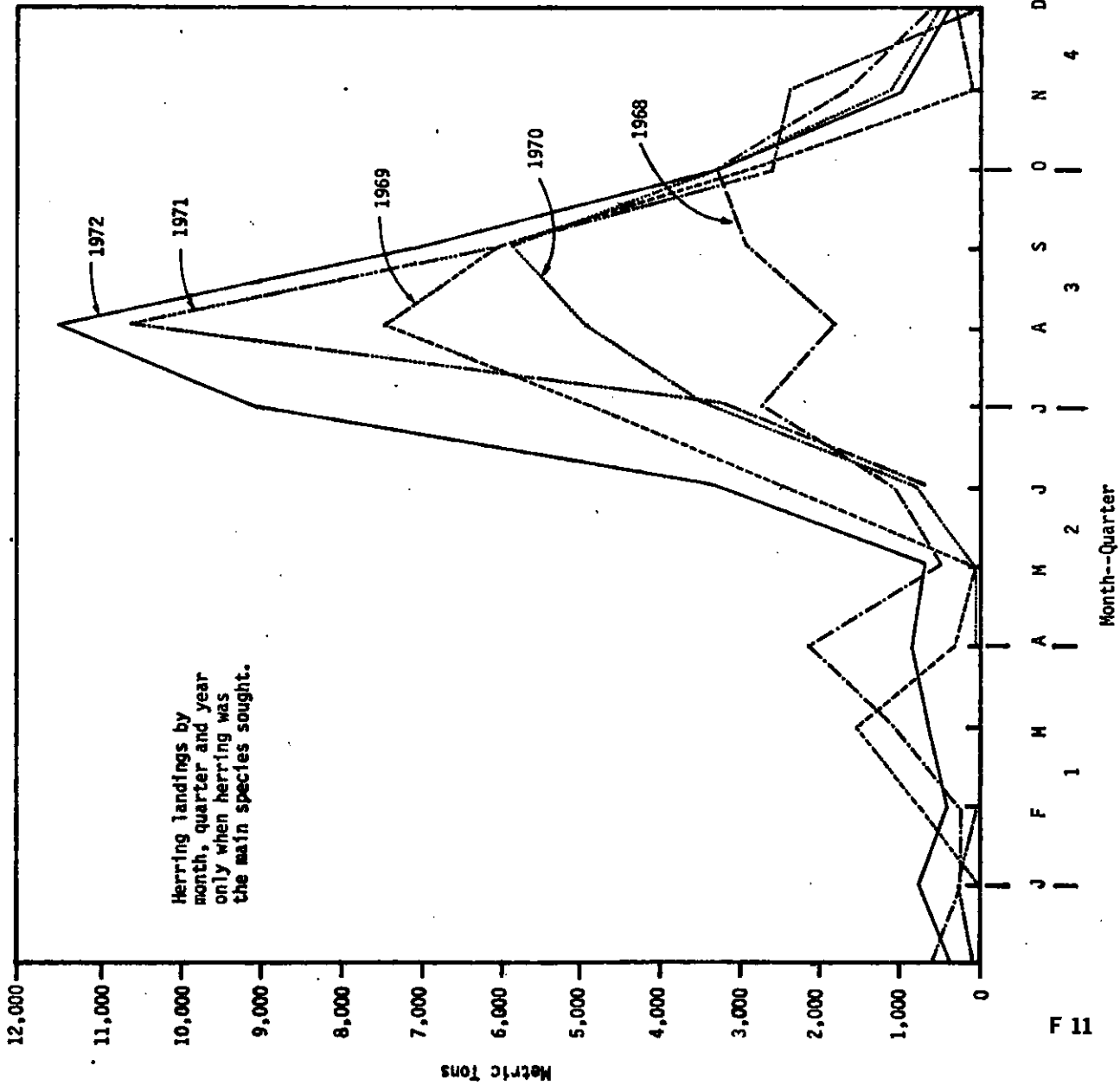
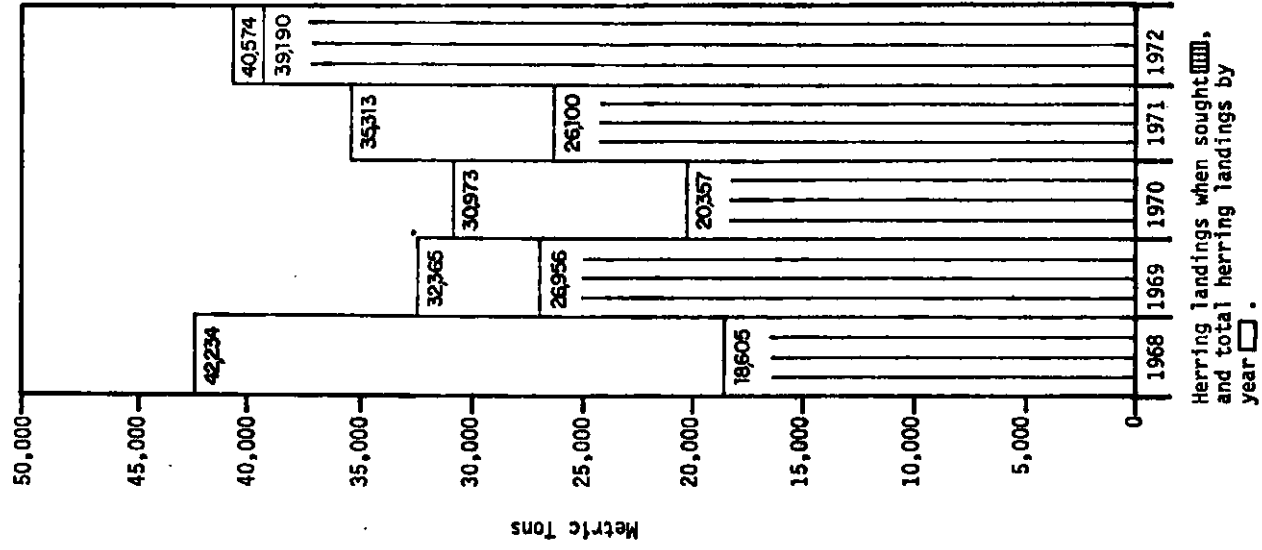


Fig. 3.

HERRING



Note: 1969 - No catch for January; 1970 - No catch for January & March - February catch 109 metric tons; 1971 - No catch for March & May - April catch 249 metric tons.

Fig. 4.

"OTHER GROUND FISH" 1/

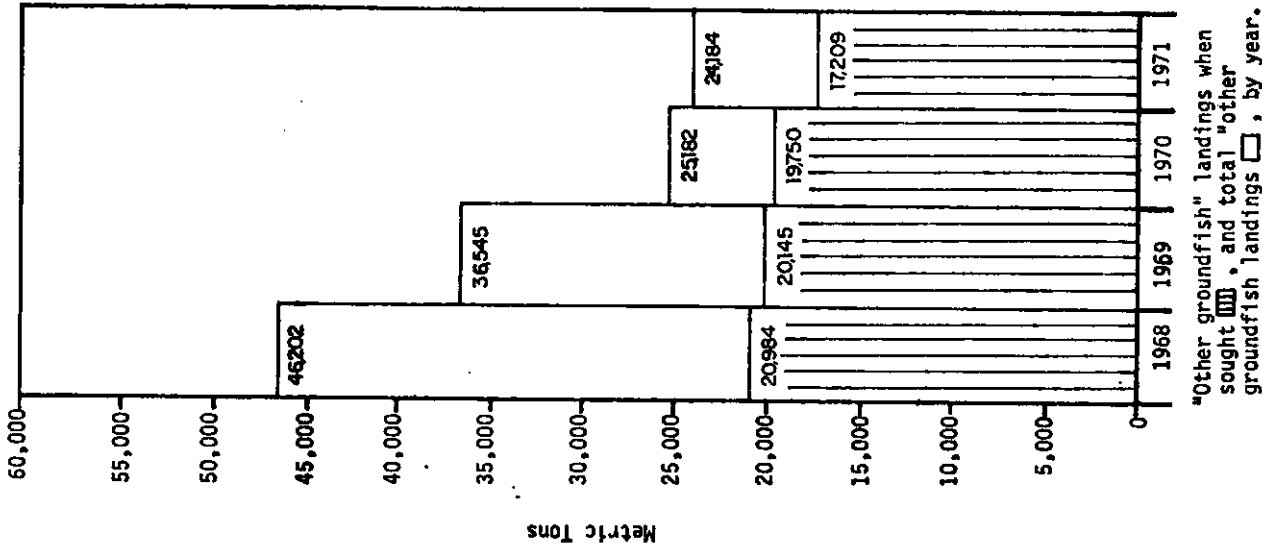
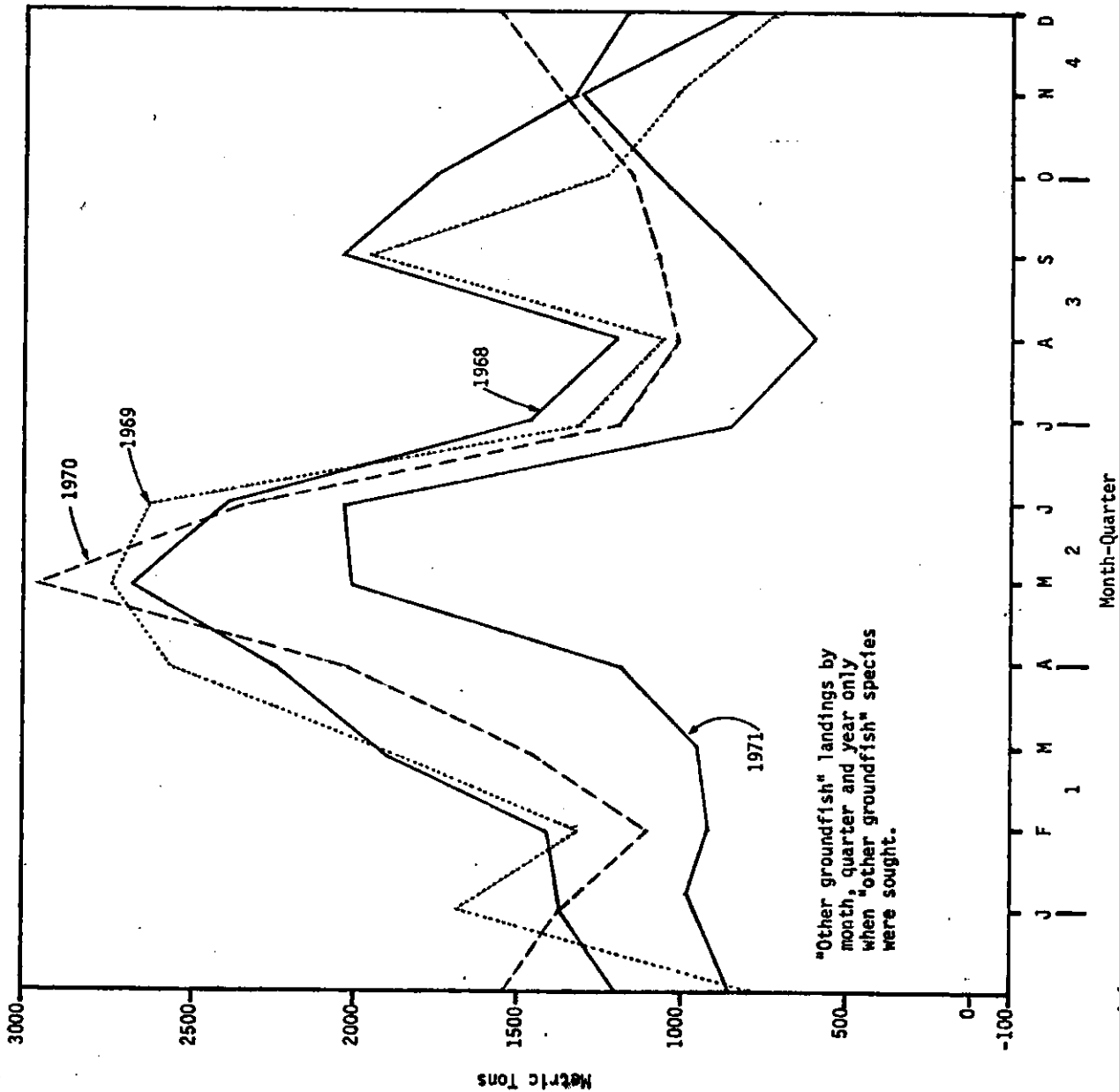
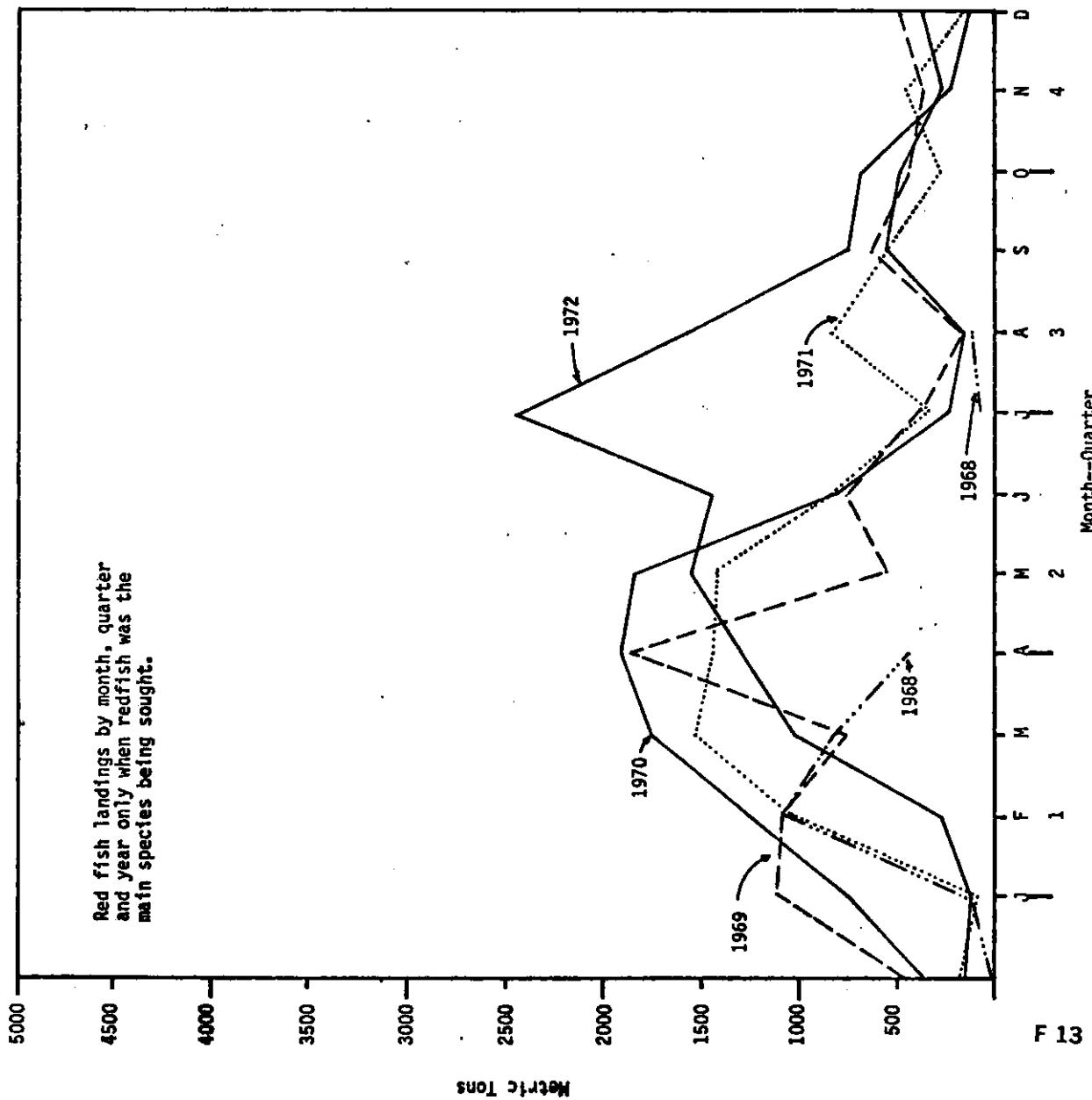


Fig. 5.

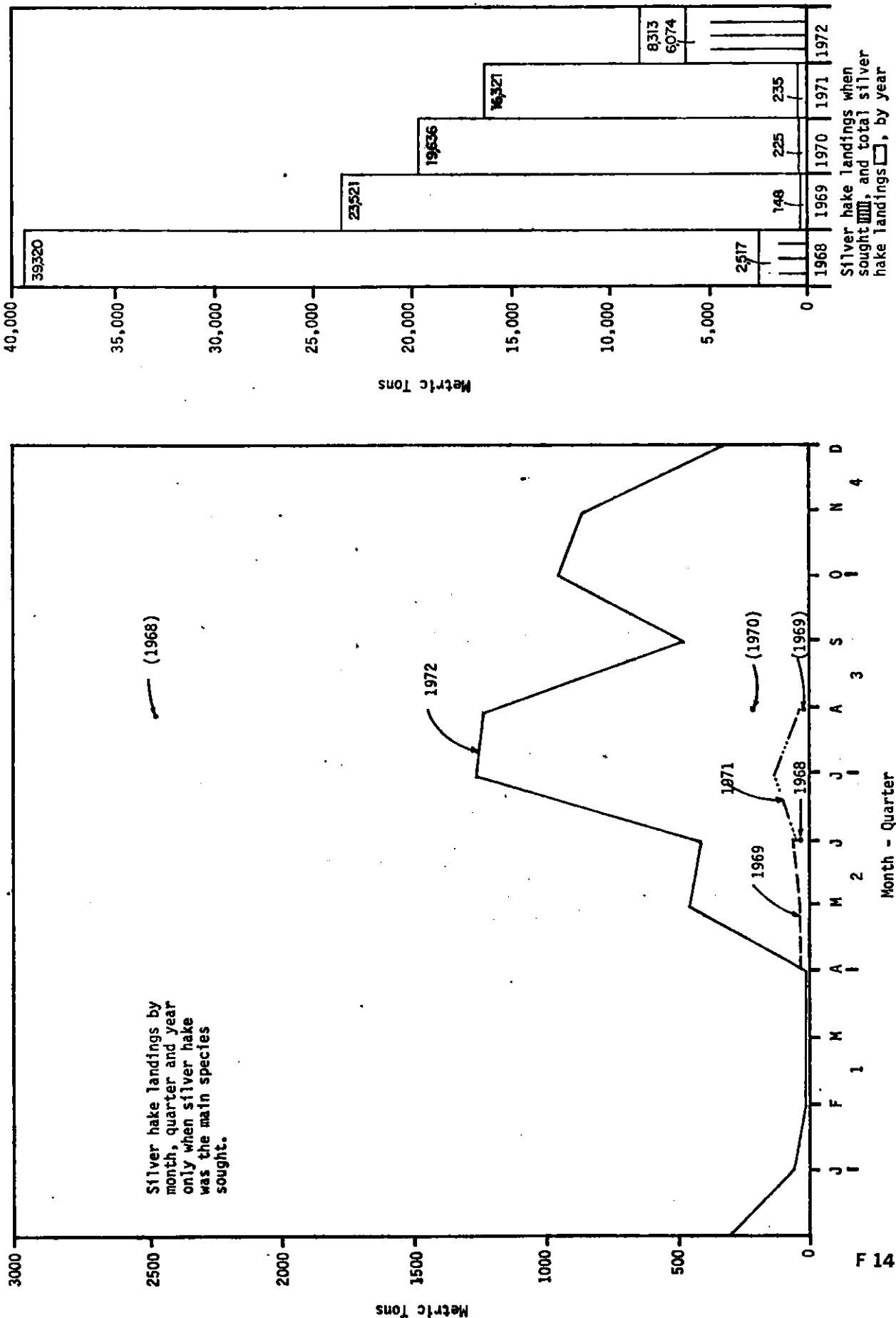
SPECIES: RED FISH



Note: No data (for main species sought) for the months of May, June, September, October, and November - 1968.

Fig. 6.

SILVER HAKE



Note: Years appearing in parenthesis indicate a single monthly total of silver hake landed when it was the species sought.

Fig. 7.

APPENDIX

Description and Illustrations of Main Types of Gear Used

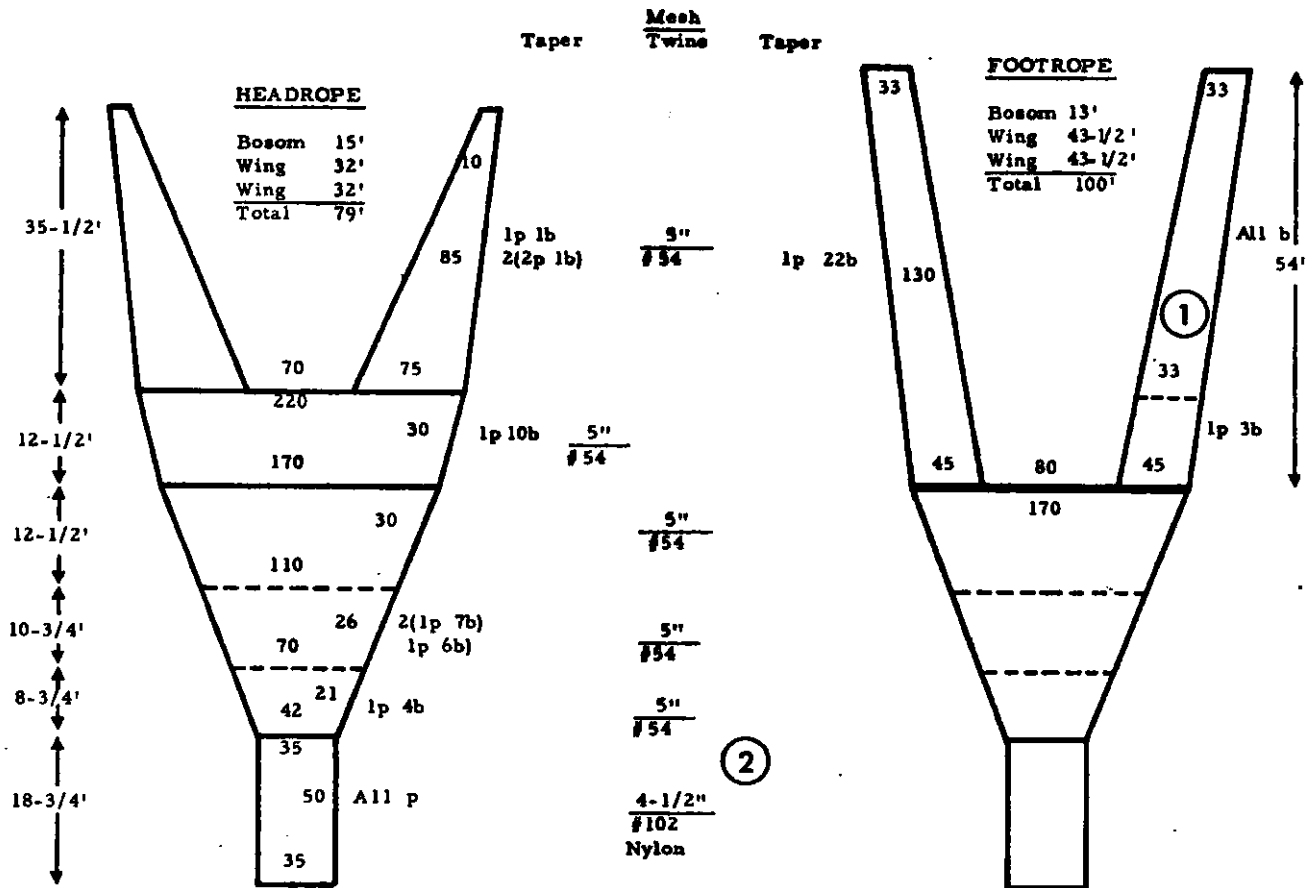
The No. 41 Trawl

The basic trawl net of the large draggers and "beam trawlers" operating from New England ports is the No. 41, Fig. 1. This trawl, of European design, replaced the Icelandic trawl in New England approximately 30 years ago because of the difficulty of acquiring Icelandic nets and spare parts and because, although smaller, it produced a satisfactory yield.

Few changes have been made to the basic No. 41 trawl in recent years. The belly has been simplified by reducing the number of mesh sizes in it from three to one to accommodate mesh regulations and the lengths of the wings have changed slightly. The headrope and footrope lengths have remained at 79 feet and 100 feet respectively.

Sections for the No. 41 trawl used in this country have generally been imported from Europe. These nets until recently have been made of manila hemp twine. With the introduction and growing acceptance of three synthetic fibers - nylon, polypropylene and polyethylene (and twines combining these three), utilization of these fibers in net twines has progressed to the point where most of the No. 41 trawls are now composed of synthetics. Notable exceptions to this trend is the continued use of manila bottom bellies and wings aboard vessels fishing on hard bottom where nets are subject to repeated damage. American producers now supply more synthetic twines which allow the net manufacturer more freedom in the design of the sections. The No. 41 illustrated is an all synthetic net of twisted nylon except for the cod-end which is of No. 102 braided nylon. An extension, if used, could be made of No. 200 polypropylene.

The two bottom wings shown represent two approaches to wing construction. The left wing has the same taper throughout its length. The right wing has all the taper built in along the area where the wing and square are joined and it is not as full under the square as the left wing. The roller gear is hung to the net with a heavy synthetic hanging line in order to simplify the hanging and repairing of the net and to replace the combination wire rope and splices otherwise required. The lighter floating hanging line also aids in lifting the net slightly at the bottom and lower wings.



Headrope: 3 lengths, 7/8" dia. Comb. W. R. each 26'-2" long joined by links = 79' long. Marked 32' from each end.

Footrope: 5 lengths, 3/4"-7/8" dia. 6 x 19 wire rope. 100' long: 18-1/2' + 25' + 13' + 25' + 18-1/2'. (Allow for connecting links.)

***Hanging Line:** One piece 3-1/4" or 4" cir. synthetic rope, 105' long, marked 45-1/2' from each end. Hung 45-1/2' on wings, 14' on bosom.

Wing End Rope: One length 7/8" dia. Comb. W. R. 6'-11' long (8' most popular).

Floats: 50 to 60 8" dia. floats. 9 to 10 on each wing, remainder on bosom. (Some nets have 1 to 2 extra floats on each wing end.)

****Roller Arrangement:** Bosom rollers - 6 or 7 wooden or rubber rollers 16" - 18" dia.; 2 or 3 - 6" wooden spacers between. 15' 3/4"-7/8" dia. 6 x 19 footrope wire used.
Wing Rollers -- As above on 25' long wire.
Wings - Remaining 18-1/2' footrope covered with 3-1/2" dia. rubber discs.

***Note:** The hanging line arrangement described replaces the traditional light hanging line and wire fishing line used with roller gear. The roller chains secure directly to this heavy hanging line.

****Note:** Some nets alter wing roller arrangement using a 30' length for wing rollers. Remaining wing footrope is changed to a 13-1/2' length and covered with 3-1/2" dia. rubber discs.

① Common lower wing for #41 trawl.

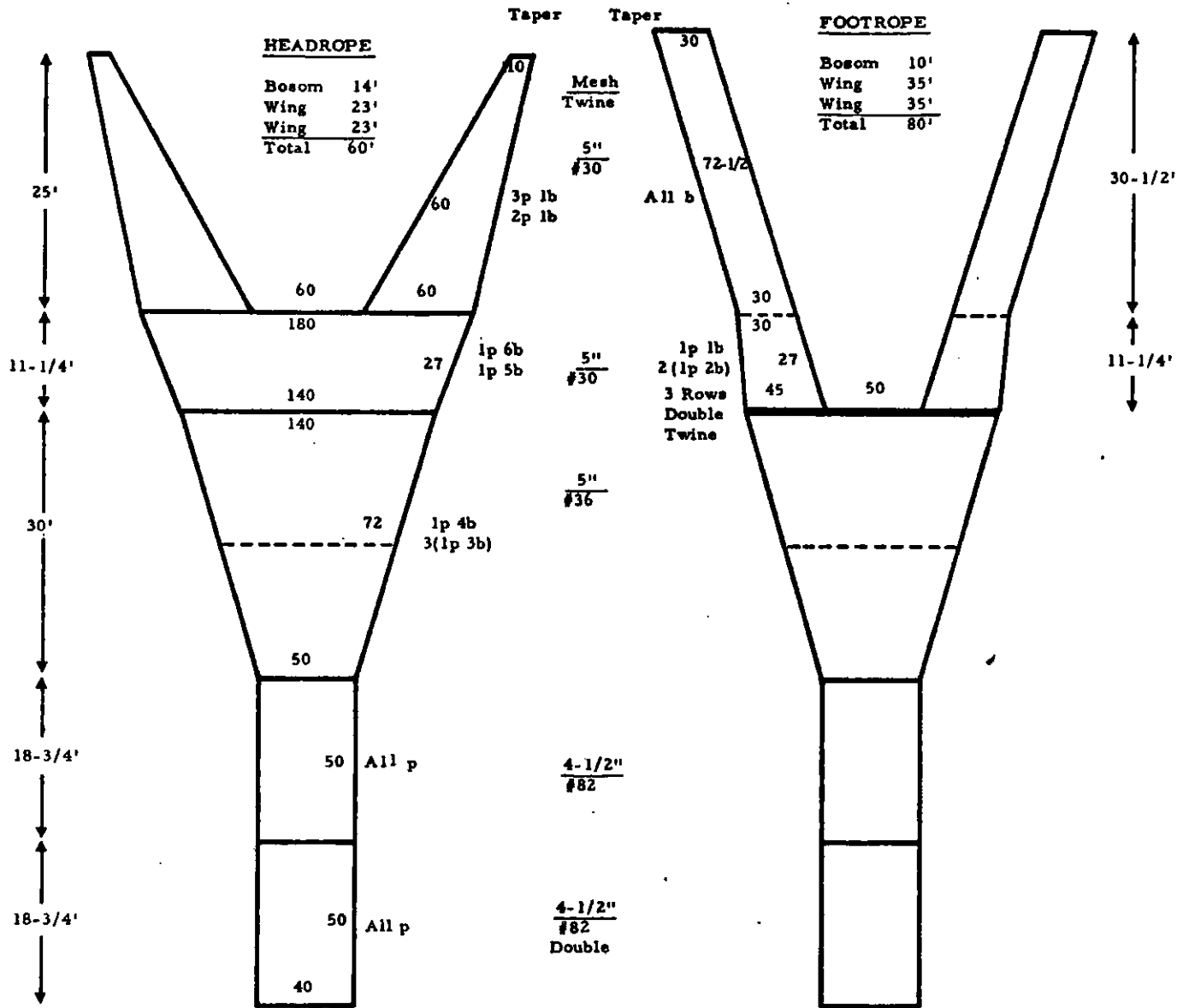
② 4-1/2" Mesh #200 polypropylene used in extensions - not shown.

APPENDIX FIG. 1 - SCHEMATIC DIAGRAM OF A NO. 41 TRAWL

The No. 36 Trawl

The trawl net most commonly found on the medium-size draggers in New England ports is the No. 36 trawl, Fig. 2. This net, smaller than the No. 41 trawl commonly employed by the large trawlers, is used on vessels from 75 feet to 90 feet long with 200 to 350 horsepower engines. It is utilized over both very hard and smooth grounds off New England in pursuit of cod, haddock, hake, pollock, redfish and the varieties of flounder, and is also commonly fished in waters off New York and New Jersey for fluke, scup and tilefish. It is not the most efficient net for flatfish, but is occasionally used, without rollers, for this purpose.

The No. 36 trawl has been variously modified and altered to suit the requirements of the skipper and conditions of the fishing grounds. If measurement of a random group of No. 36 nets in use at present were made, few of them would likely be found to have the same dimensions. Deviation from any standard would be found in the webbing and gear arrangement; the particular choice of rollers, wing length, float arrangement and extension would show wide divergence. The net resulting from such extensive modification is often called a "Mongrel 36" among fishermen, and has given rise to what may be called a sub-species of trawl net, the "60-80" trawl.



CONSTRUCTION DETAILS

Headrope: One piece 3/4"-7/8" dia. comb. w. r. 60' long marked 23' from each end. Eye on each end.

Footrope: Five pieces 11/16"-3/4" dia. 6x19 wire, 80' long. 17'6"; 17'6"; 10'0"; 17'6"; 17'6". (Allow for connecting links).

Wing End Rope: One piece 3/4" dia. comb. w. r. 5' long.

Hanging Line: Optional on top wings. Nets using rollers only have one piece 3"-3-1/4" synthetic rope the length of the footrop +5' secured to lower wings and bosom which is seized in bights to wing footrope and by roller chains to roller gear.

Floats: 32 - 8" floats, 18 on bosom, 7 each on wings.

Roller Gear: 3 Units for Bosom and Wings
 Bosom: 5 - 16" or 18" wooden rollers, spacers as needed. 11/16" dia. 6x19 wire.
 Wings: 5 - 16" or 18" wooden rollers, 3 spacers between at quarters trailing up wing with spacers.
 17'6" Footrope: 1. Rounded. 2. Plain. 3. Rubber discs with roller at wing end.

APPENDIX FIG. 2 - SCHEMATIC DIAGRAM OF A NO. 36 TRAWL

The 60-80 Trawl

There are numerous trawl nets used by medium-size trawlers that are identified by the lengths of their headrope and footrope. One of these nets is the "60-80" trawl, the headrope being 60 feet long and the footrope 80 feet long. This net is usually constructed from No. 36 trawl net sections.

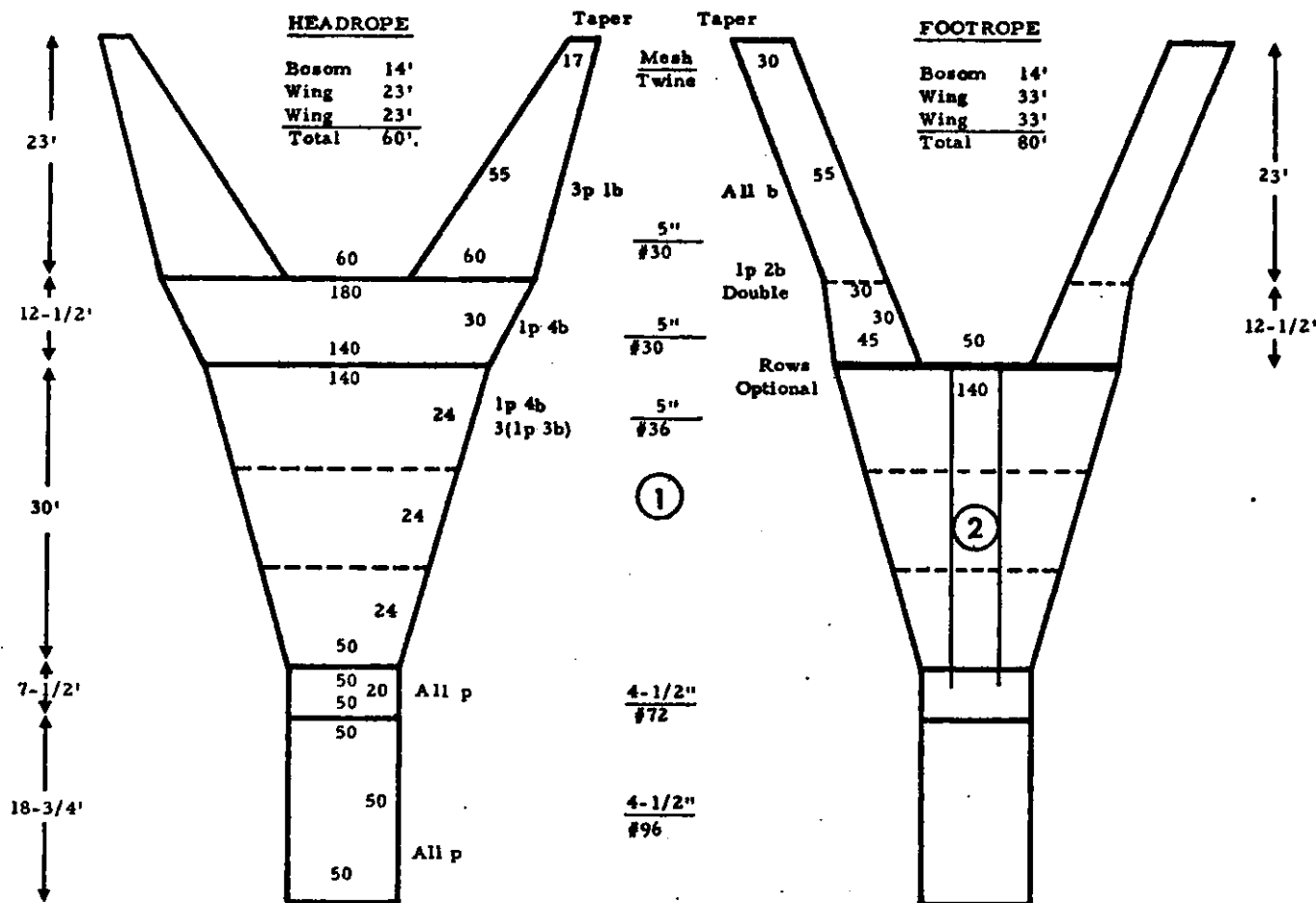
The net illustrated, Fig. 3, is made of nylon twine of smaller diameter than usually found on nets of this size. This reflects the growing interest among fishermen in use of synthetic fiber twines of greater strength. Other synthetic twines that do not absorb water and tend to float, such as polypropylene and polyethylene, are also employed. The use of smaller and lighter twine permits easier passage of the net through the water with resultant lowered "towing resistance."

The success of a net with the 60-80 headrope/footrope arrangement has encouraged the retention of this ratio by many fishermen and has stimulated experimentation with other parts of the net. If power limitations prevent towing a full sized 60-80, this net can be altered by changing sections and shortening the headrope and footrope, retaining the same length ratio. The resulting net would then be known to its owner by the lengths of its headrope and footrope. Nets resulting from such alterations are commonly called "mongrel nets."

The present tendency is to lengthen the bosom footrope of nets in the "60-80" size. This is accomplished by hanging the lower belly meshes farther apart or by using a 150-mesh belly rather than the standard No. 36 belly of 140 meshes. The larger belly may be more than 72 meshes deep. Bosom footrope sections vary between 12 feet and 18 feet, 14 feet being a popular length among many users of this net.

The extension shown in Figure 3 does not represent an actual extension. Rather, it is an illustration of how the body length of the net can be adjusted to accommodate the type of fishing in which the net is employed. Again the requirements of the vessel and type of fishing are considered by the designer. The adaptability of No. 36 net sections in this net eliminates the need to design and cut special sections for the entire net.

The "60-80" trawl net is likely to be simply constructed to facilitate overhaul and repairs. For example: One net may have three tows of double twine at the lower bosom and a lower belly of heavy strong twine, No. 60 or larger. Another net of the same general dimensions and the same 60-80 headrope/footrope ratio may have no double twine at the bosom and a relatively light (#30 or #36) lower belly with strongbacks as shown in the illustration. The reason for these two approaches to lower belly construction can be the same - - to fish over rough bottom. The builder of the first net had ruggedness in mind; the second, ease of repair. Thus, the 60-80 might be termed a "Skipper's Net", adapted to the characteristics of a particular vessel and modified to suit the individual captain's preference.



CONSTRUCTION DETAILS

Headrope: One piece 3/4"-7/8" dia. Comb. W.R., 60' long marked 23' from each end.

Footrope: Five pieces 11/16"-3/4" dia. 6 x 19 wire, 80' long. 16'; 17'; 14'; 17'; 16'. (Allow for connecting links.)

Wing End Rope: One piece 3/4" dia. Comb. W.R. 6'-15'.

Hanging Line: Nets using rollers only - one piece 3 or 3-1/4" synthetic rope 80' long marked 33' from each end secured to footrope in bights and to roller gear with roller chains.

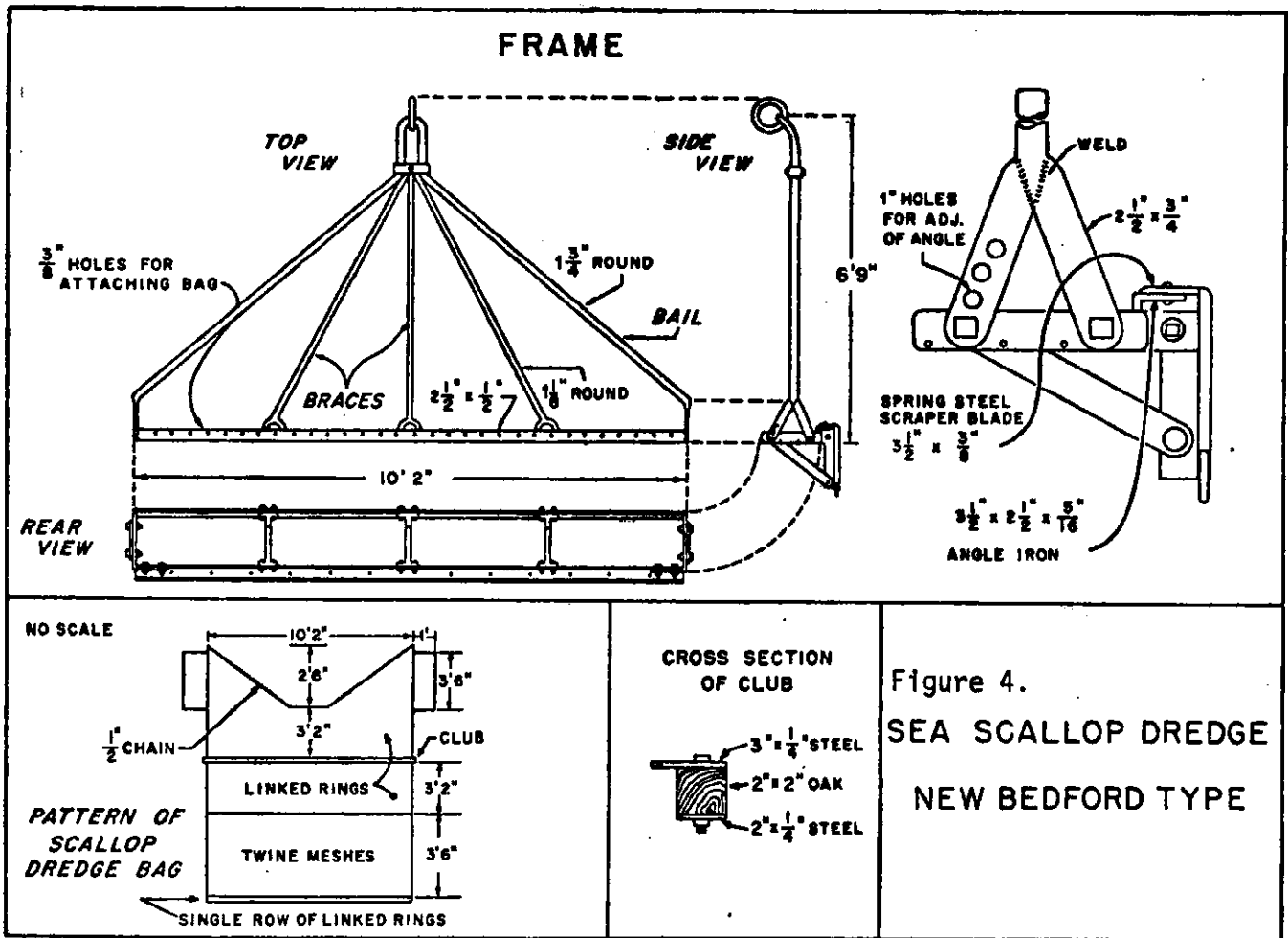
Floats: 38 to 42 - 8" floats. 24 on bosom, 7 to 9 on wings.

Roller Gear: 3 units for bosom and wings. Roller wire 11/16" dia.
 Bosom: 6 or 7 - 16" to 18" dia. wooden rollers on 14' x 11/16" 6 x 19 roller wire. Spacers as needed.
 Wings: 5 or 6 - 16" to 18" dia. wooden rollers on 17' x 11/16" 6 x 19 roller wire. 3 spacers between rollers at quarters trailing to spacers or rubber discs. 16' wing footrope:
 1. Rounded. 2. Plain. 3. Rubber discs with roller at wing end.

- ① Heavier twine may be used in the lower belly.
- ② Strongbacks running the length of the lower belly are sometimes used on hard bottom fishing grounds.

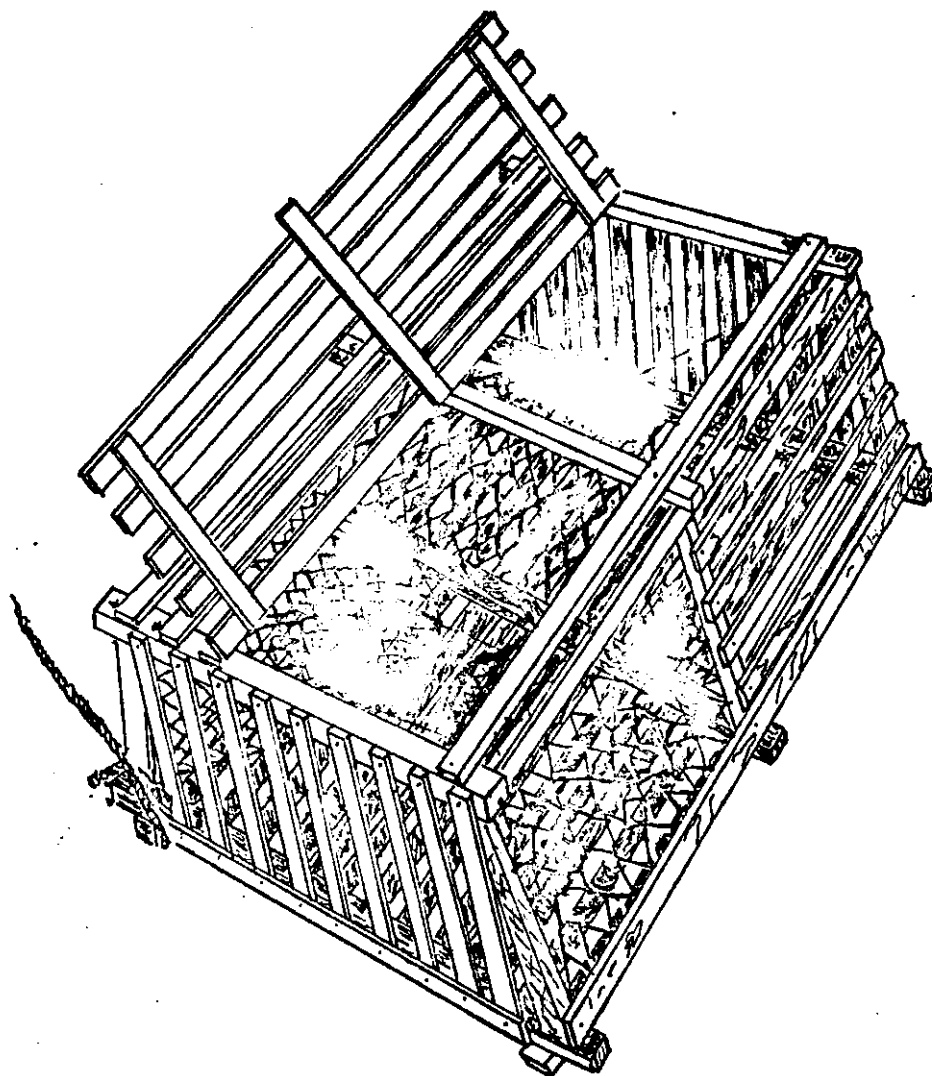
APPENDIX FIG. 3 - SCHEMATIC DIAGRAM OF A 60-80 TRAWL

(ADAPTED FROM A NO. 36 TRAWL)



APPENDIX

FIG. 4. Diagram of New Bedford Scallop Dredge. The pattern of scallop dredge bag (lower right part of diagram) shows the bottom and top parts of the bag joined at the "club". The lower part, below the club in the diagram, folds up over and is joined to the top section forming the dredge bag. Thus, the lower and after top section is assembled of linked steel rings and the forward top section is made up of twine meshes.



APPENDIX

FIG. 5. Drawing of "inshore" lobster pot constructed of oak frames and laths. Heads or entrance tunnels are of nylon twine. The inshore pot measures 2 feet by 3 feet by 18 inches high.

Wood framed "offshore" pots are of similar design and shape but measure approximately 3 feet by 4 feet by 18 to 24 inches high. Vinyl clad wire mesh panels are usually used rather than wood laths for side and top panels of offshore pots.

