COMMERCIAL FISHING VESSELS AND GEAR

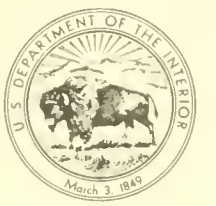
UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
CIRCULAR 48

CONTENTS

COMMERCIAL FISHING VESSELS AND GEAR

By GUSTAF T. SUNDSTROM, *Illustrator*

BUREAU OF COMMERCIAL FISHERIES



CIRCULAR 48

FISH AND WILDLIFE SERVICE, Arnie J. Suomela, *Commissioner*

UNITED STATES DEPARTMENT OF THE INTERIOR, Fred A. Seaton, *Secretary*

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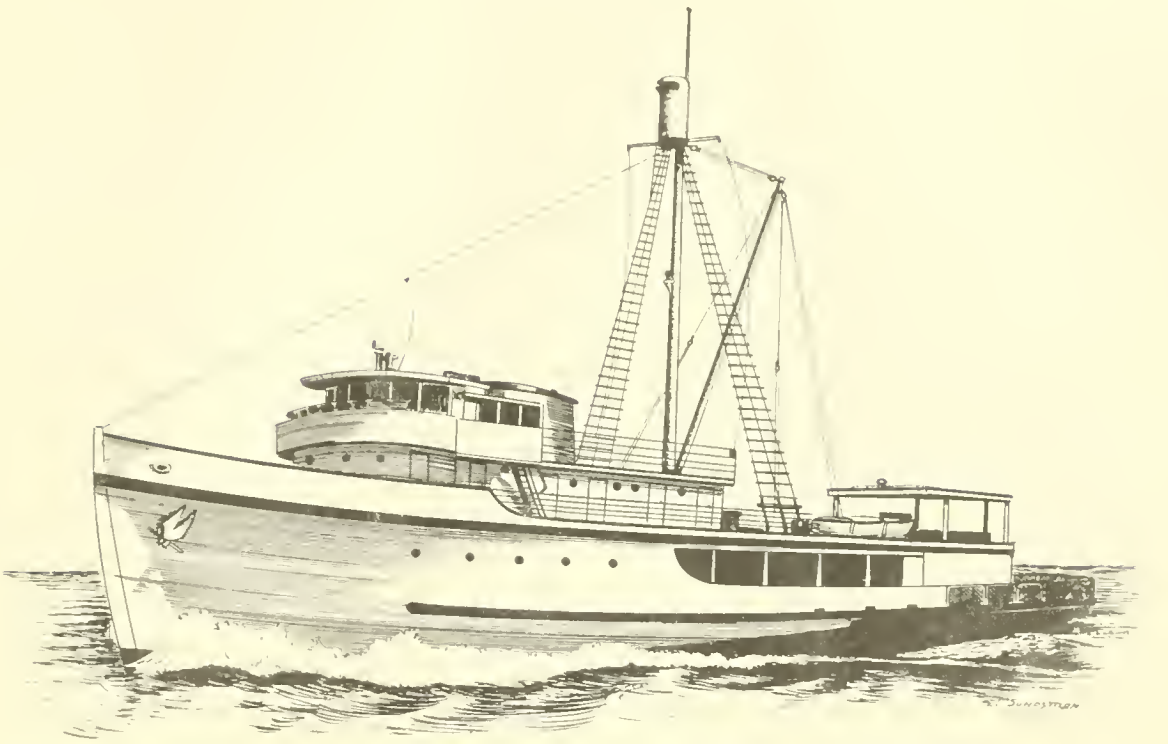
INTRODUCTION

The United States with its long coastline on two oceans, the great inland lakes, and large rivers, is among the leading nations of the world concerned with commercial fishing. The gear and fishing vessels are naturally of a great variety, but the hook, the net, and the trap are still, as they have been for centuries, the main types of gear used. Hooks by the hundreds are now used on one line, called the long-line; nets have been developed into purse seines, beam and otter trawls, and mile-long gill nets; traps have been enlarged into the gigantic traps for salmon and the extensive Great Lakes trap nets. Sail and steam have given way to gasoline and Diesel power. Shipbuilding techniques and fishing experiences are reflected in the modern fishing vessel. When the fishing grounds are located far from the home port, freezing facilities have sometimes been installed aboard the vessel. Most of the larger fishing vessels are now equipped with electronic navigation and fish-finding devices. A recent development in fishing gear is the power block used in the salmon fisheries. The midwater trawl has been successfully introduced into some European fisheries within the last few years, but this gear is still in the experimental stage in America.

A selection of some of the most important types of fishing gear and vessels in use today, in the United States and Alaska, is illustrated in this leaflet. Descriptions of representative types of fishing vessels are also included. General range of length, beam, draft, net tonnage, construction, engine, refrigeration, speed, average crew, length of trip and convertibility, are indicated. The main fishing areas are shown on maps, and includes only United States fishing activities.

Leaflets describing in detail some of the fishing methods mentioned herein are available on request. See list inside back cover.

TUNA CLIPPER



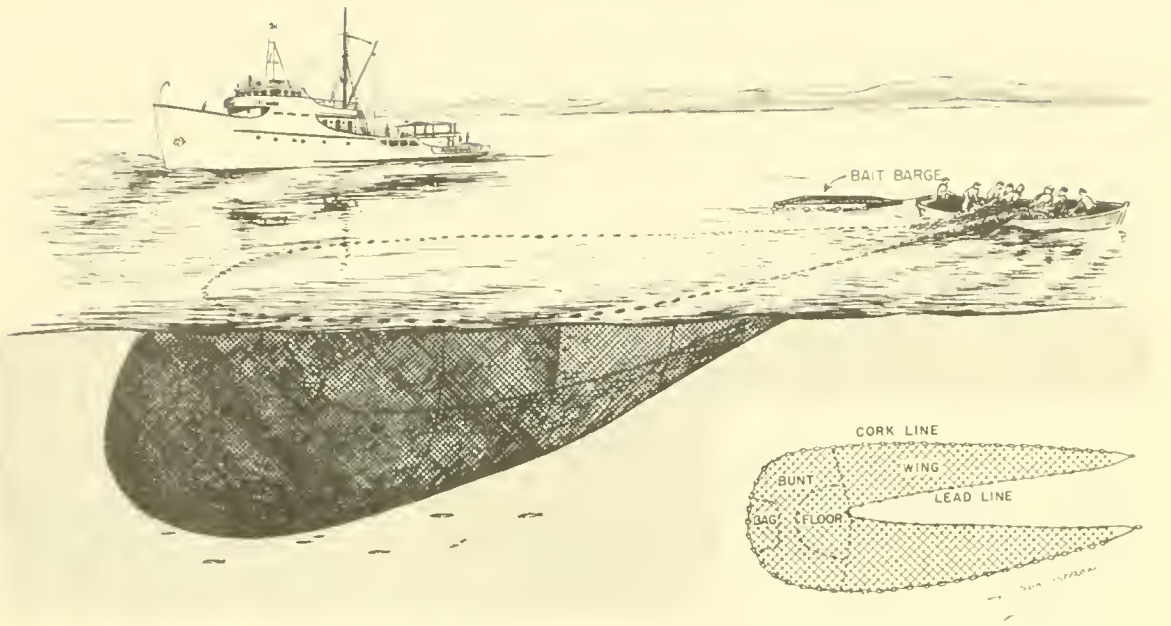
TUNA CLIPPER

Length in Feet	[illegible] to 150
Beam in Feet	20 to 32
Draft in Feet	8. [illegible] o 15. 4
Net Tonnage	60 to 300
Construction	Steel or Wood
Engine: Type	Diesel
Horsepower	250 to 1200
Type of Refrigeration	Mechanical or Brine Tanks
Cruising Speed	10 to 12 Knots
Average Crew	9 to 21
Length of Trip	35 to 85 Days
Convertibility to Other Types of Gear	None

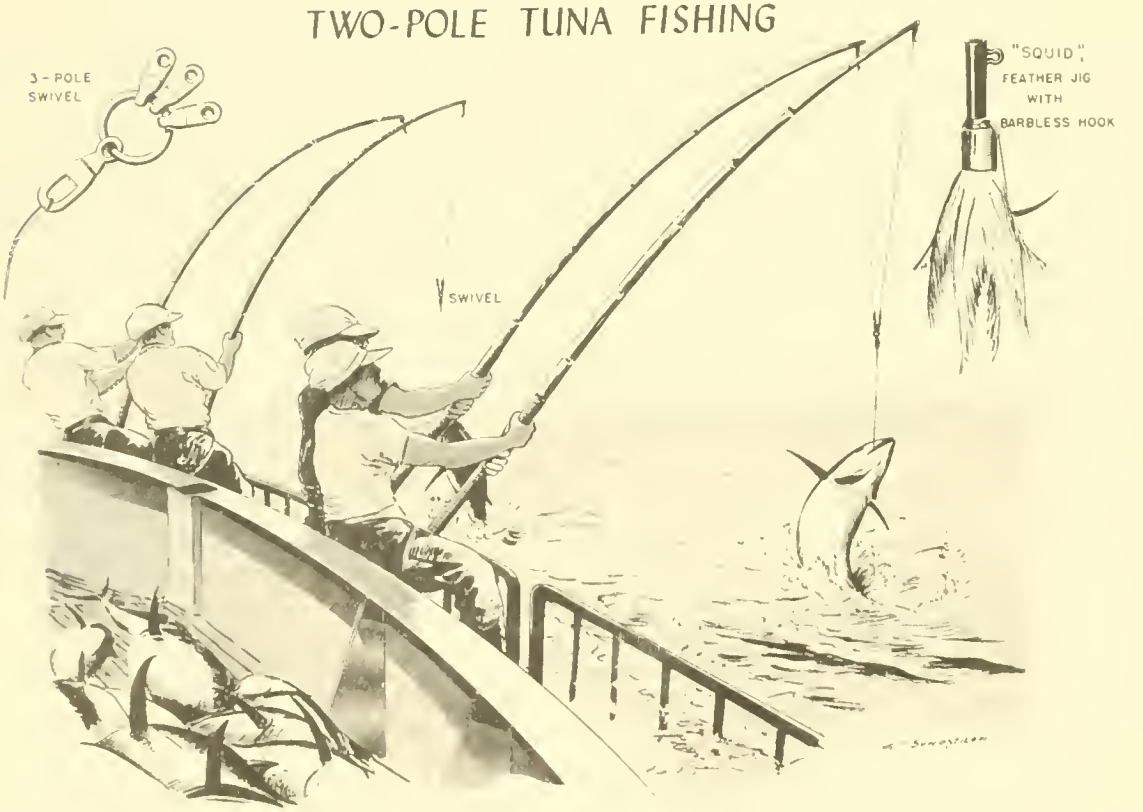
MAIN AREA OF FISHING OPERATION

TUNA BAIT FISHING

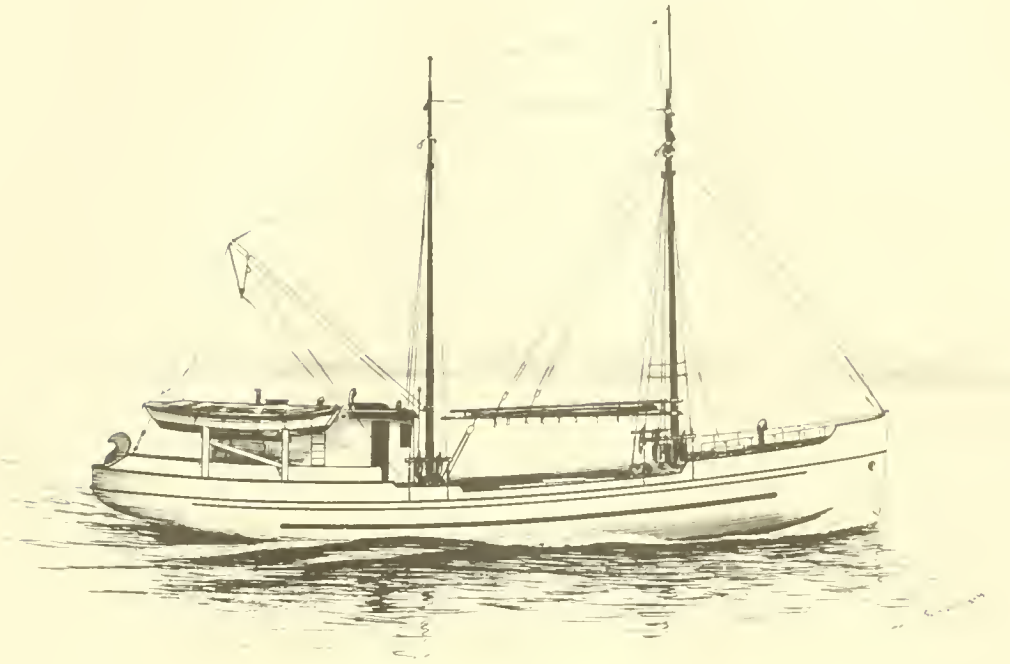
Lampara Seine



TWO-POLE TUNA FISHING



HALIBUT SCHOONER

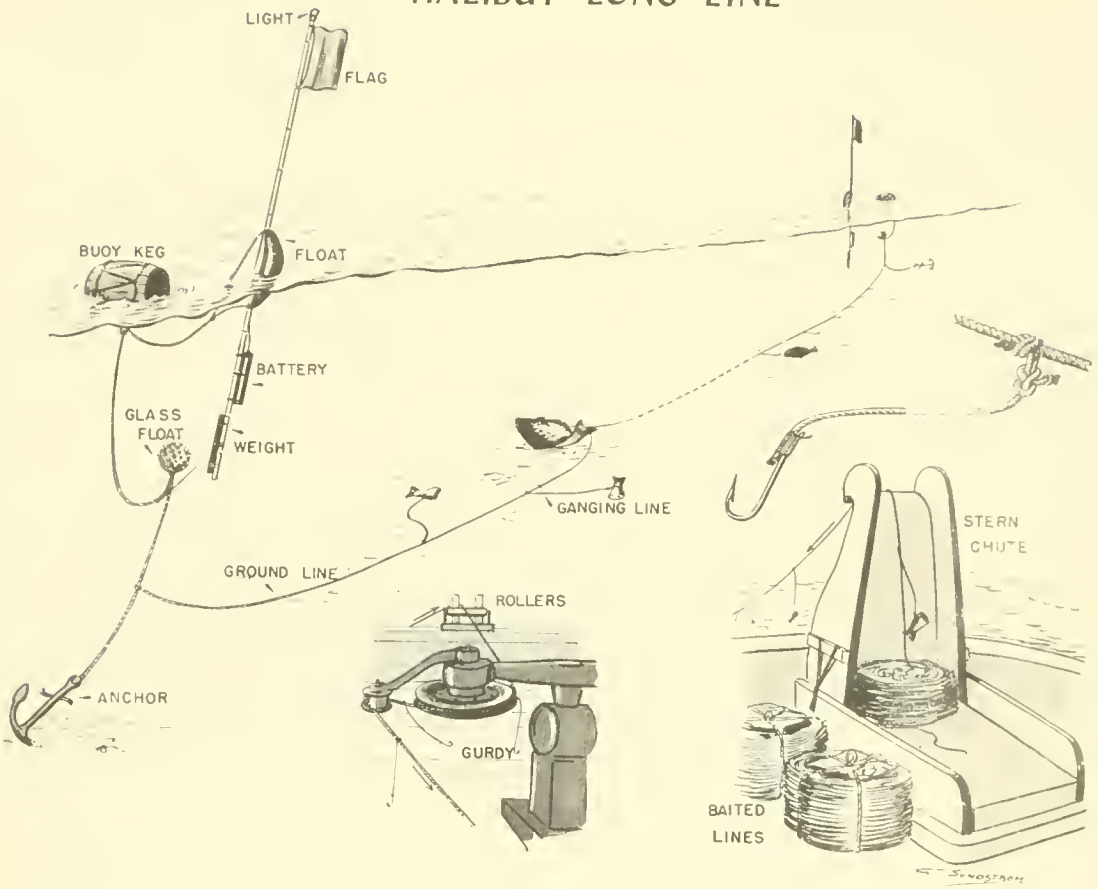


HALIBUT SCHOONER
Pacific Coast

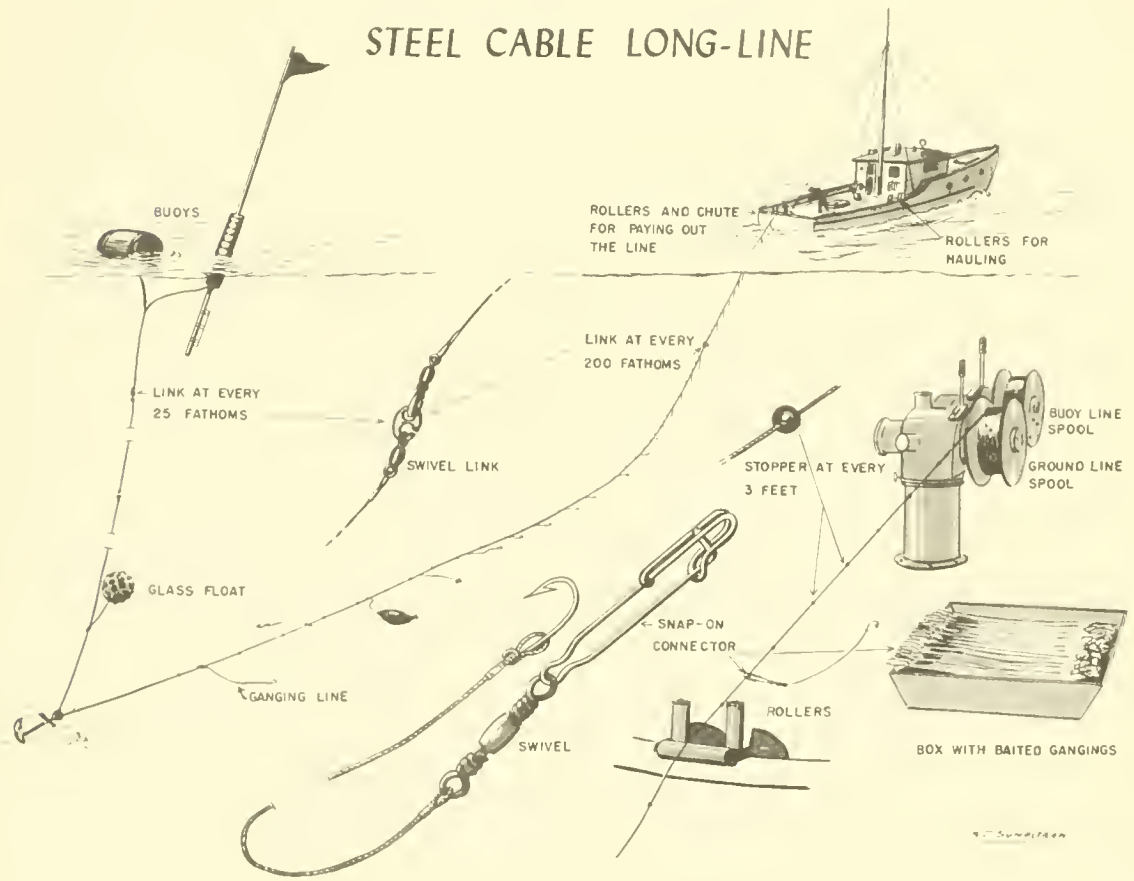
Length in Feet	55 to 85
Beam in Feet	15 to 23
Draft in Feet	7 to 10
Net Tonnage	30 to 55
Construction	Wood
Engine: Type	Gas or Diesel
Horsepower	125 to 300
Type of Refrigeration	Ice
Cruising Speed	6 to 10 Knots
Average Crew	5 to 10
Length of Trip	20 Days
Convertibility to Other Types of Gear	Trawl, and Troll

MAIN AREA OF FISHING OPERATION

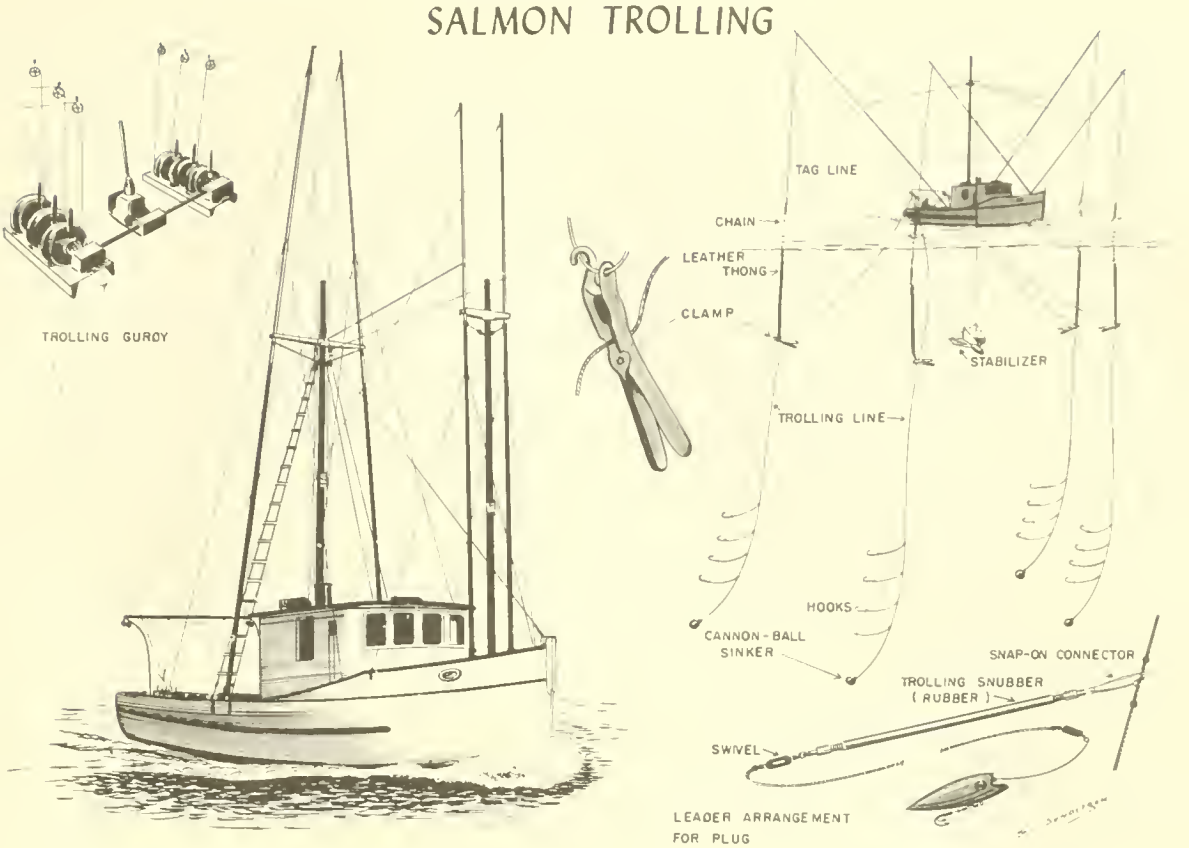
HALIBUT LONG-LINE



STEEL CABLE LONG-LINE



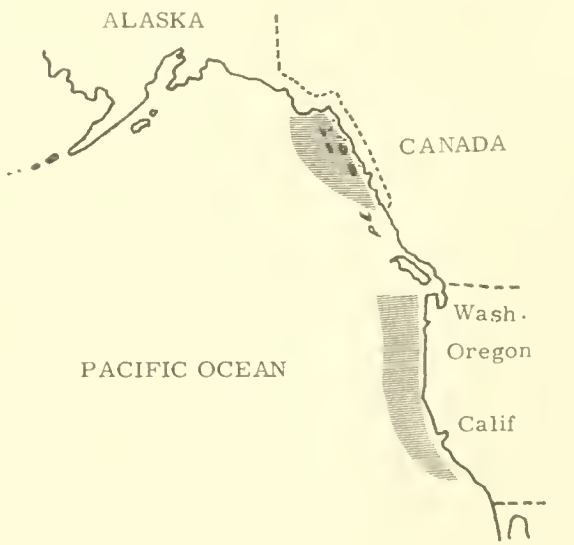
SALMON TROLLING

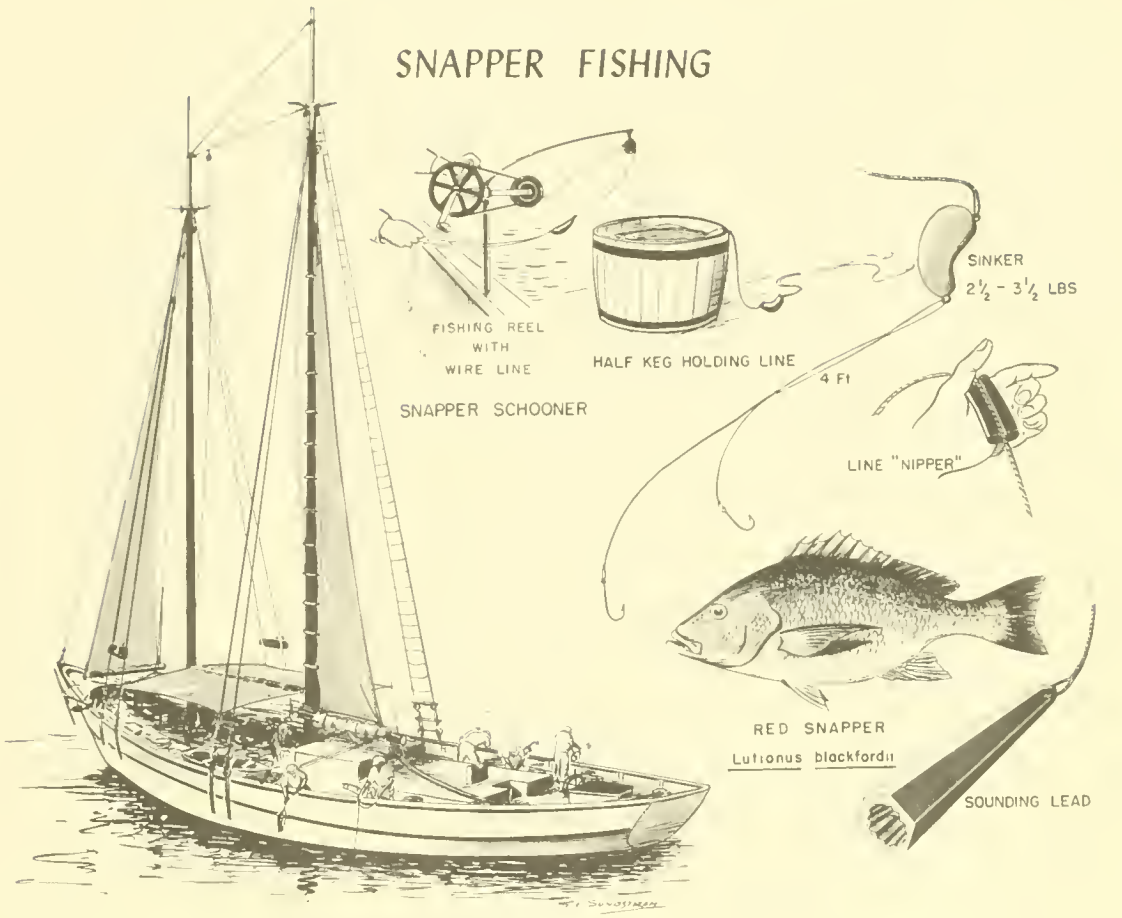


SALMON TROLLER

Length in Feet	25 to 60
Beam in Feet	8 to 18
Draft in Feet	2.5 to 7
Net Tonnage	5 to 26
Construction	Wood, some Steel
Engine: Type	Diesel or Gas
Horsepower	25 to 165
Type of Refrigeration	Ice
Cruising Speed	6 to 10 Knots
Average Crew	1 to 3
Length of Trip	Up to 14 Days
Convertibility to Other Types of Gear	Halibut Long Line, Albacore Trolling

MAIN AREA OF FISHING OPERATION



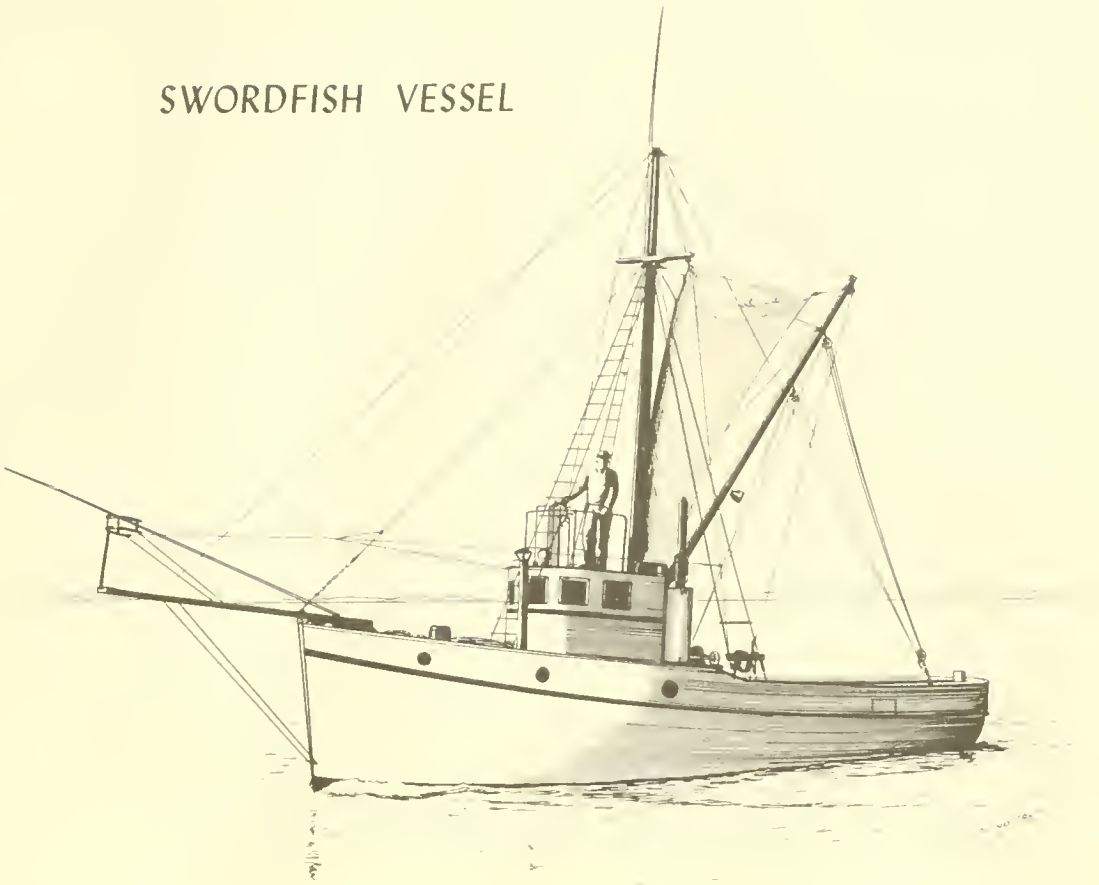


SNAPPER BOAT

Length in Feet	32 to 103
Beam in Feet	10 to 30
Draft in Feet	3 to 11
Net Tonnage	5 to 98
Construction	Wood
Engine: Type	Oil
Horsepower	30 to 110
Type of Refrigeration	Ice
Cruising Speed	6 to 10 Knots
Average Crew	2 to 10
Length of Trip	7 to 14 Days
Convertibility to Other Types of Gear	Tuna Long Line

MAIN AREA OF FISHING OPERATION

SWORDFISH VESSEL



SWORDFISH VESSEL

Length in Feet	32 to 83
Beam in Feet	9 to 21
Draft in Feet	3 to 10
Net Tonnage	5 to 56
Construction	Wood
Engine: Type	Diesel or Gas
Horsepower	50 to 150
Type of Refrigeration	Ice or None
Cruising Speed	5 to 8 Knots
Average Crew	2 to 3
Length of Trip	1 to 16 Days
Convertibility to Other Types of Gear	Trawl, Seine, Lobster Pots, Clam Dredge and Gill Netter

MAIN AREA OF FISHING OPERATION

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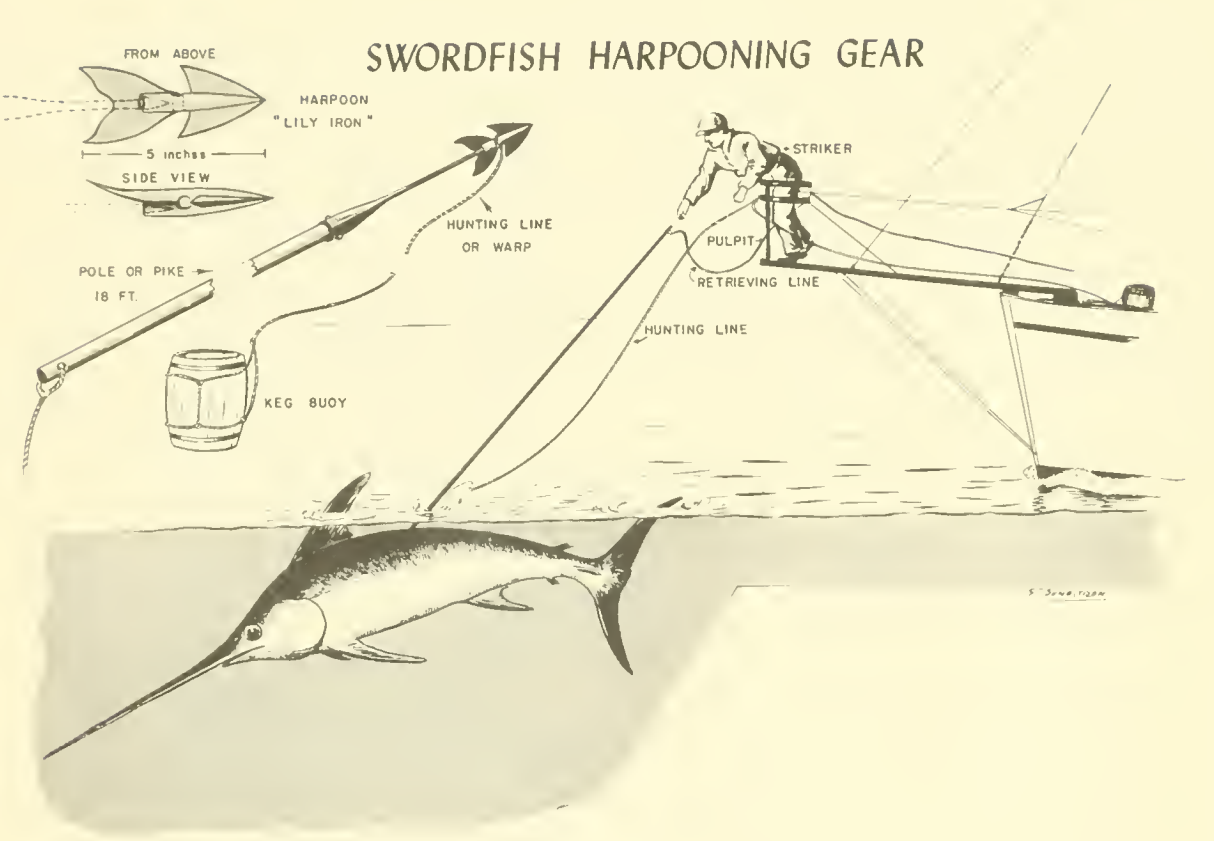
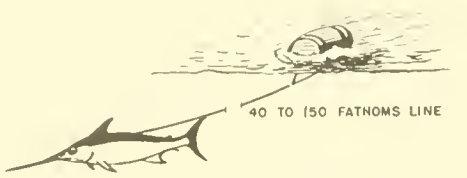
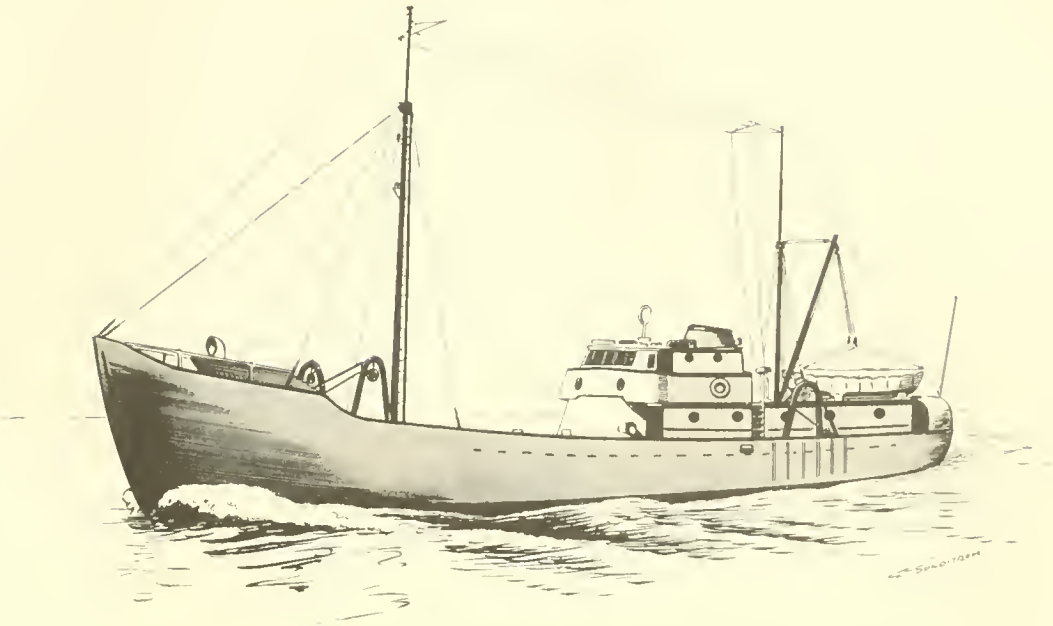

SWORDFISH HARPOONING GEAR
FROM ABOVE
HARPOON
"LILY IRON"
5 inches
SIDE VIEW
HUNTING LINE
OR WARP
POLE OR PIKE
18 FT.
KEG BUOY
STRIKER
PULPIT
RETRIEVING LINE
HUNTING LINE


40 TO 150 FATHOMS LINE

ATLANTIC TRAWLER

Large



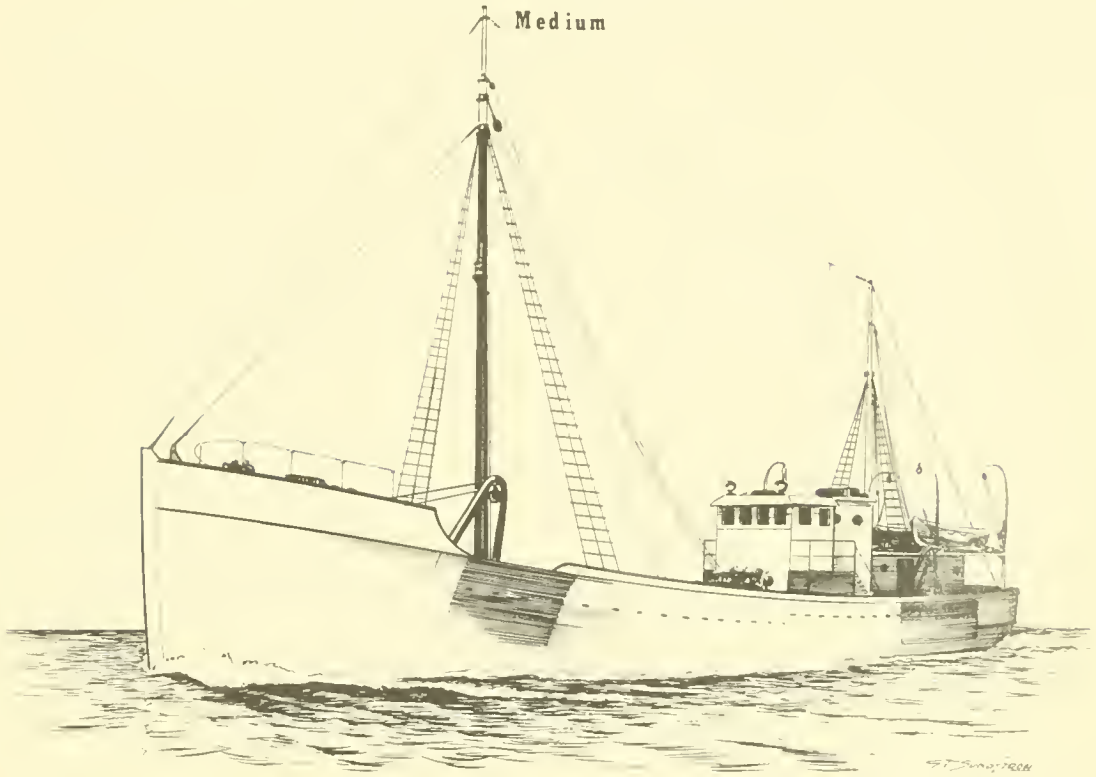
ATLANTIC TRAWLER, LARGE

Length in Feet	85.5 to 140
Beam in Feet	18.3 to 26
Draft in Feet	10 to 15
Net Tonnage	150 or over
Construction	Wood or Steel
Engine: Type	Diesel
Horsepower	320 to 735
Type of Refrigeration	Ice
Cruising Speed	7 to 15 Knots
Average Crew	8 to 17
Length of Trip	5 to 14 Days
Convertibility to Other Types of Gear	None

MAIN AREA OF FISHING OPERATION

ATLANTIC DRAGGER

Medium

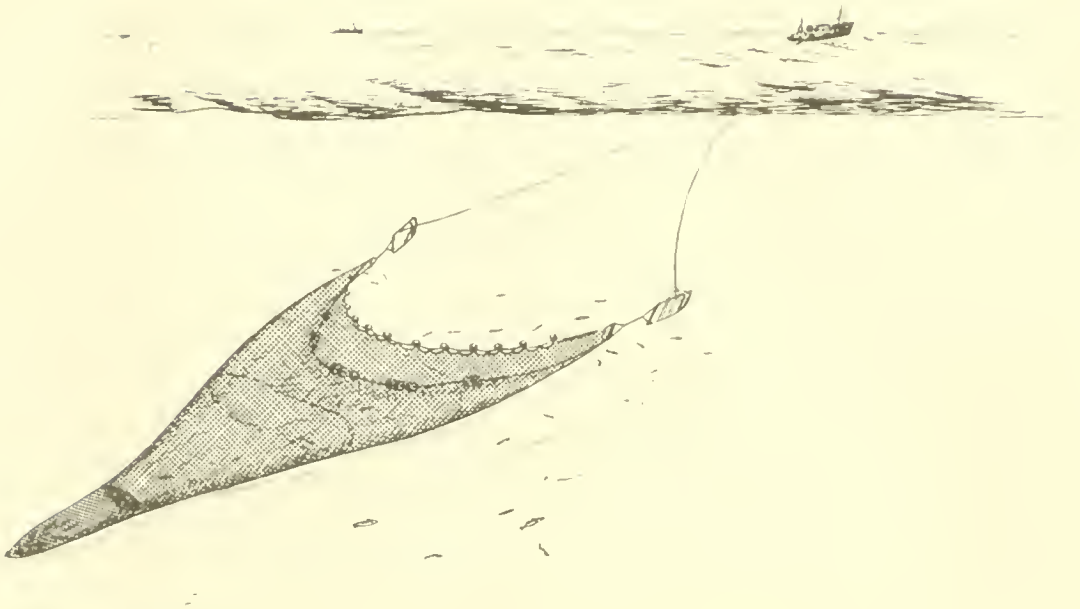


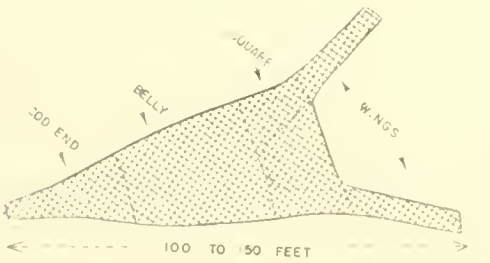
ATLANTIC DRAGGER, MEDIUM

Length in Feet	60 to 100
Beam in Feet	14 to 23
Draft in Feet	6 to 13
Net Tonnage	51 to 150
Construction	Wood or Steel
Engine: Type	Diesel
Horsepower	155 to 400
Type of Refrigeration	Ice
Cruising Speed	6 to 13 Knots
Average Crew	5 to 15
Length of Trip	1 to 14 Days
Convertibility to Other Types of Gear	Scallop Dredge, Purse Seine, and Harpoon

MAIN AREA OF FISHING OPERATION

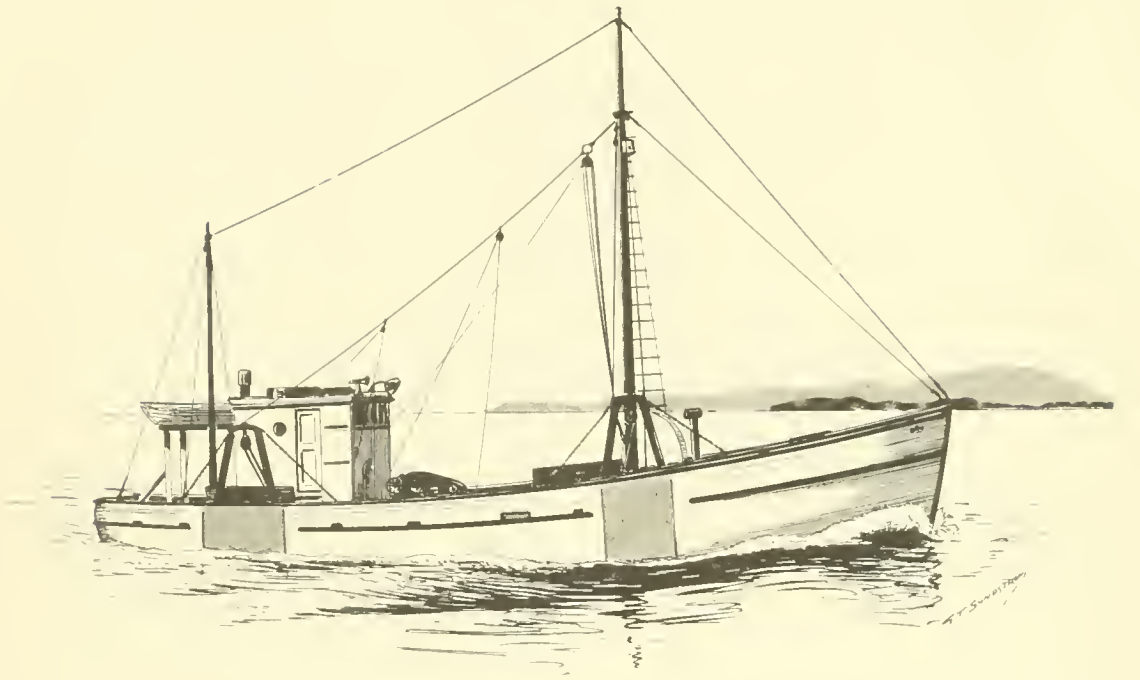
ATLANTIC OTTER TRAWL





ATLANTIC DRAGGER

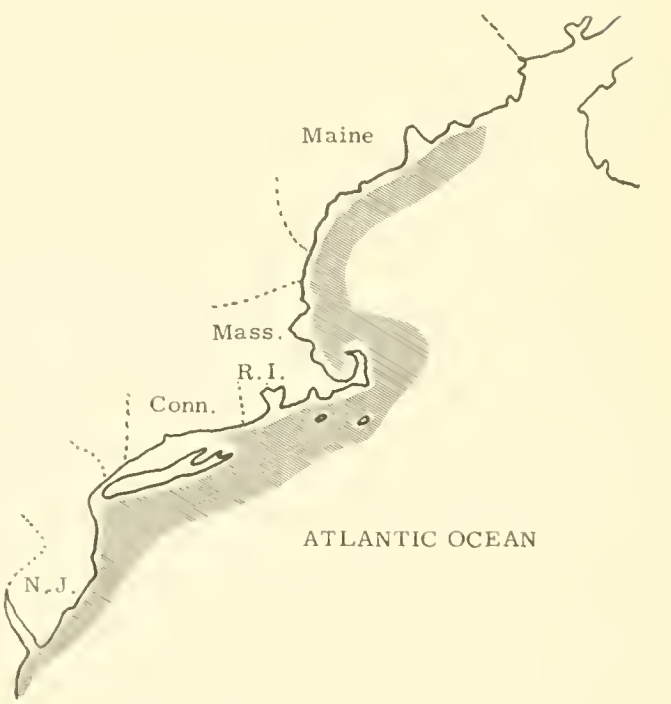
Small

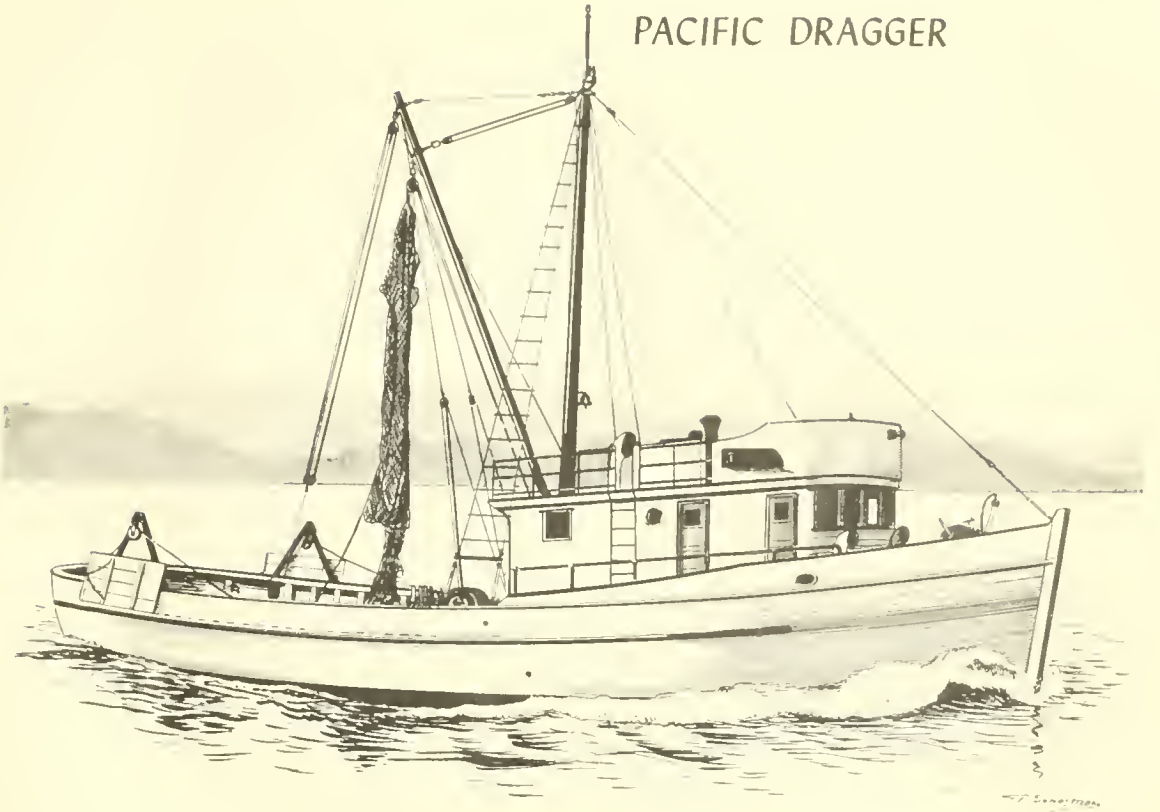


ATLANTIC DRAGGER, SMALL

Length in Feet	30 to 74
Beam in Feet	9 to 20
Draft in Feet	2½ to 9
Net Tonnage	50 or under
Construction	Wood
Engine: Type	Diesel or Gas
Horsepower	50 to 260
Type of Refrigeration	Ice
Cruising Speed	4.5 to 11 Knots
Average Crew	2 to 9
Length of Trip	1 to 8 Days
Convertibility to Other Types of Gear	Gill Net, Clam Dredge, and Purse Seine

MAIN AREA OF FISHING OPERATION





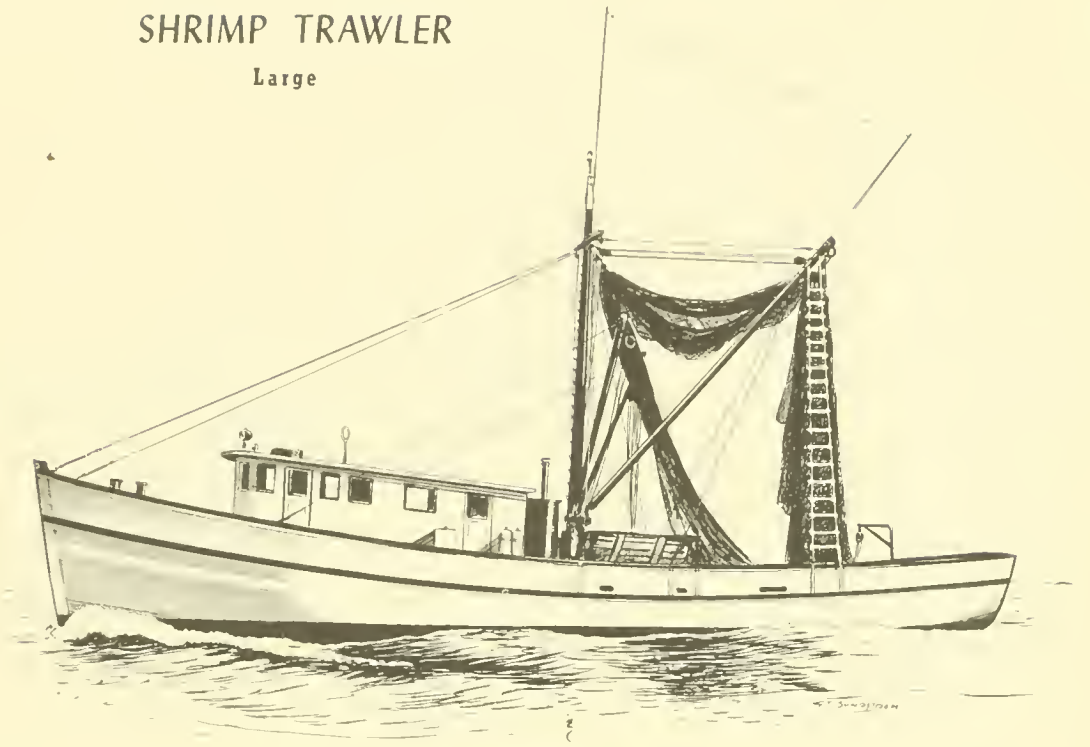
PACIFIC DRAGGER

Length in Feet	48 to 100
Beam in Feet	15 to 25
Draft in Feet	5 to 12
Net Tonnage	20 to 90
Construction	Wood
Engine: Type	Diesel
Horsepower	50 to 450
Type of Refrigeration	Ice
Cruising Speed	9 to 12 Knots
Average Crew	4 to 7
Length of Trip	1 to 10 Days
Convertibility to Other Types of Gear	Purse Seine, Troll, Tuna and Halibut Long-Line

MAIN AREA OF FISHING OPERATION

SHRIMP TRAWLER

Large



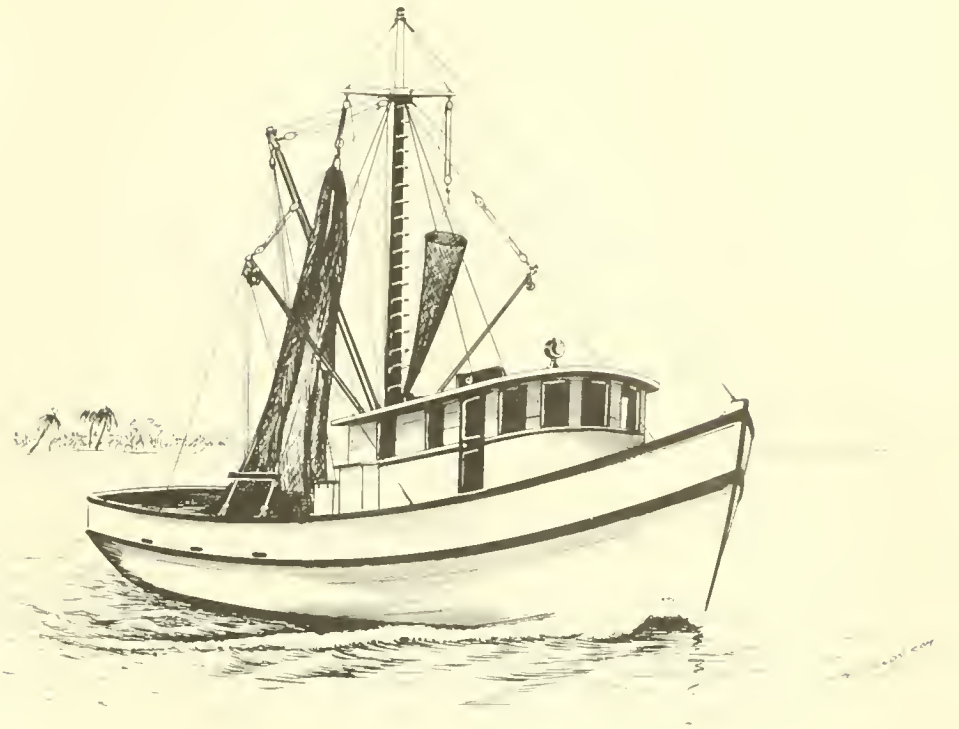
SHRIMP TRAWLER

	LARGE	MEDIUM
Length in Feet	50 to 90	28 to 55
Beam in Feet	12 to 24	5 to 18
Draft in Feet	3 to 9	1. 5 to 4
Net Tonnage	25 to 38	8 to 24
Construction	Wood, some Steel	Wood
Engine: Type	Diesel or Gas	Diesel or Gas
Horsepower	30 to 340	25 to 165
Type of Refrigeration	Mechanical or Ice	Ice
Cruising Speed	7 to 15 Knots	5 to 8 Knots
Average Crew	2 to 5	2 to 4
Length of Trip	1 to 42 Days	1 to 24 Days
Convertibility to Other Types of Gear	Hand Lines	Hand Lines

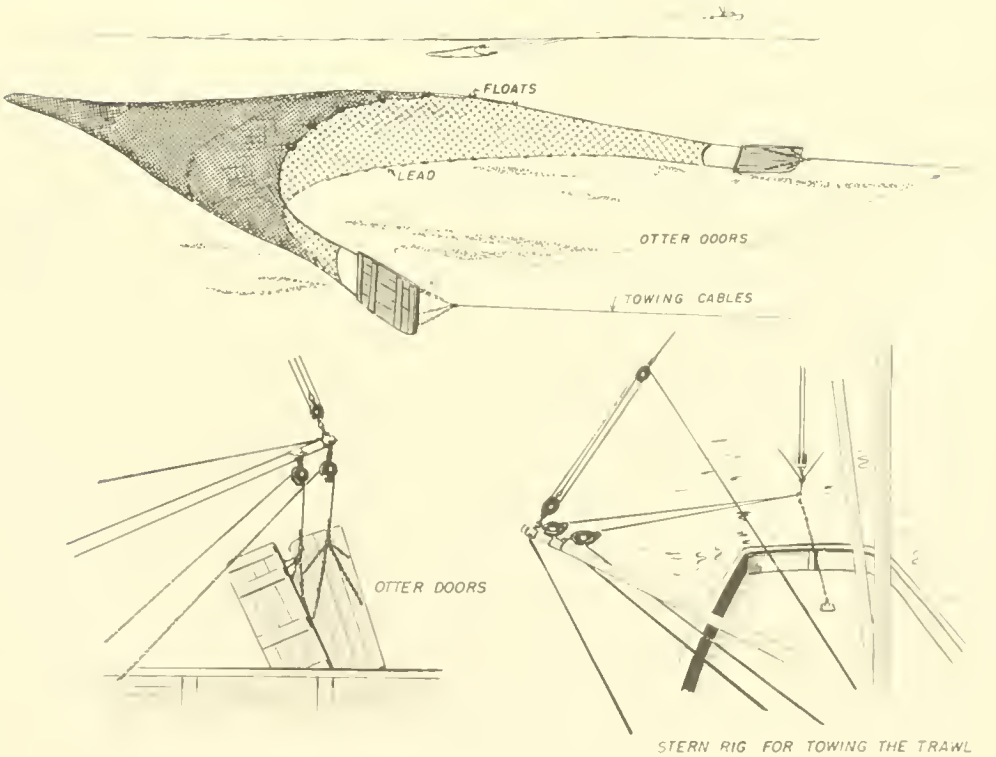
MAIN AREA OF FISHING OPERATION

SHRIMP TRAWLER

Medium



SHRIMP TRAWL



STERN RIG FOR TOWING THE TRAWL

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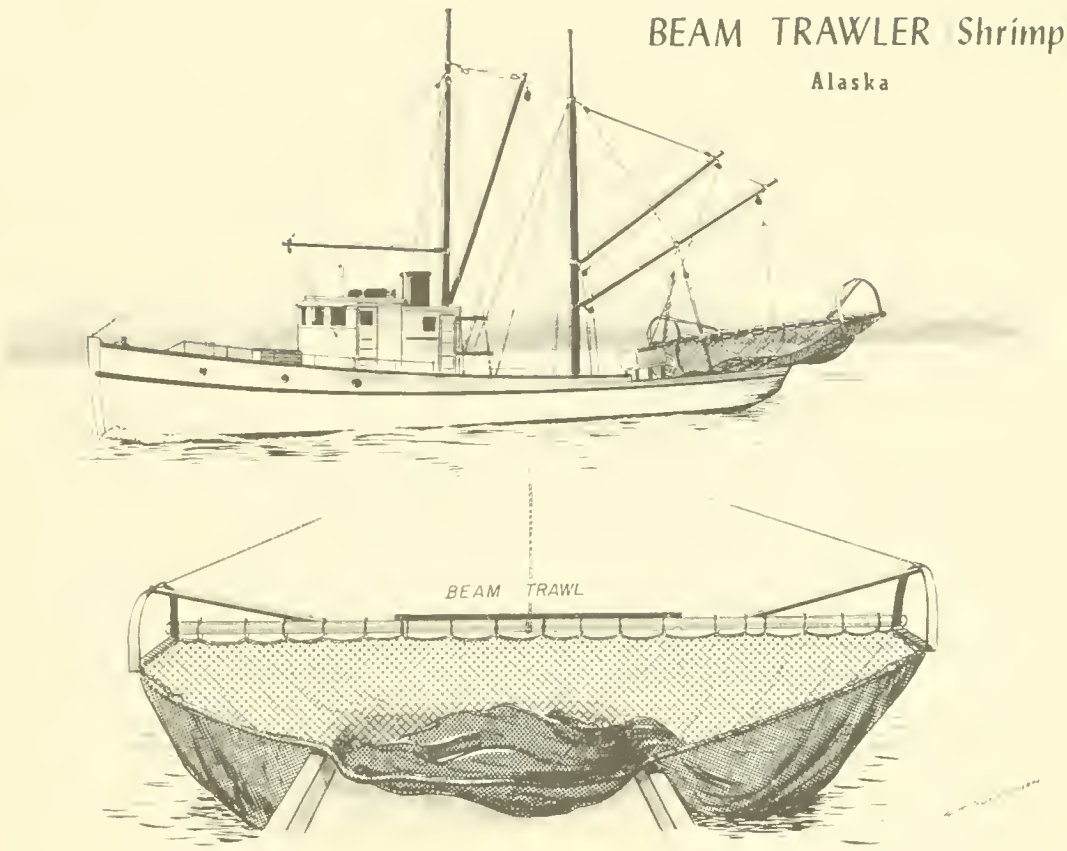
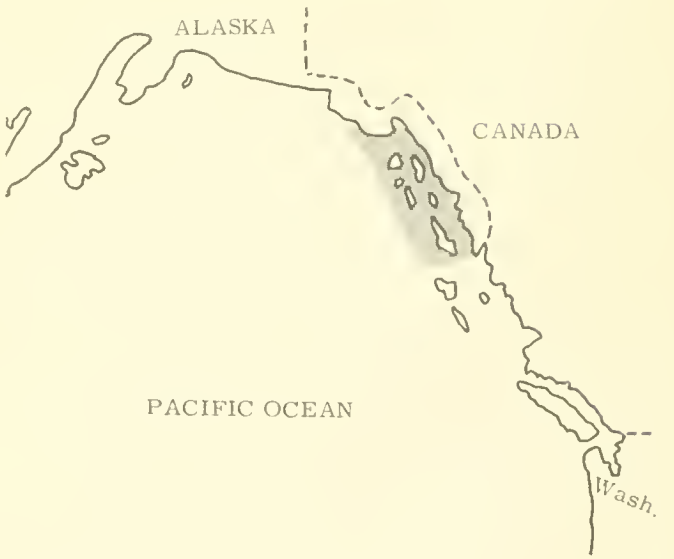
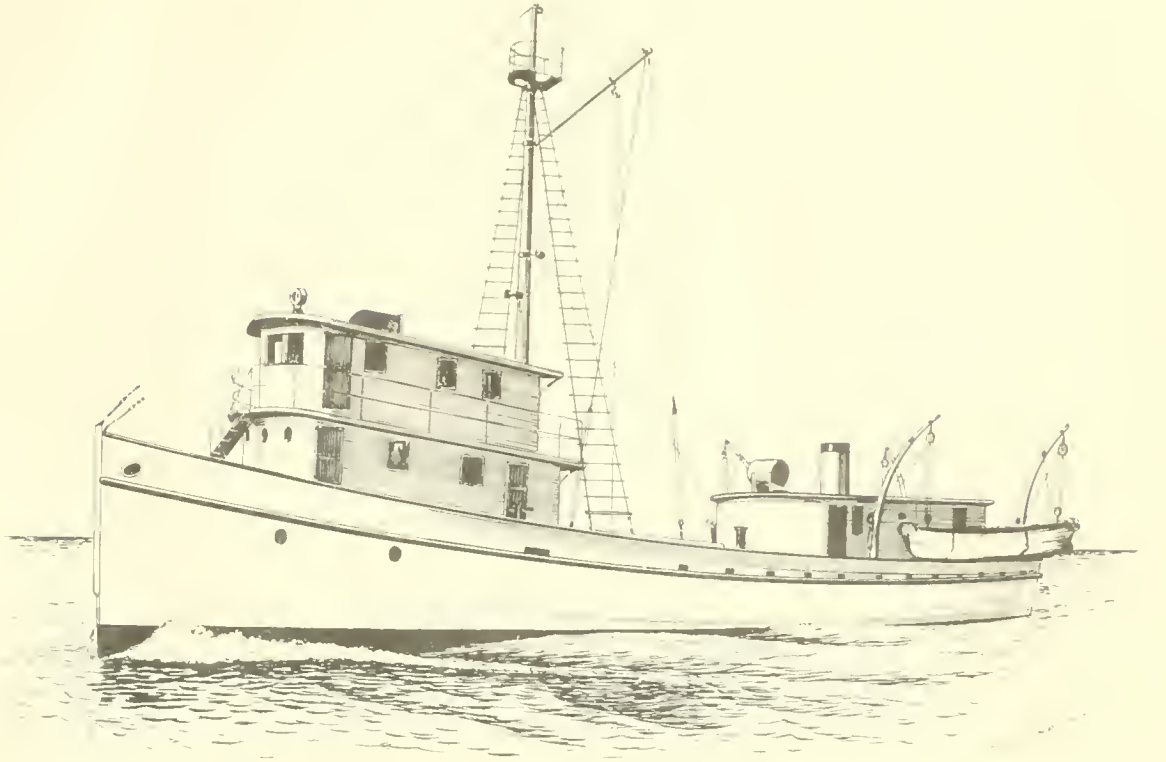


BEAM TRAWLER (Shrimp), ALASKA

Length in Feet	45 to 60
Beam in Feet	13 to 40
Draft in Feet	5 to 7
Net Tonnage	14 to 30
Construction	Wood
Engine: Type	Diesel or Gas
Horsepower	100 to 165
Type of Refrigeration	None
Cruising Speed	6 to 9 Knots
Average Crew	3 to 4
Length of Trip	1 Day
Convertibility to Other Types of Gear	None



MENHADEN PURSE SEINER

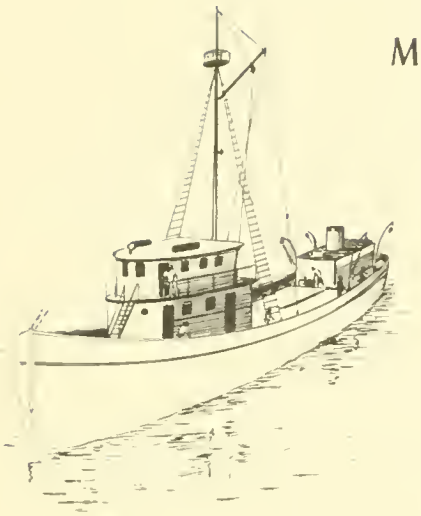


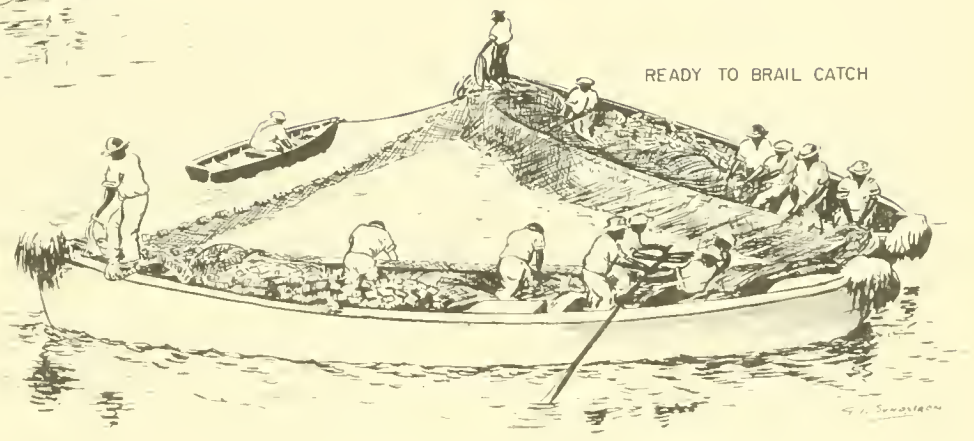
MENHADEN PURSE SEINER

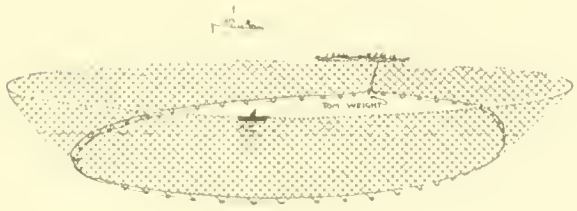
Length in Feet	82 to 134
Beam in Feet	18.5 to 27
Draft in Feet	8 to 11.8
Net Tonnage	38 to 230
Construction	Wood, some Steel
Engine: Type	Diesel
Horsepower	240 to 1000
Type of Refrigeration	None
Cruising Speed	9 to 16 Knots
Average Crew	23 to 34
Length of Trip	1 to 5 Days
Convertibility to Other Types of Gear	None

MAIN AREA OF FISHING OPERATION

MENHADEN PURSE SEINING

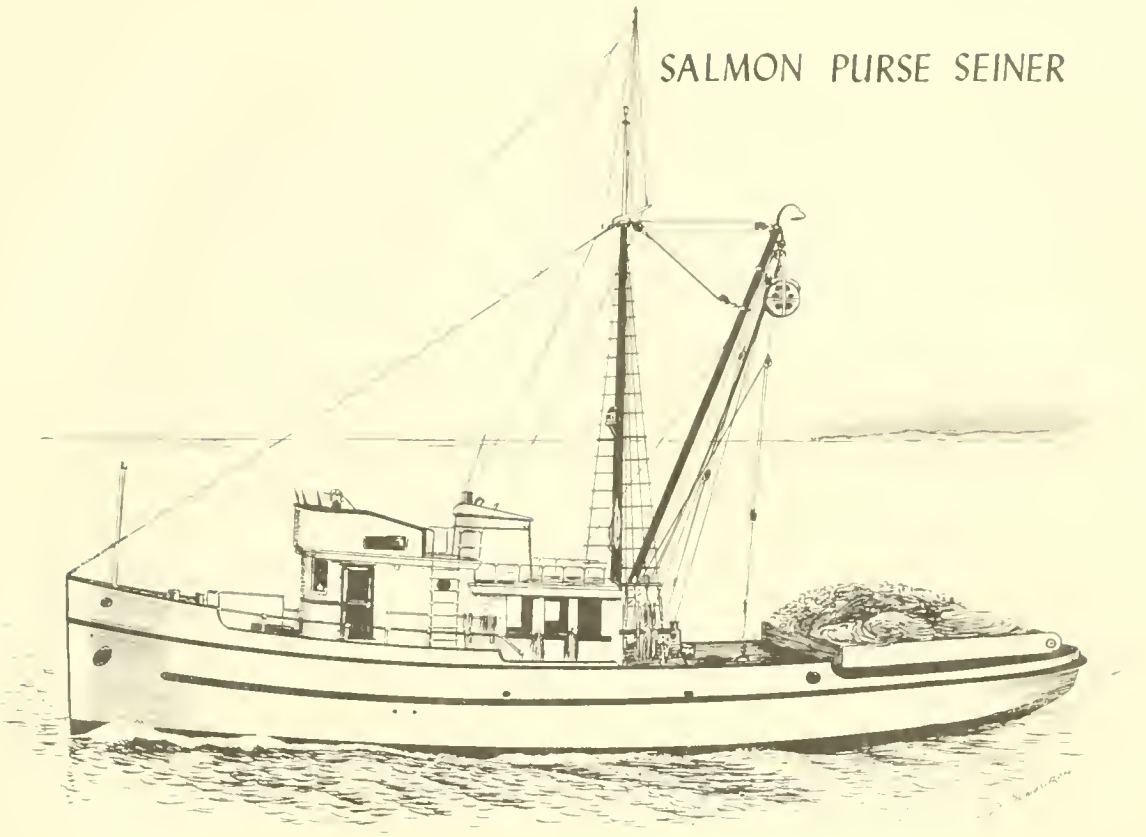






MENHADEN PURSE SEINE

SALMON PURSE SEINER

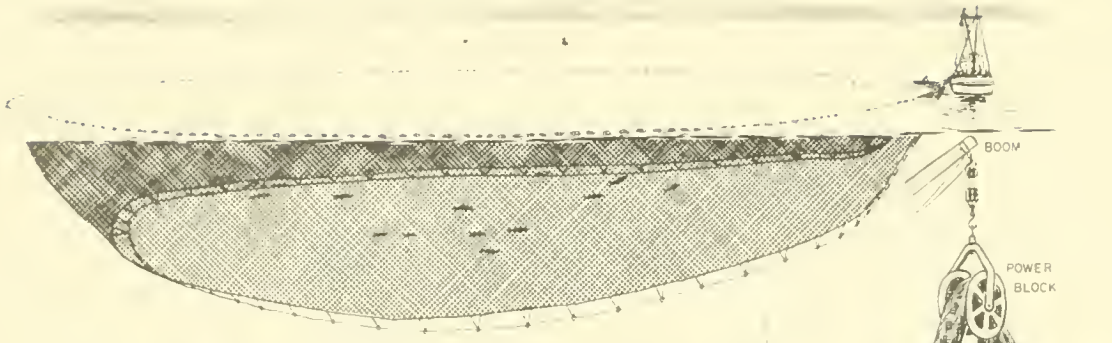


SALMON PURSE SEINER

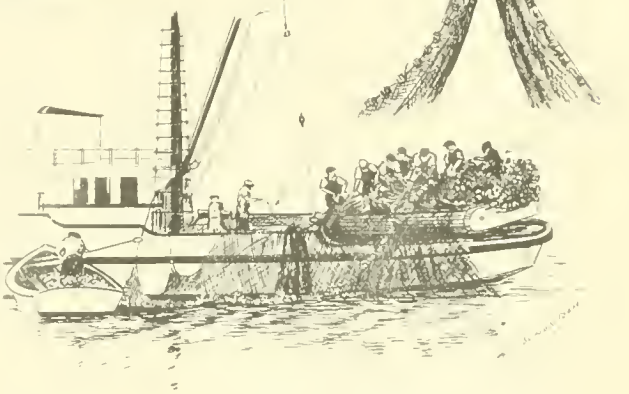
Length in Feet	35 to 80
Beam in Feet	16. 5 to 22
Draft in Feet	3. 5 to 9
Net Tonnage	7 to 40
Construction	Wood
Engine: Type	Diesel or Gas
Horsepower	35 to 300
Type of Refrigeration	None
Cruising Speed	8. 5 to 14 Knots
Average Crew	4 to 9
Length of Trip	1 to 2 Days
Convertibility to Other Types of Gear	Long-Line, Trawl and Troll

MAIN AREA OF FISHING OPERATION

SALMON PURSE SEINING



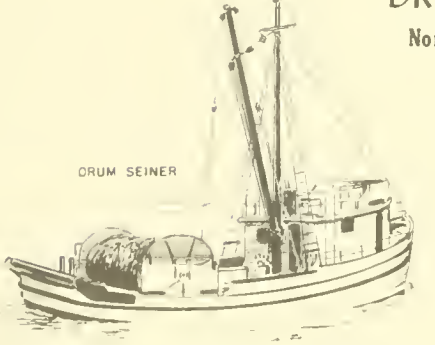
LIFTING THE PURSE

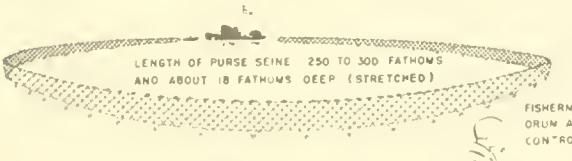


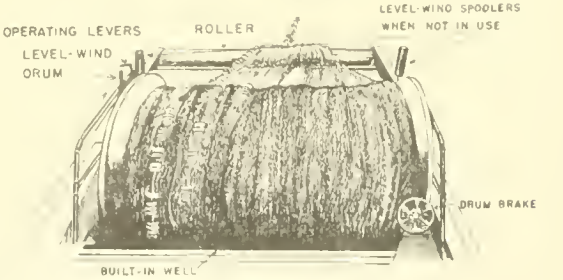
HAULING THE SEINE

DRUM SEINING

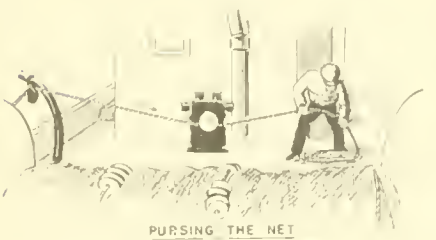
North Pacific Coast





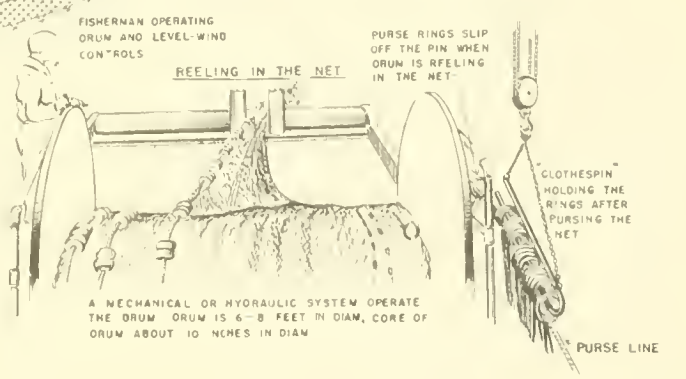


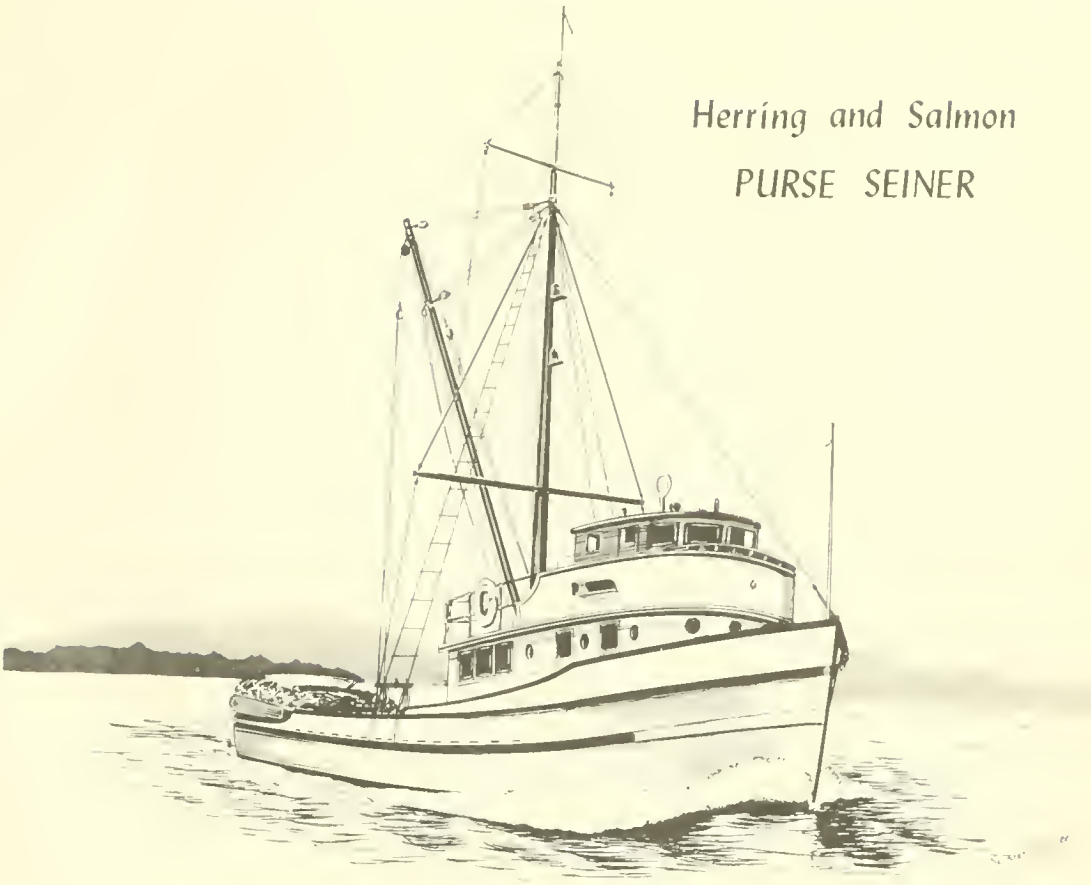
STARTING A SET



PURSING THE NET

PURSE LINE IS TAKEN IN BY THE WINCH AND COILED DOWN ON DECK



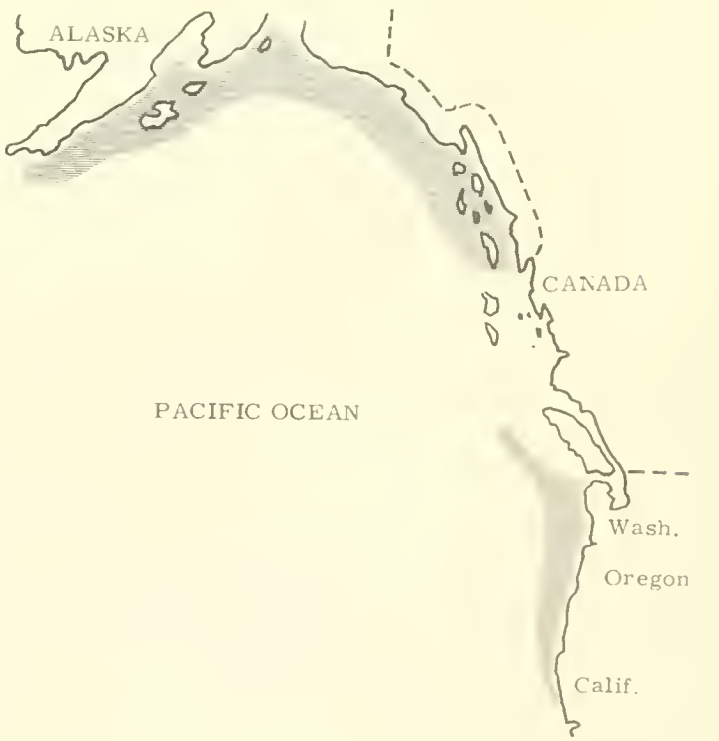


Herring and Salmon
PURSE SEINER

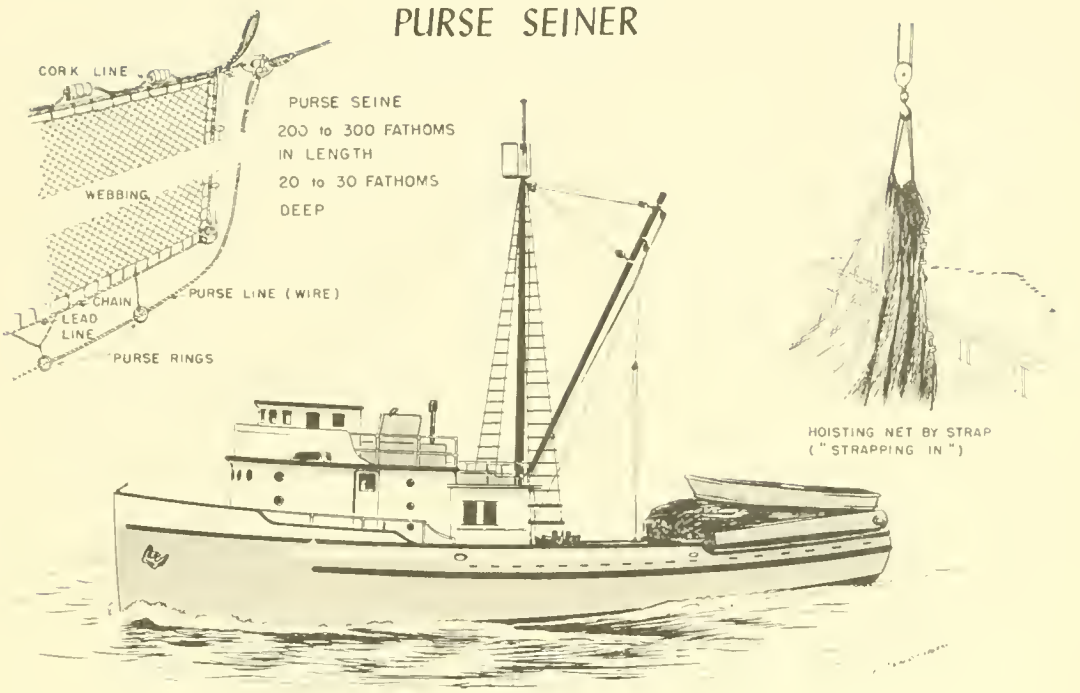
HERRING AND SALMON PURSE SEINER

Length in Feet	50 to 90
Beam in Feet	14 to 28
Draft in Feet	5 to 12
Net Tonnage	20 to 100
Construction	Wood, some Steel
Engine: Type	Diesel
Horsepower	165 to 500
Type of Refrigeration	Mechanical
Cruising Speed	8 to 15 Knots
Average Crew	5 to 12
Length of Trip	1 to 5 Days
Convertibility to Other Types of Gear	Pilchard and Tuna Seine

MAIN AREA OF FISHING OPERATION



Sardine and Tuna
PURSE SEINER



SARDINE AND TUNA PURSE SEINER

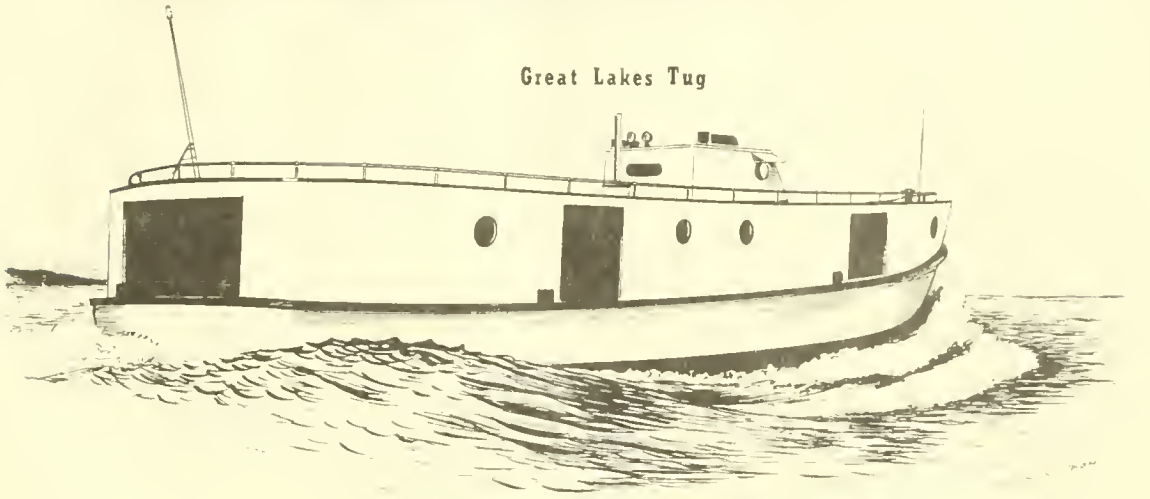
Length in Feet	65 to 100
Beam in Feet	19 to 28
Draft in Feet	10 to 13
Net Tonnage	50 to 150
Construction	Wood
Engine: Type	Diesel
Horsepower	165 to 600
Type of Refrigeration	Mechanical or Ice
Cruising Speed	8 to 10 Knots
Average Crew	10 to 13
Length of Trip	1 to 30 Days
Convertibility to Other Types of Gear	Trawl

MAIN AREA OF FISHING OPERATION

GILL NET

Great Lakes

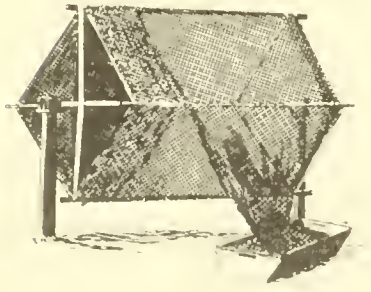
Great Lakes Tug



GILL NET OPERATION

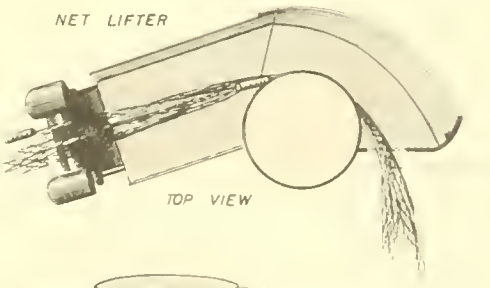
Great Lakes

NET LIFTER IN OPERATION

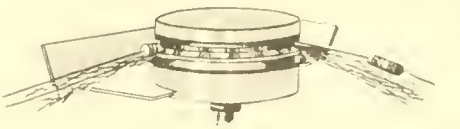


DRYING GILL NETS

NET LIFTER

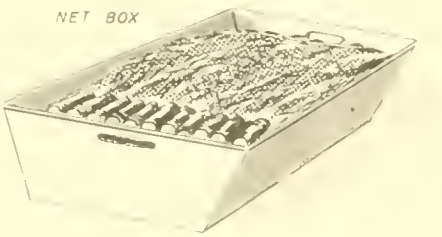


TOP VIEW



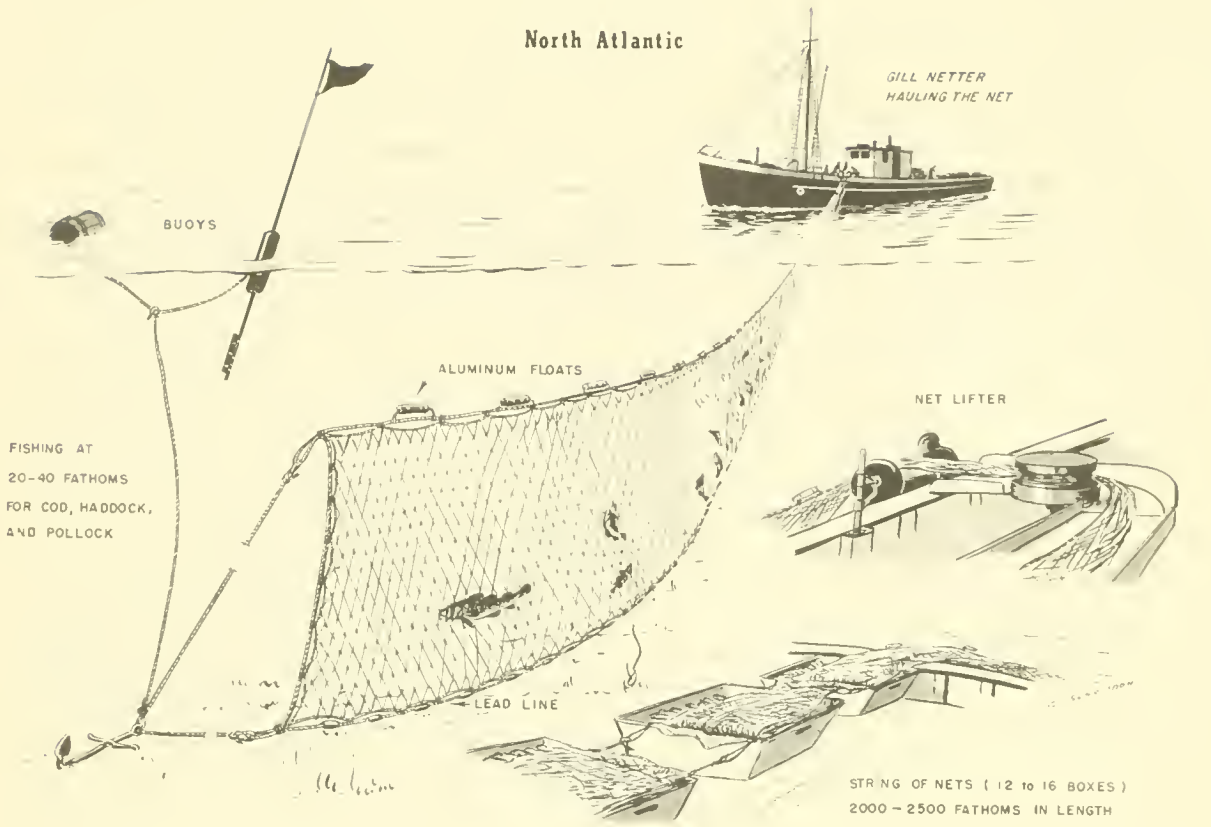
SIDE VIEW

NET BOX



GILL NET

North Atlantic



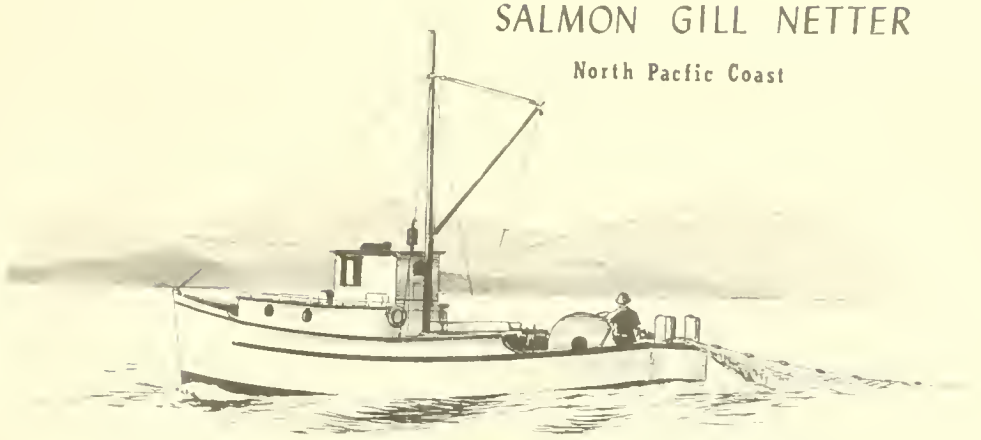
GILL NETTER

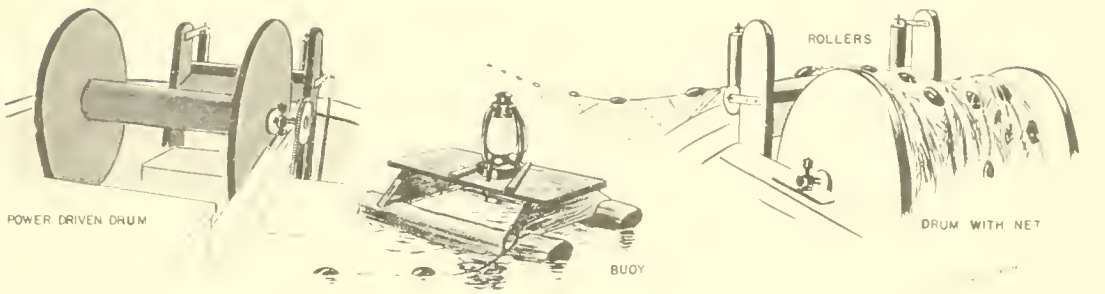
Length in Feet	34 to 69
Beam in Feet	10 to 16
Draft in Feet	4 to 8
Net Tonnage	5 to 36
Construction	Wood
Engine: Type	Diesel, Some Gas
Horsepower	100 to 170
Type of Refrigeration	None
Cruising Speed	5 to 10 Knots
Average Crew	3 to 7
Length of Trip	8 Hours to 1 Day
Convertibility to Other Types of Gear	Lobster Pots, Trawl, Clam Dredge

MAIN AREA OF FISHING OPERATION

SALMON GILL NETTER

North Pacific Coast





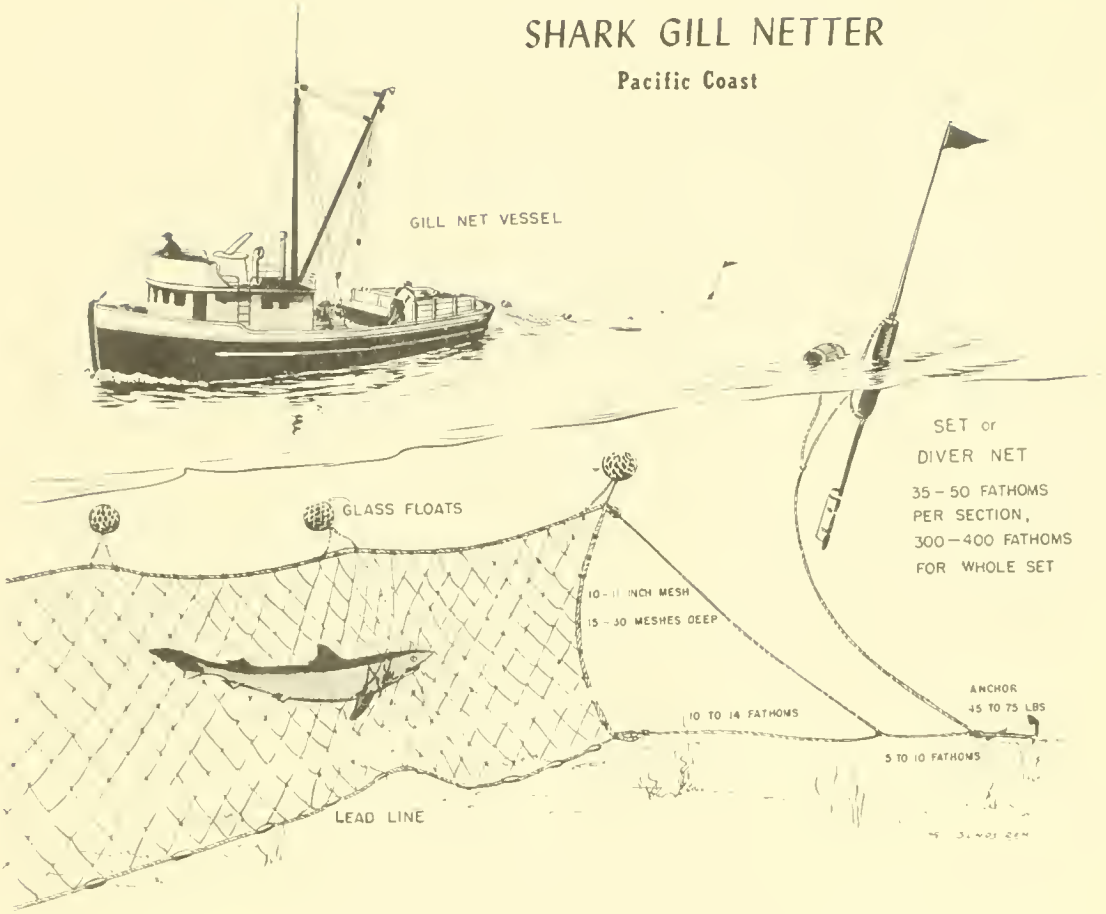
SALMON GILL NETTER

Length in Feet	22 to 32
Beam in Feet	7 to 16. 5
Draft in Feet	1½ to 3
Net Tonnage	½ to 7
Construction	Wood
Engine: Type	Gas
Horsepower	50 to 140
Type of Refrigeration	None
Cruising Speed	7 to 22 Knots
Average Crew	1 to 2
Length of Trip	1 to 2 Days
Convertibility to Other Types of Gear	Hand-Line, Troll

MAIN AREA OF FISHING OPERATION

SHARK GILL NETTER

Pacific Coast

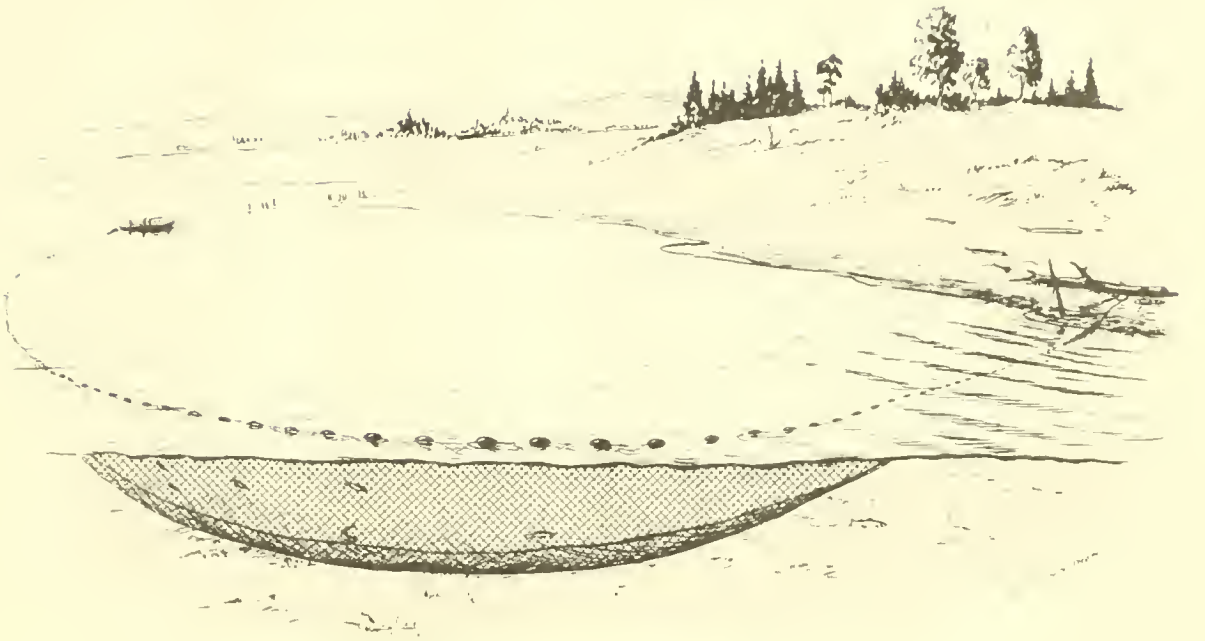


PACIFIC SHARK GILL NETTER

Length in Feet	30 to 60
Beam in Feet	10 to 15
Draft in Feet	3 to 7
Net Tonnage	6 to 25
Construction	Wood
Engine: Type	Gas
Horsepower	75 to 150
Type of Refrigeration	None
Cruising Speed	8 to 11 Knots
Average Crew	4 to 6
Length of Trip	2 to 6 Days
Convertibility to Other Types of Gear	Purse Seine, Troll, Trawl, and Halibut Long-Line

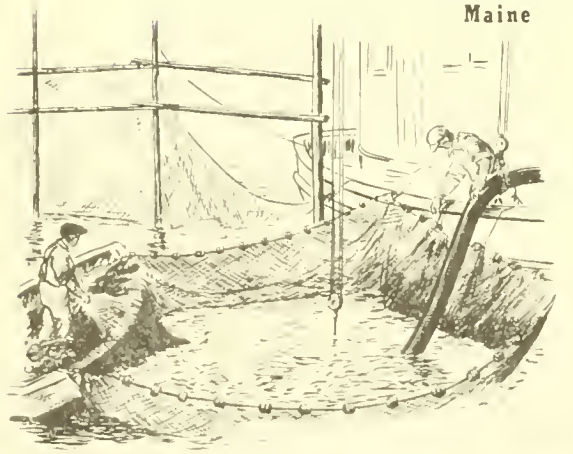
MAIN AREA OF FISHING OPERATION

HAUL SEINE

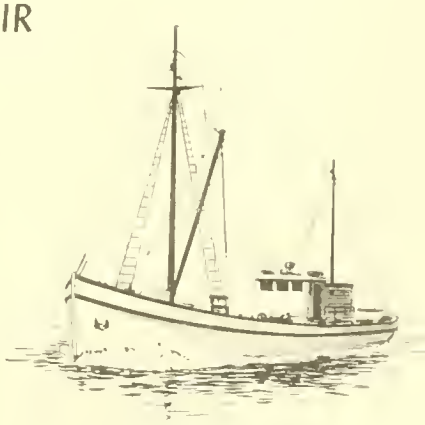


SARDINE WEIR

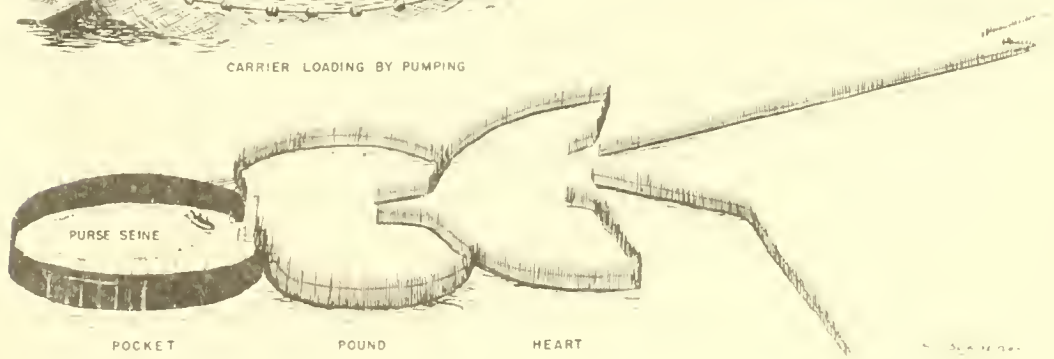
Maine



CARRIER LOADING BY PUMPING



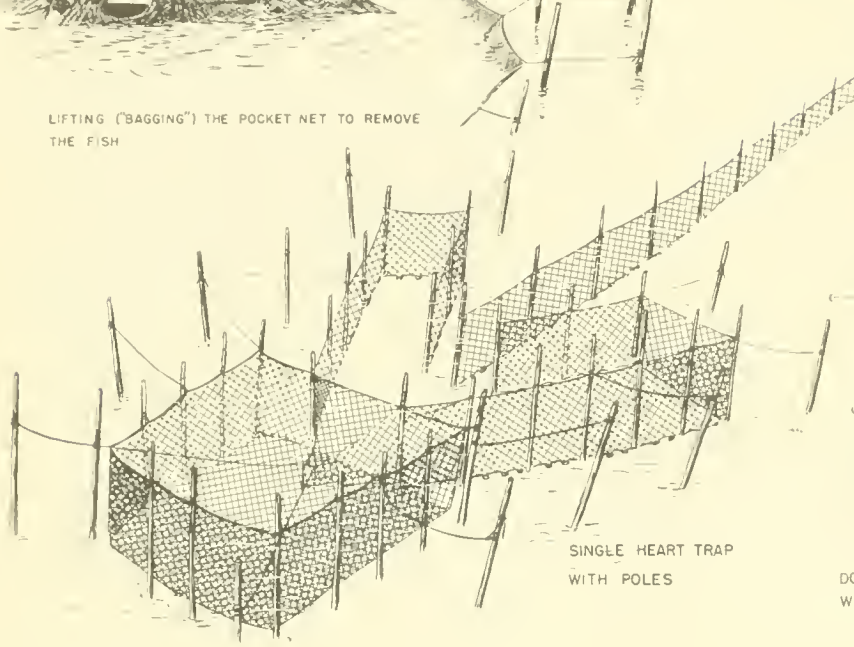
SARDINE CARRIER



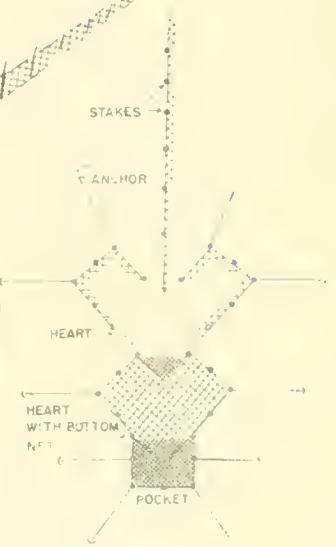
POUND NET

Atlantic Coast

LIFTING ("BAGGING") THE POCKET NET TO REMOVE THE FISH



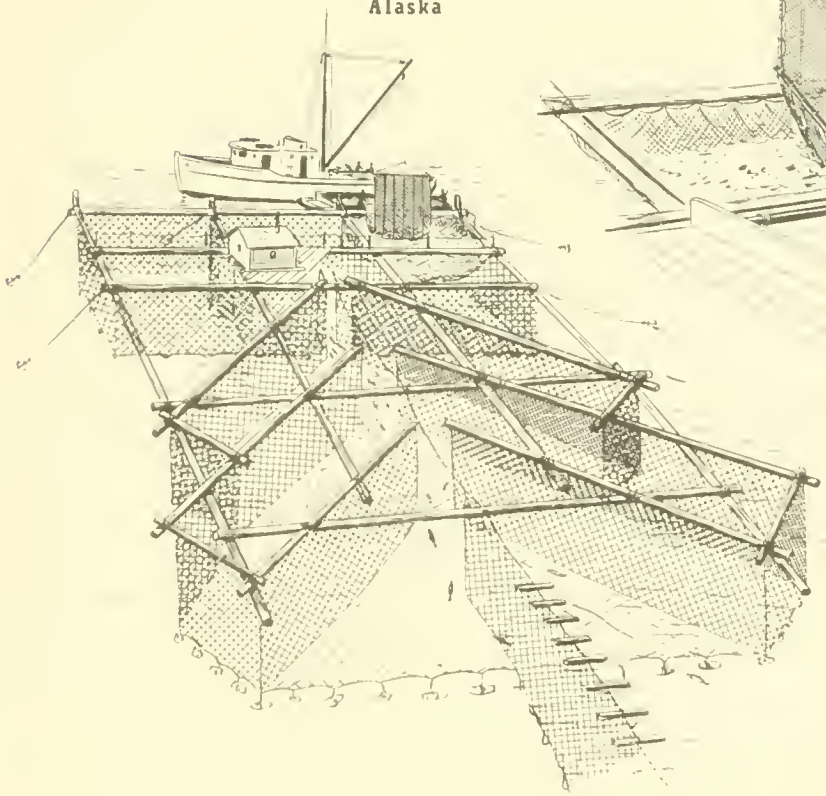
SINGLE HEART TRAP WITH POLES

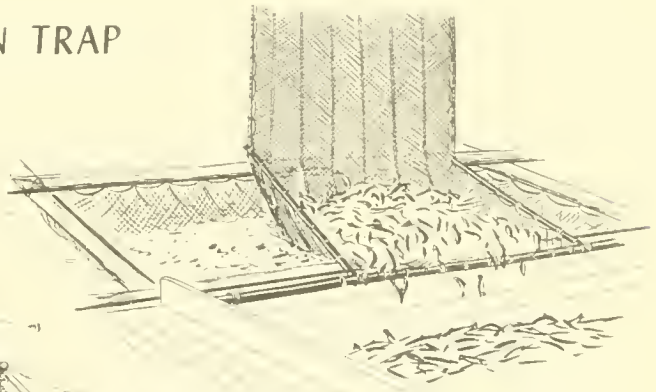


DOUBLE HEART TRAP WITH ANCHORS

FLOATING SALMON TRAP

Alaska



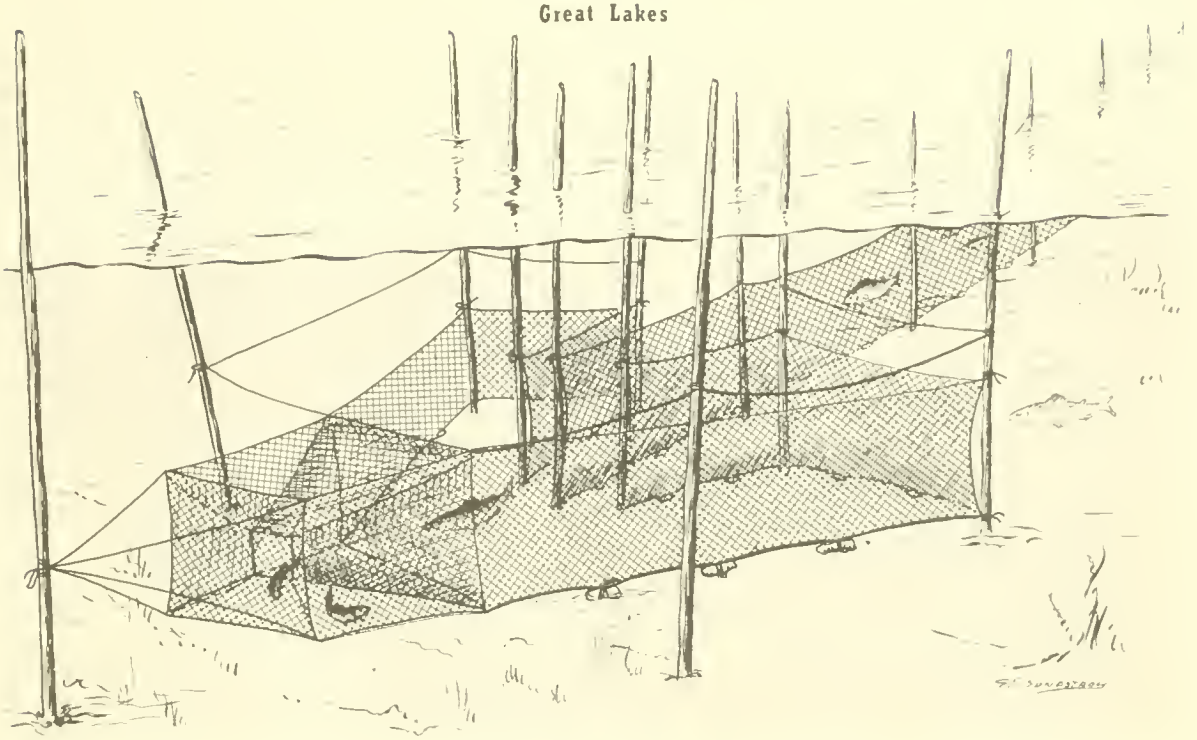


BRAILING

ANCHOR

POUND NET

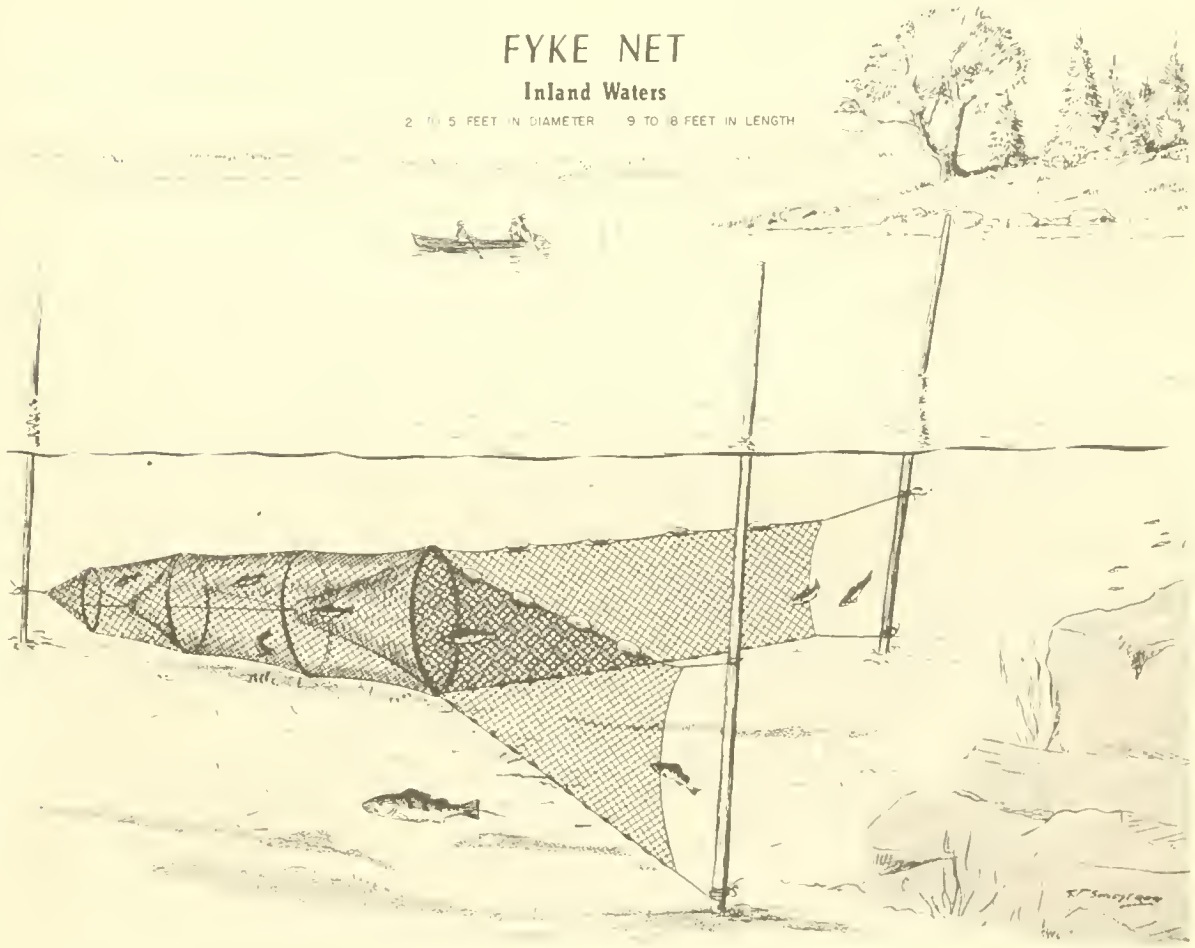
Great Lakes

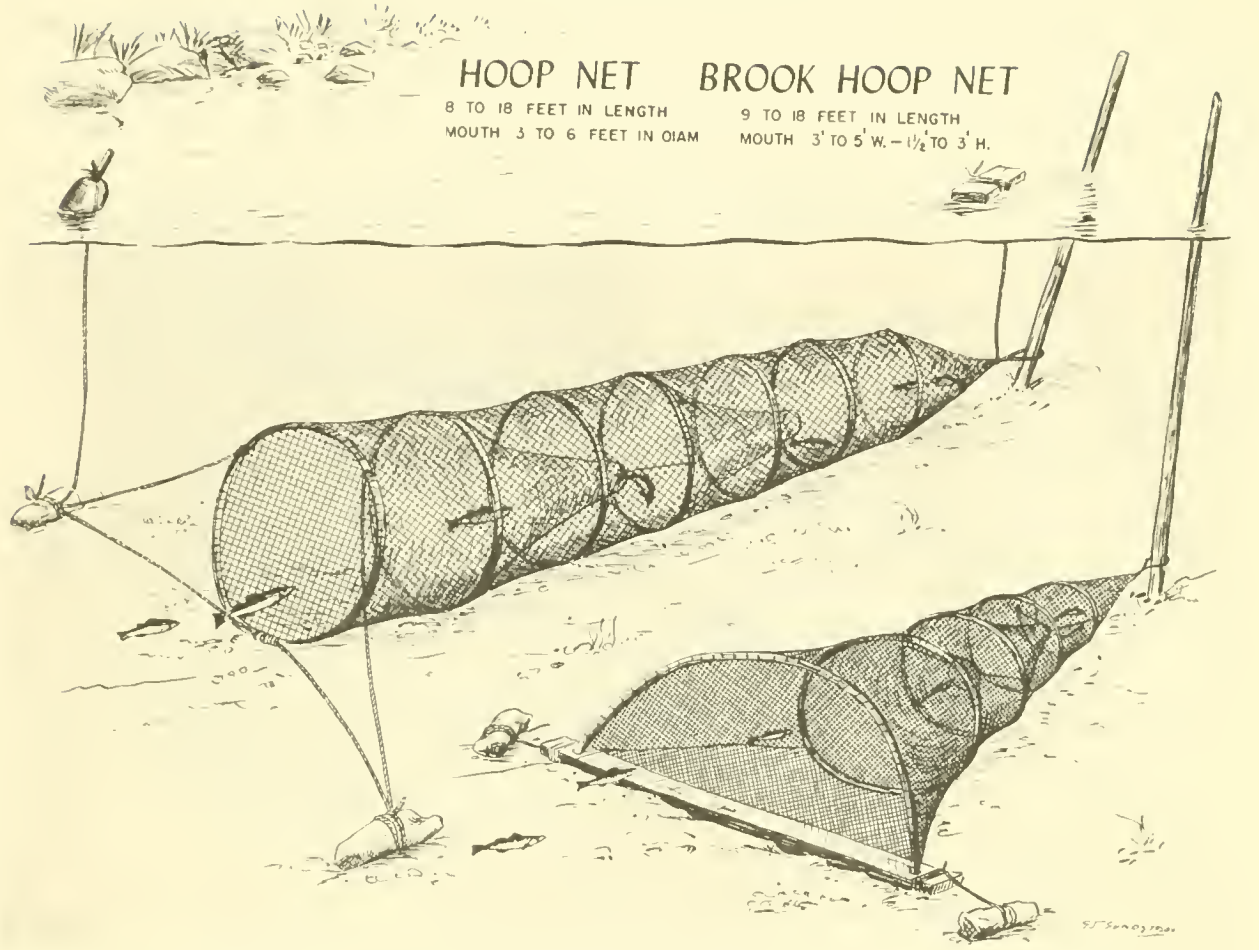


FYKE NET

Inland Waters

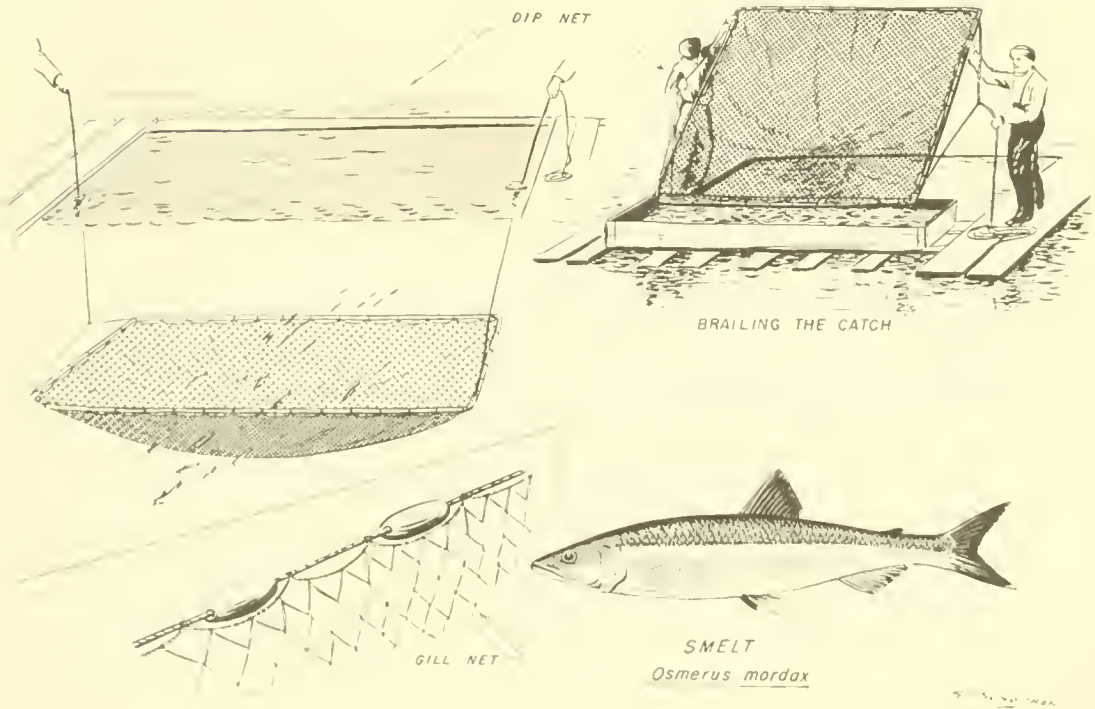
2 TO 5 FEET IN DIAMETER 9 TO 18 FEET IN LENGTH





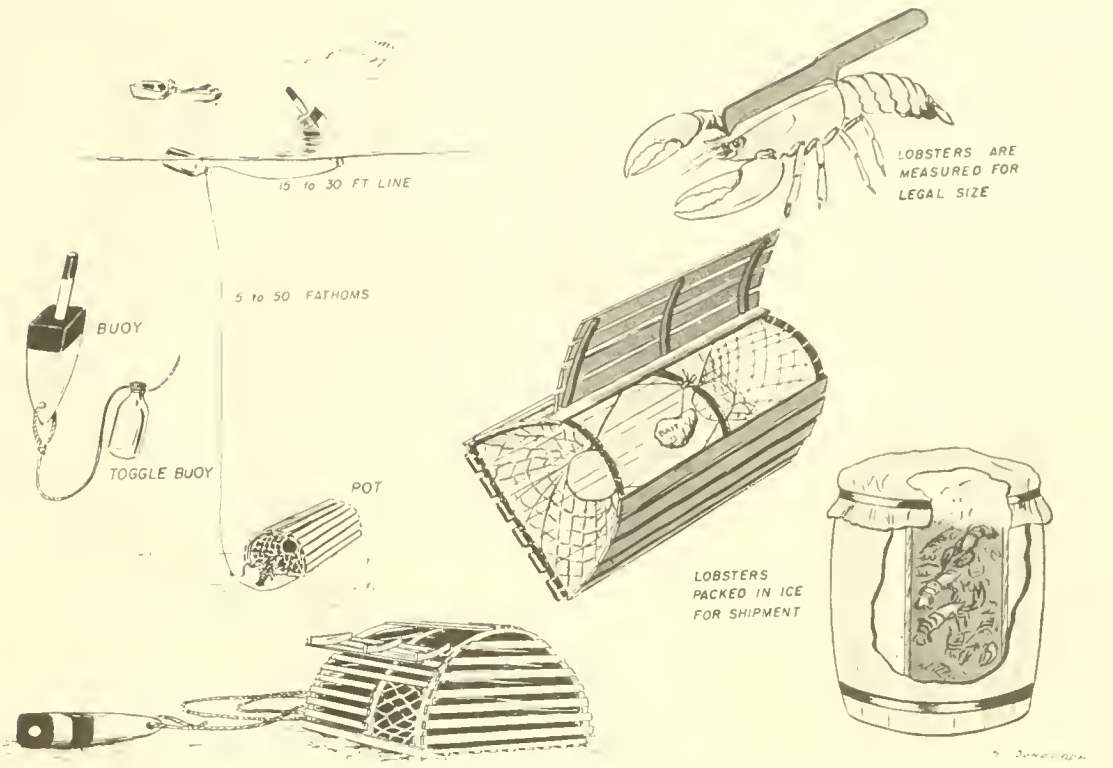
SMELT FISHING

Great Lakes Region



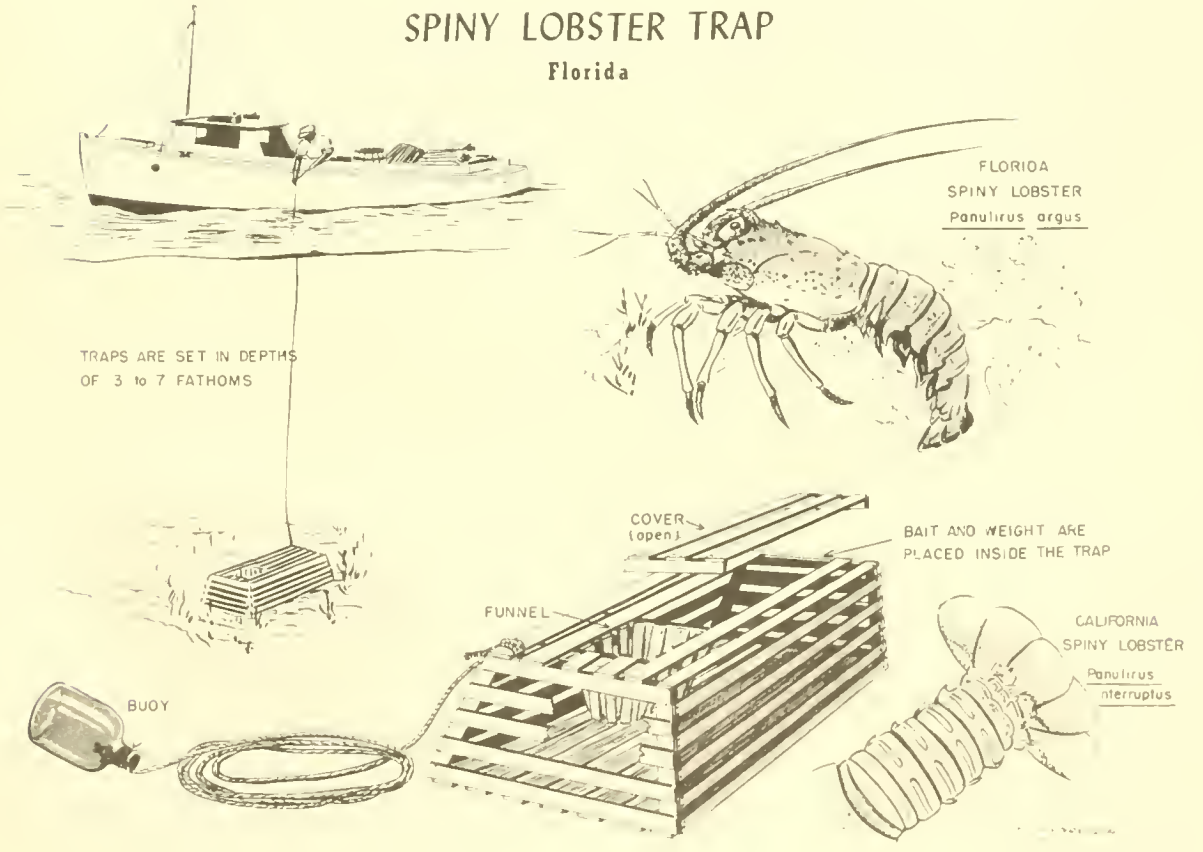
LOBSTER POTS

Maine



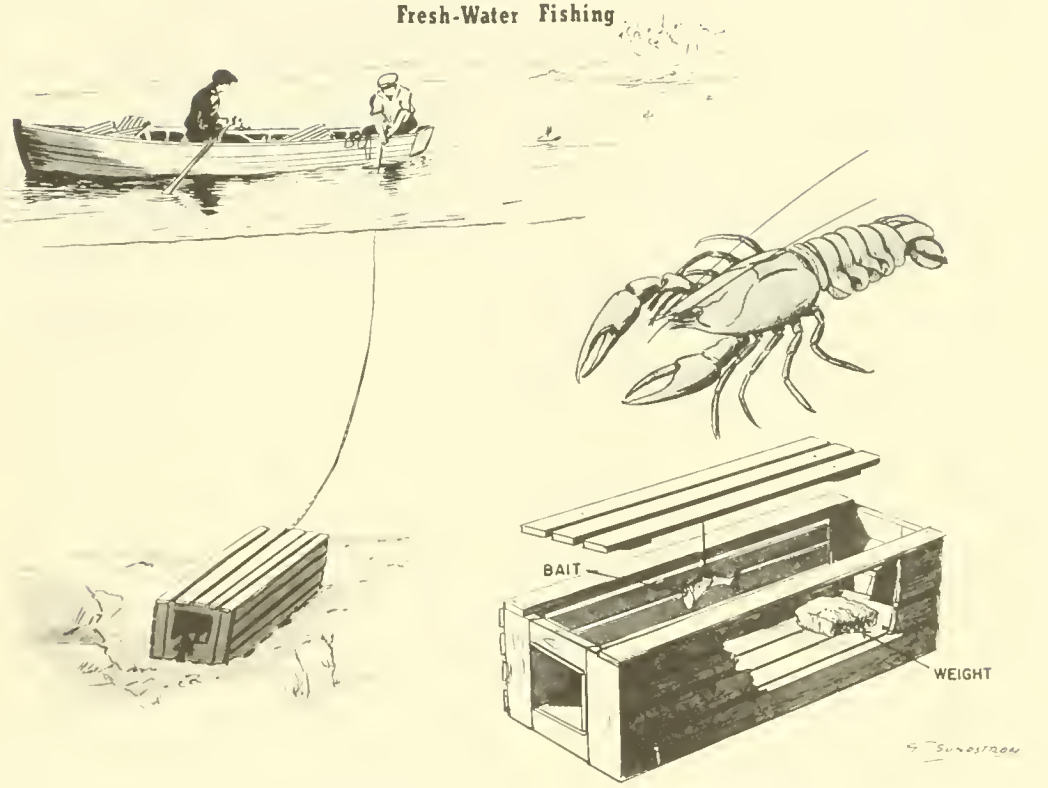
SPINY LOBSTER TRAP

Florida

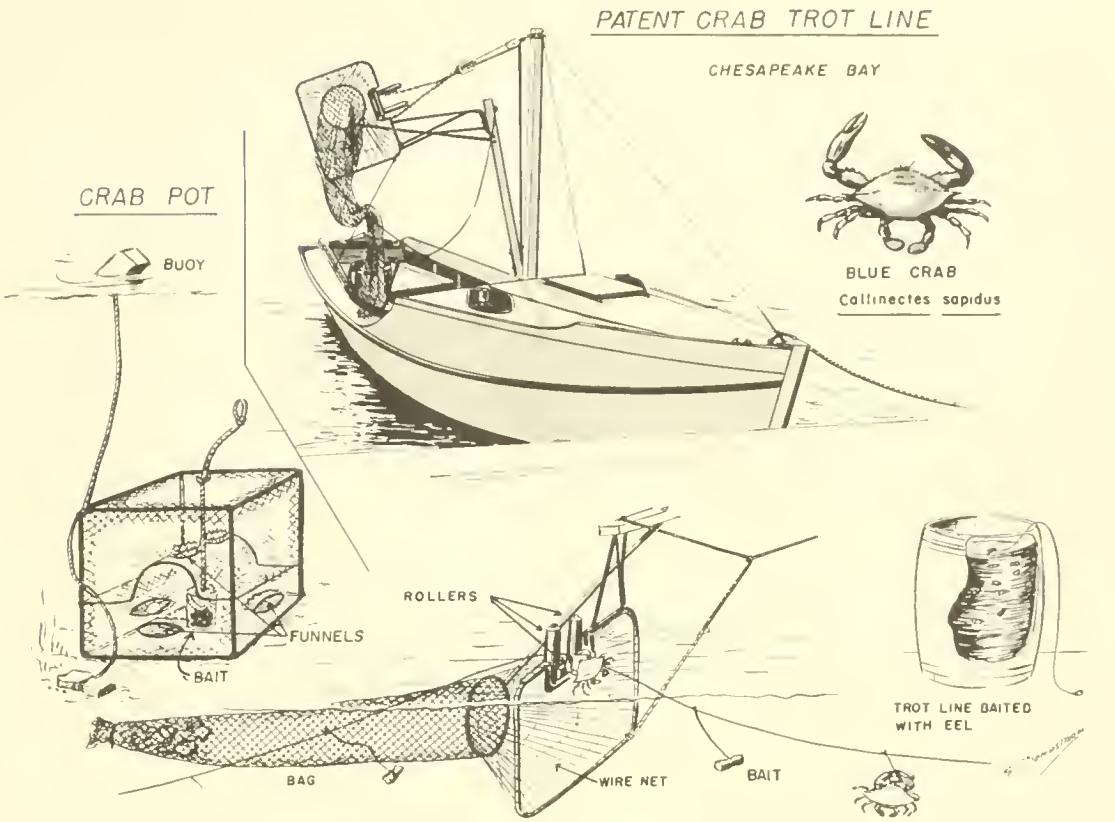


CRAYFISH TRAP

Fresh-Water Fishing



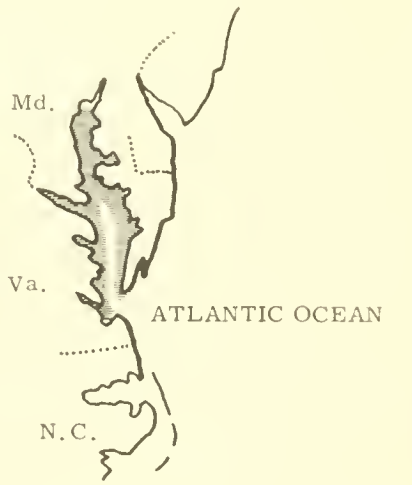
BLUE CRAB FISHING



PATENT CRABBER

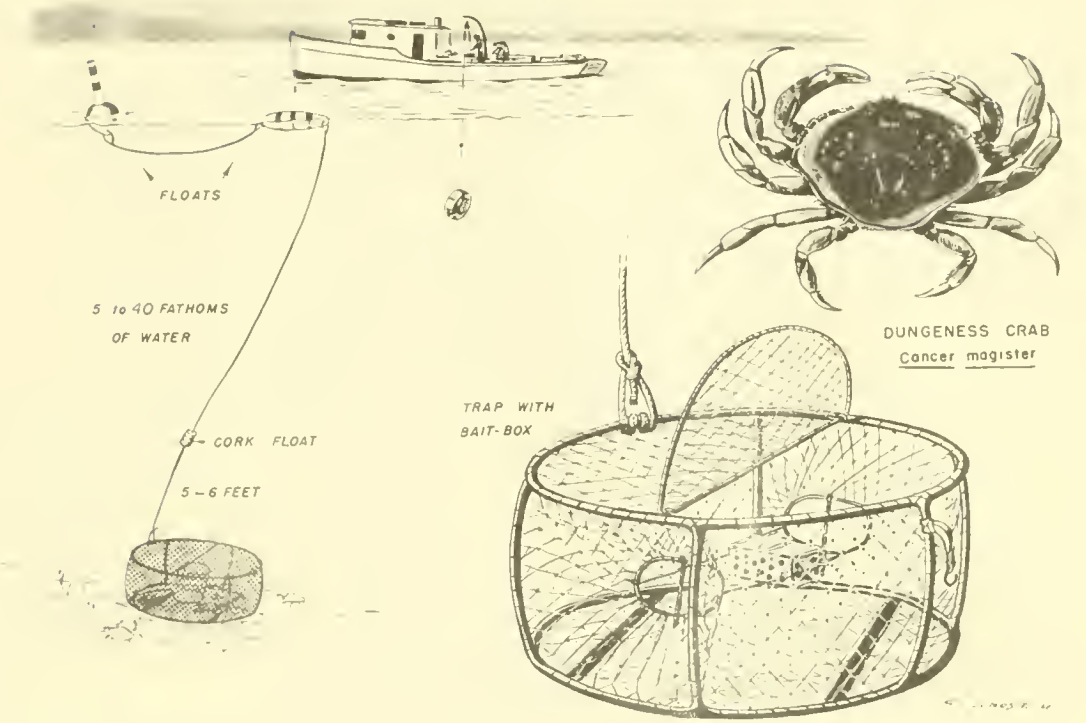
Length in Feet	32 to 40
Beam in Feet	8 to 12
Draft in Feet	3 to 4
Net Tonnage	5 to 7
Construction	Wood
Engine: Type	Gas
Horsepower	25 to 100
Type of Refrigeration	None
Cruising Speed	8 to 10 Knots
Average Crew	1 to 2
Length of Trip	1 Day
Convertibility to Other Types of Gear	Trot Line

MAIN AREA OF FISHING OPERATION



DUNGENESS CRAB TRAP

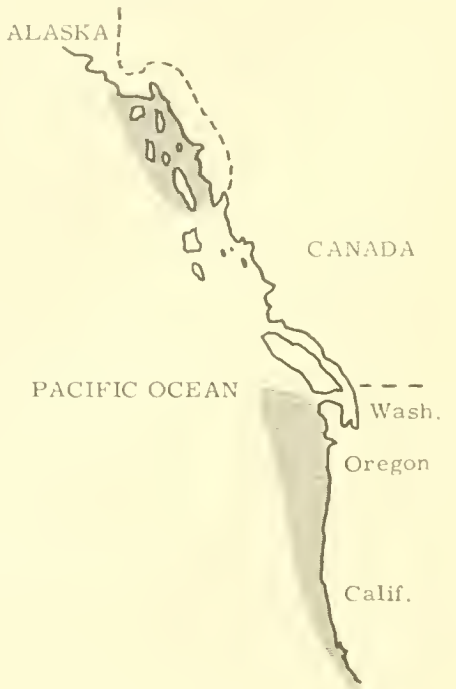
Pacific Coast



DUNGENESS CRAB BOAT

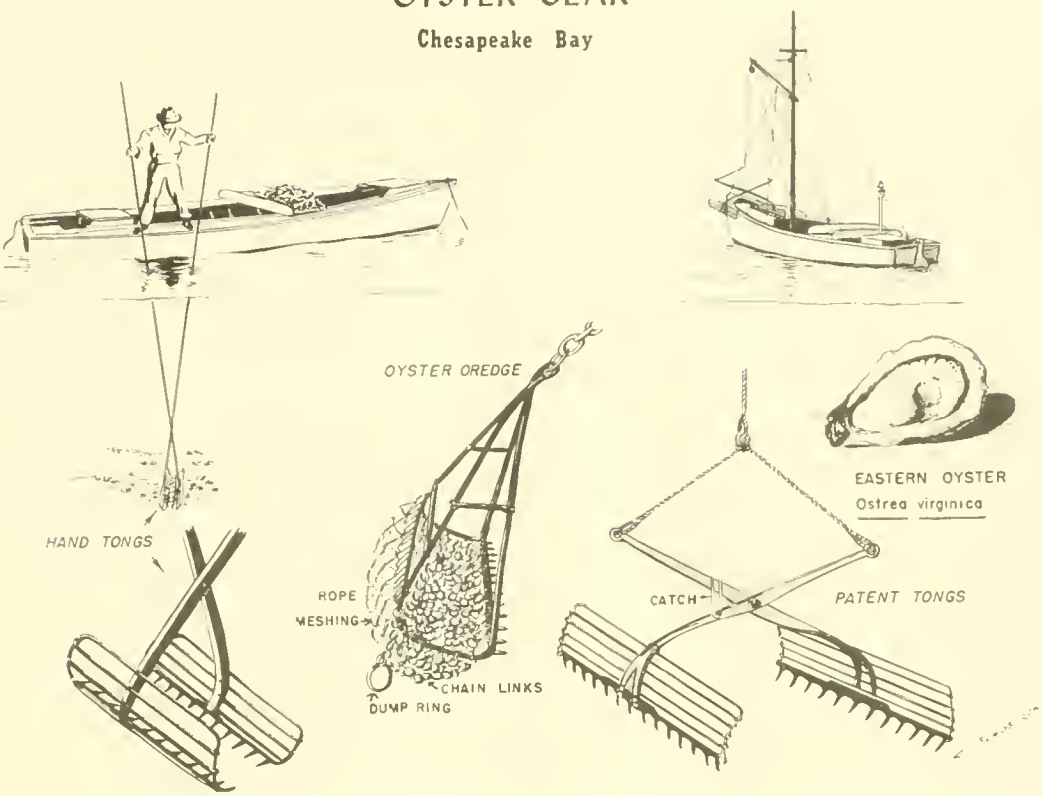
Length in Feet	30 to 65
Beam in Feet	10 to 14
Draft in Feet	3 to 6
Net Tonnage	3 to 20
Construction	Wood or Steel
Engine: Type	Diesel or Gas
Horsepower	75 to 150
Cruising Speed	8 to 14 Knots
Average Crew	2 to 3
Length of Trip	1 to 10 Days
Convertibility to Other Types of Gear	Purse Seine, Troll, and Halibut Long-Line

MAIN AREA OF FISHING OPERATION



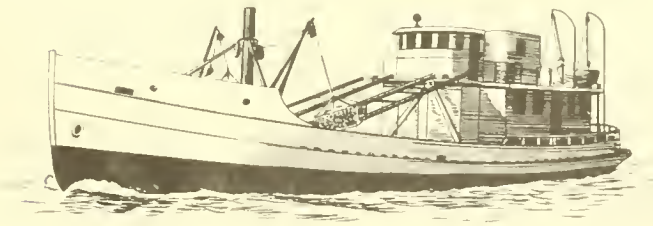
OYSTER GEAR

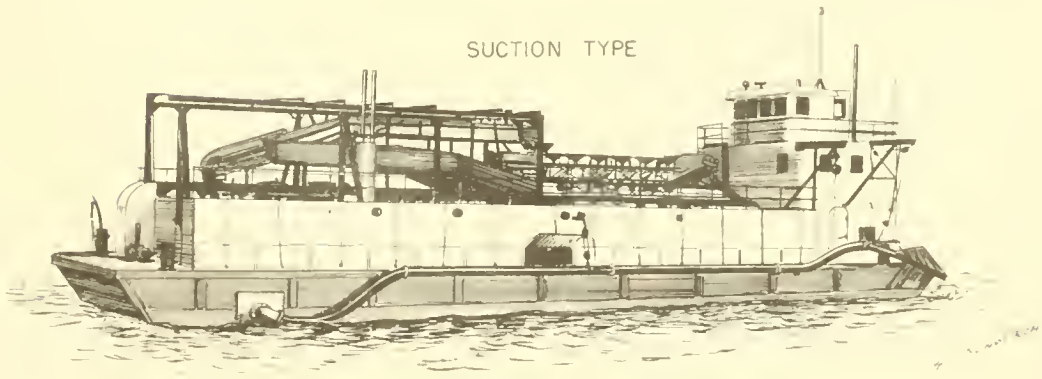
Chesapeake Bay



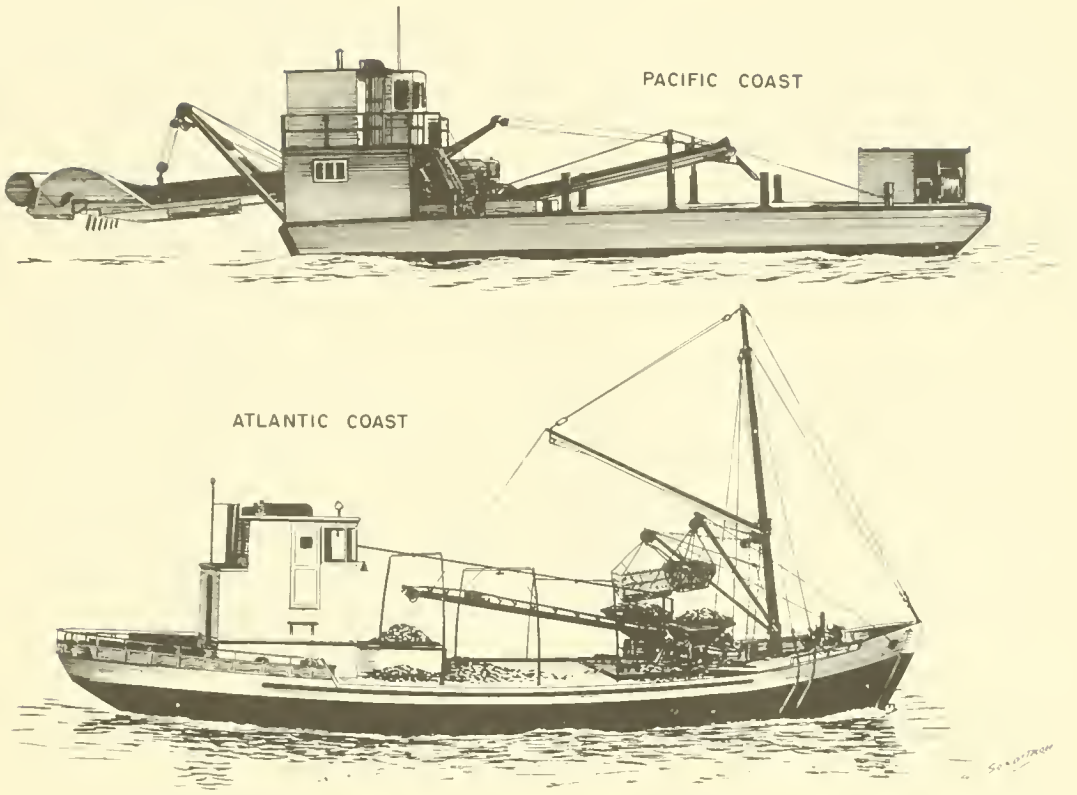
OYSTER DREDGE

Atlantic Coast





OYSTER DREDGE



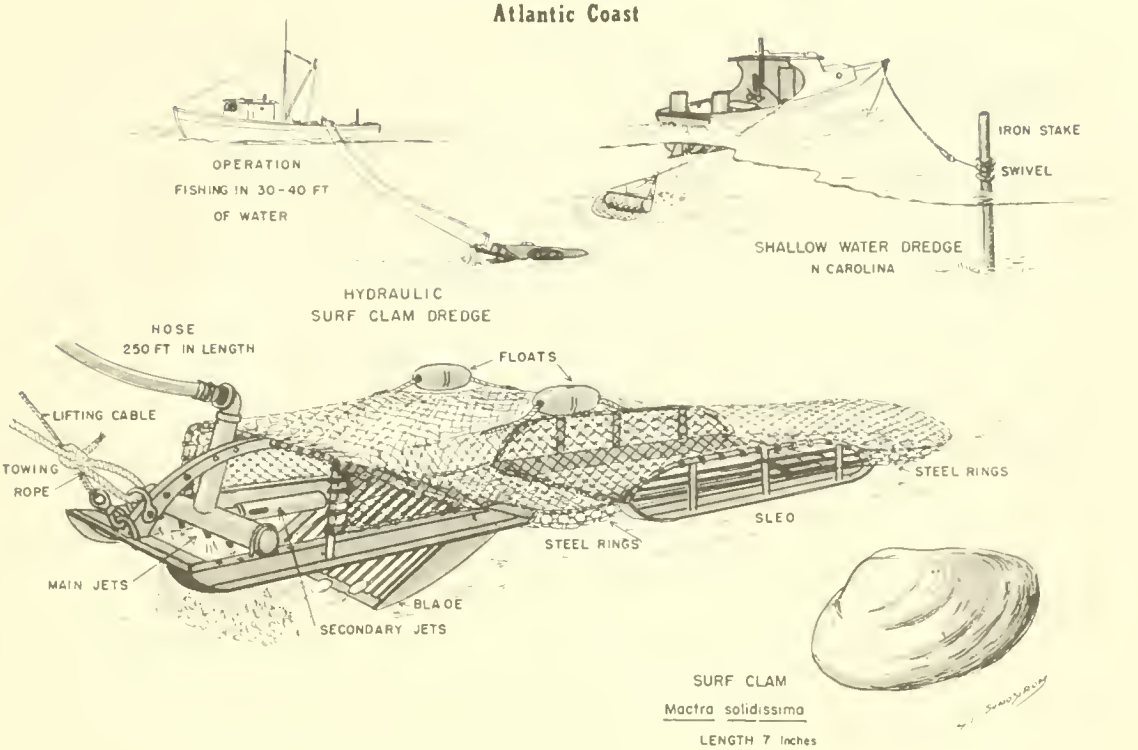
OYSTER DREDGE

Length in Feet	34 to 96
Beam in Feet	8 to 23
Draft in Feet	2.5 to 8
Net Tonnage	25 to 70
Construction	Wood
Engine: Type	Diesel or Gas
Horsepower	25 to 275
Type of Refrigeration	None
Cruising Speed	8 to 15 Knots
Average Crew	1 to 10
Length of Trip	1 Day
Convertibility to Other Types of Gear	Clam or Crab Dredge

MAIN AREA OF FISHING OPERATION

CLAM FISHING

Atlantic Coast



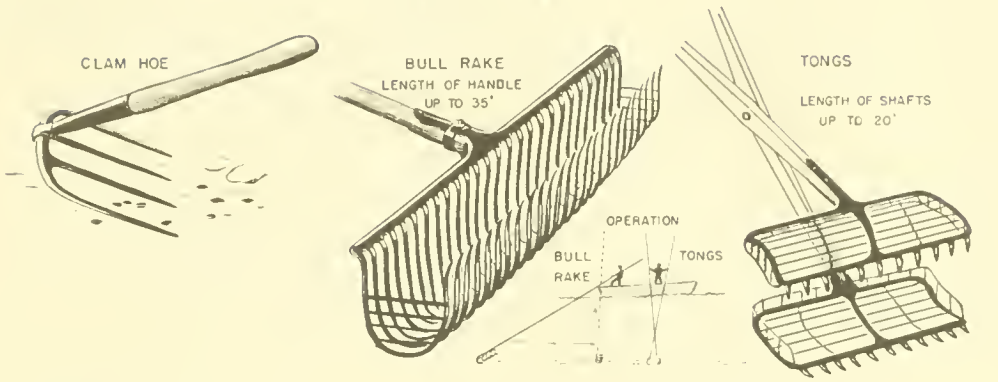
CLAM DREDGER

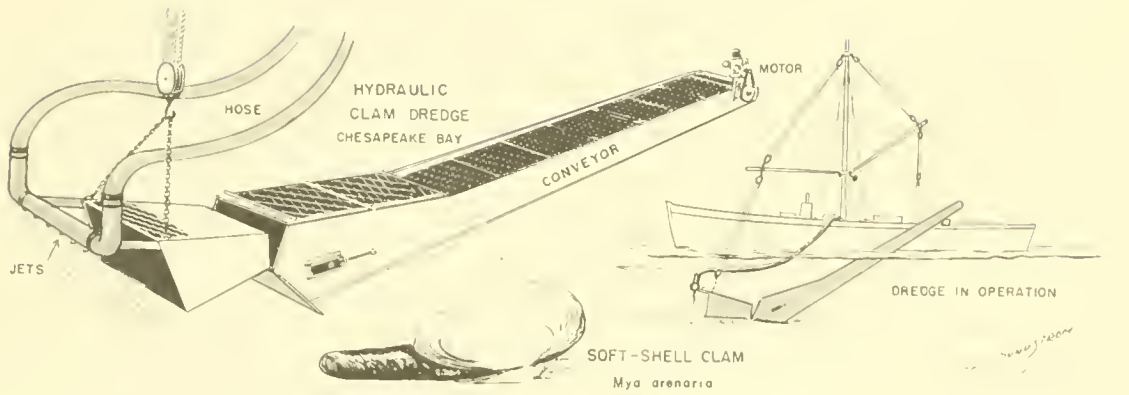
Length in Feet	31 to 62
Beam in Feet	9 to 18
Draft in Feet	3 to 9
Net Tonnage	3 to 40
Construction	Wood
Engine: Type	Diesel or Gas
Horsepower	25 to 250
Type of Refrigeration	None
Cruising Speed	8 to 11 Knots
Average Crew	1 to 3
Length of Trip	1 Day
Convertibility to Other Types of Gear	Trawl, Gill Net, Crab Dredge, and Trot Line

MAIN AREA OF FISHING OPERATION

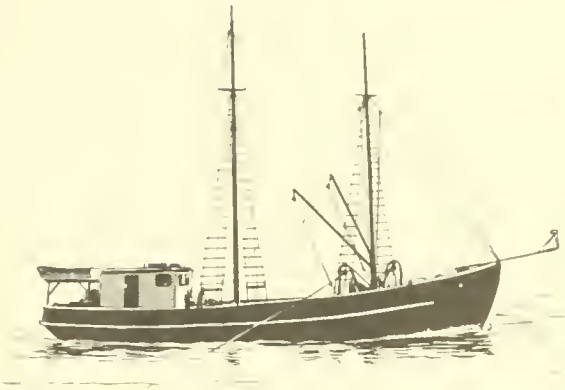
CLAM FISHING

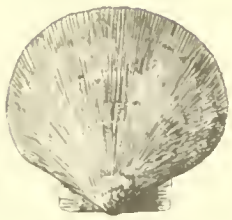
Atlantic Coast



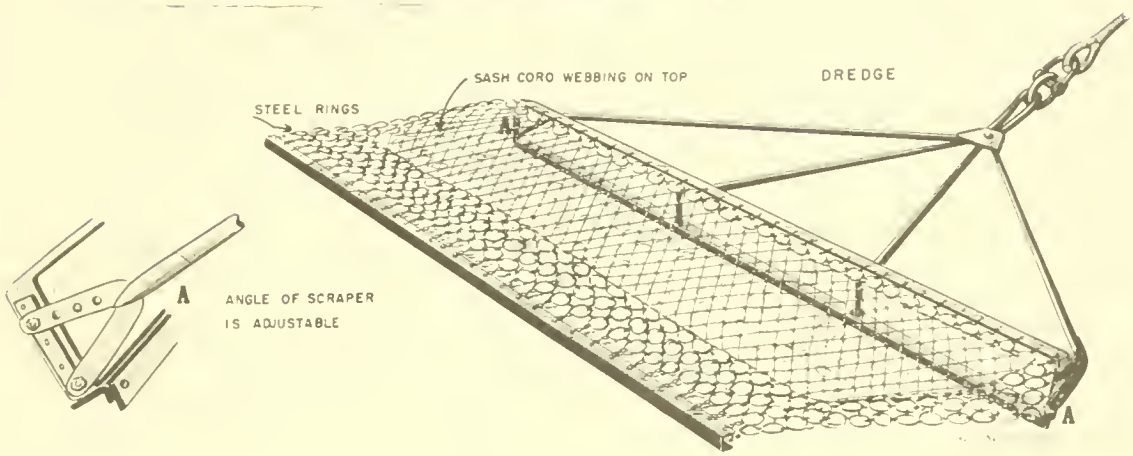


SEA SCALLOP FISHING





SEA SCALLOP
Pecten magellanicus



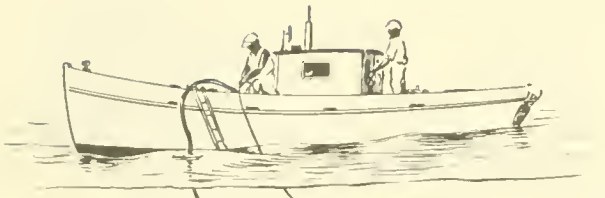
SEA SCALLOP DRAGGER

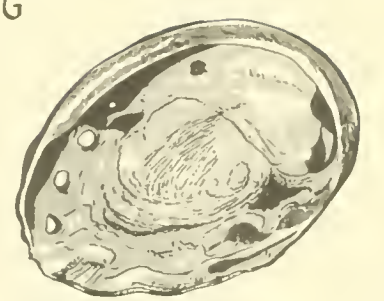
Length in Feet	40 to 100
Beam in Feet	16 to 22
Draft in Feet	6.5 to 11
Net Tonnage	15 to 80
Construction	Wood
Engine: Type	Diesel
Horsepower	110 to 330
Type of Refrigeration	Ice
Cruising Speed	7 to 12 Knots
Average Crew	6 to 12
Length of Trip	6 to 12 Days
Convertibility to Other Types of Gear	Purse Seine, Otter Trawl, and Long-Line

MAIN AREA OF FISHING OPERATION

ABALONE FISHING

California





RED ABALONE SHELL
Haliotis rufescens

DIVING FOR ABALONE
AT 30 TO 100 FEET

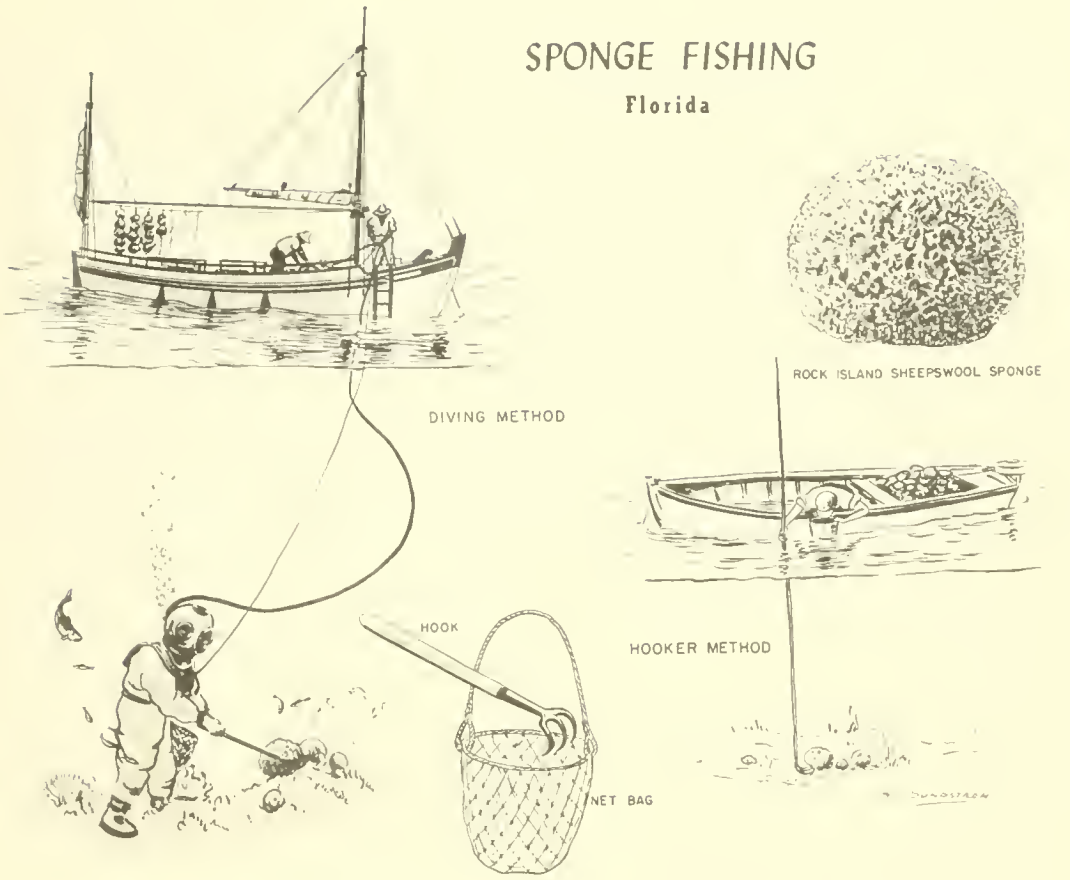
ABALONE BOAT

Length in Feet	24 to 32
Beam in Feet	8 to 10
Draft in Feet	2 to 3
Net Tonnage	4 to 6
Construction	Wood
Engine: Type	Gas
Horsepower	90 to 165
Type of Refrigeration	None or Ice
Cruising Speed	8 to 12 Knots
Average Crew	3
Length of Trip	6 to 8 Days
Convertibility to Other Types of Gear	None

MAIN AREA OF FISHING OPERATION

SPONGE FISHING

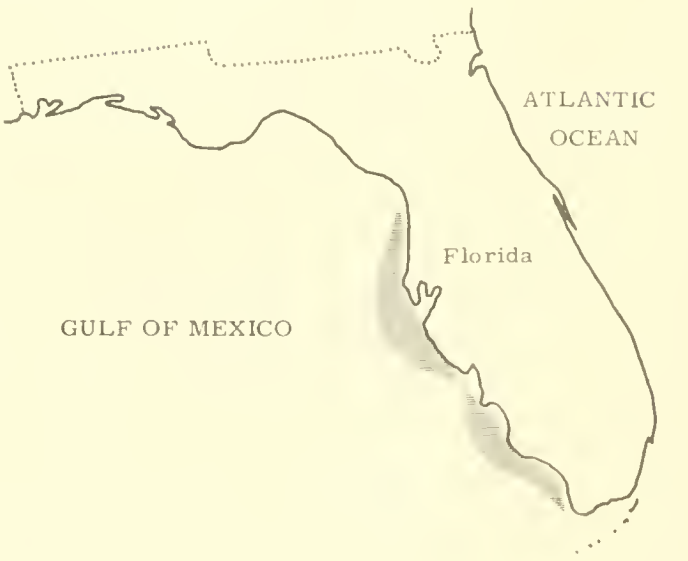
Florida



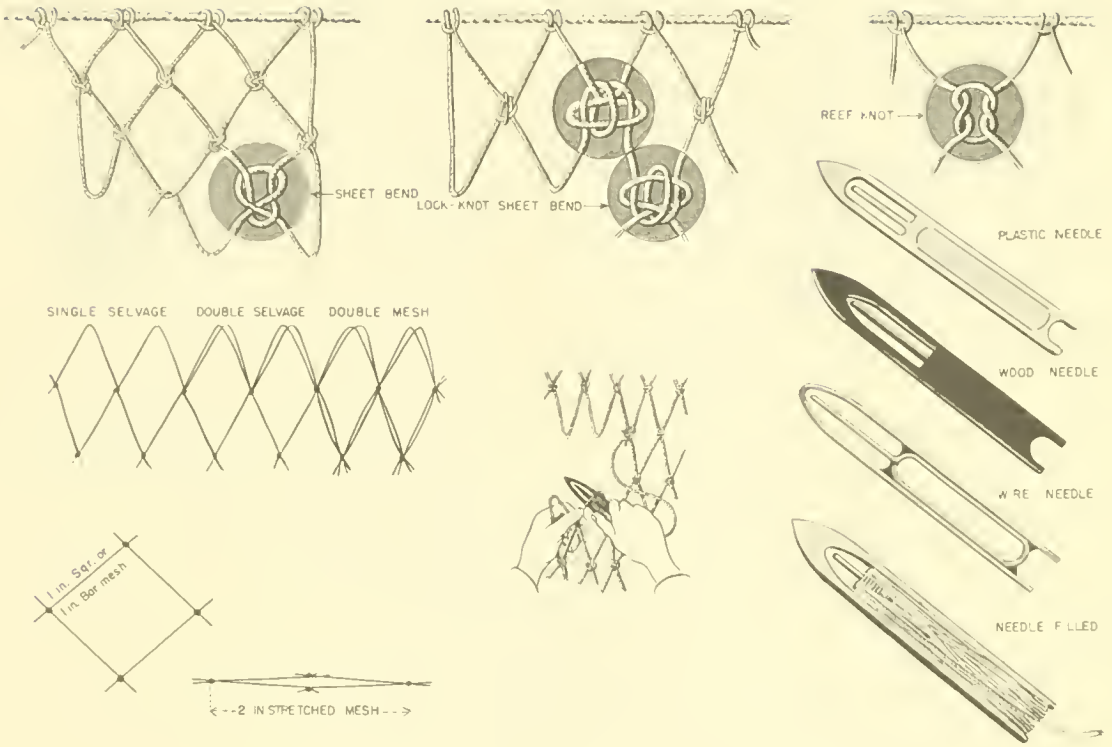
SPONGE BOAT

Length in Feet	36 to 48
Beam in Feet	11 to 15
Draft in Feet	4 to 6
Net Tonnage	6 to 10
Construction	Wood
Engine: Type	Diesel or Gas
Horsepower	25 to 150
Type of Refrigeration	None
Cruising Speed	6 to 8 Knots
Average Crew	5 to 8
Length of Trip	1 to 20 Days
Convertibility to Other Types of Gear	Otter Trawl (Shrimp), and Hand Lines

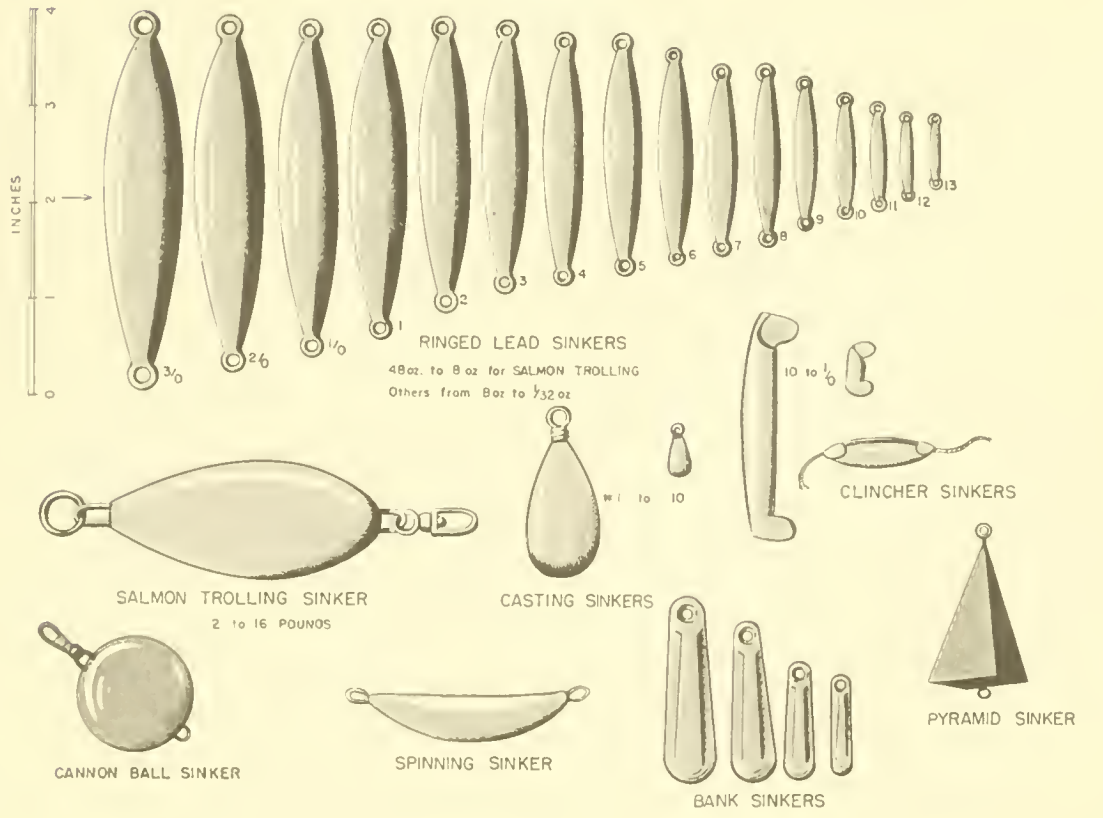
MAIN AREA OF FISHING OPERATION



NET KNOTS and NEEDLES

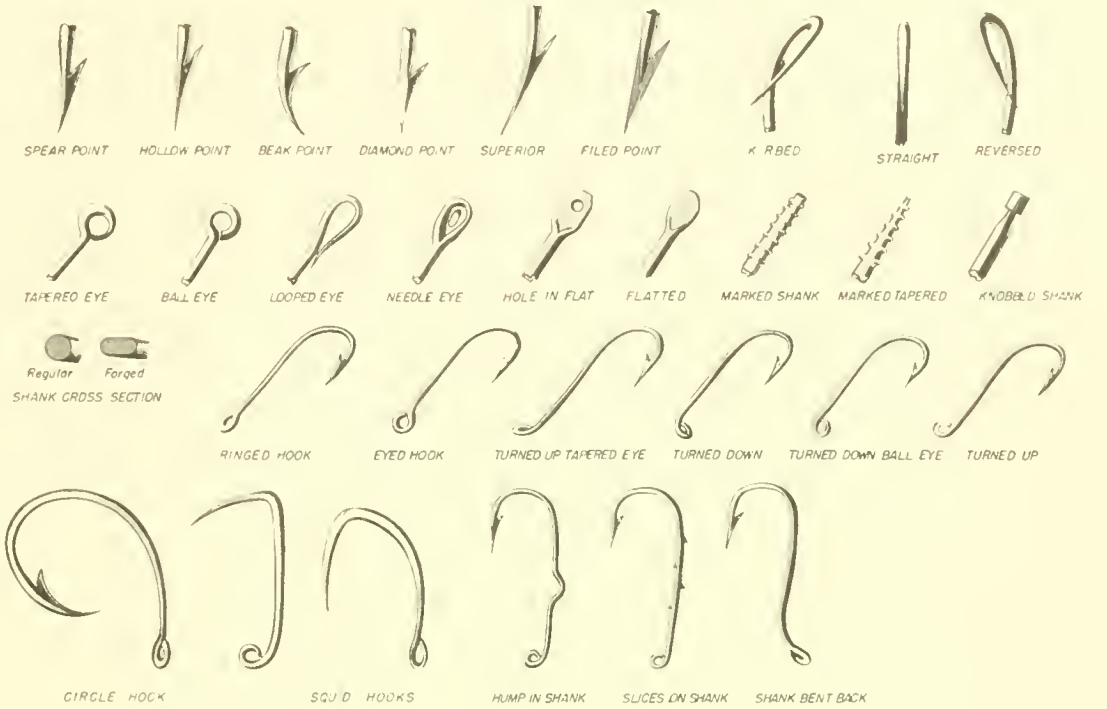


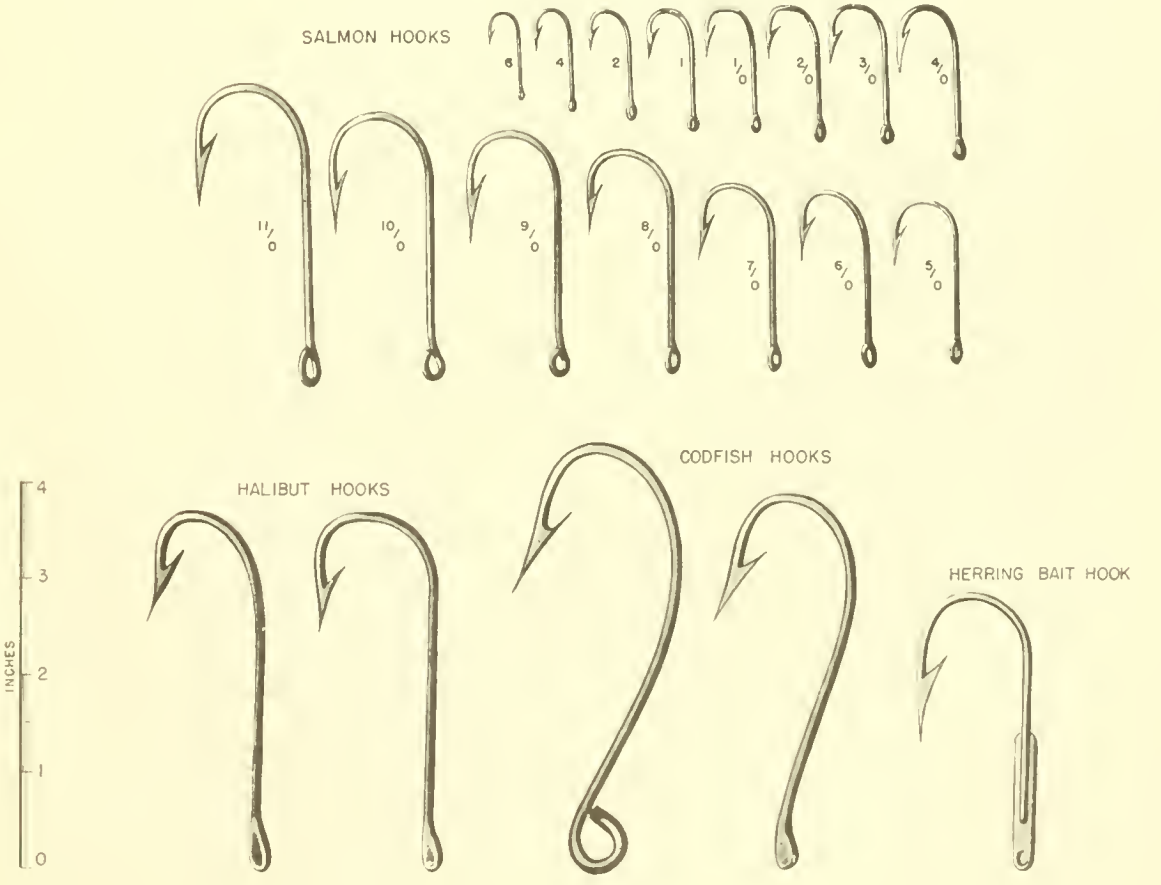
SINKERS

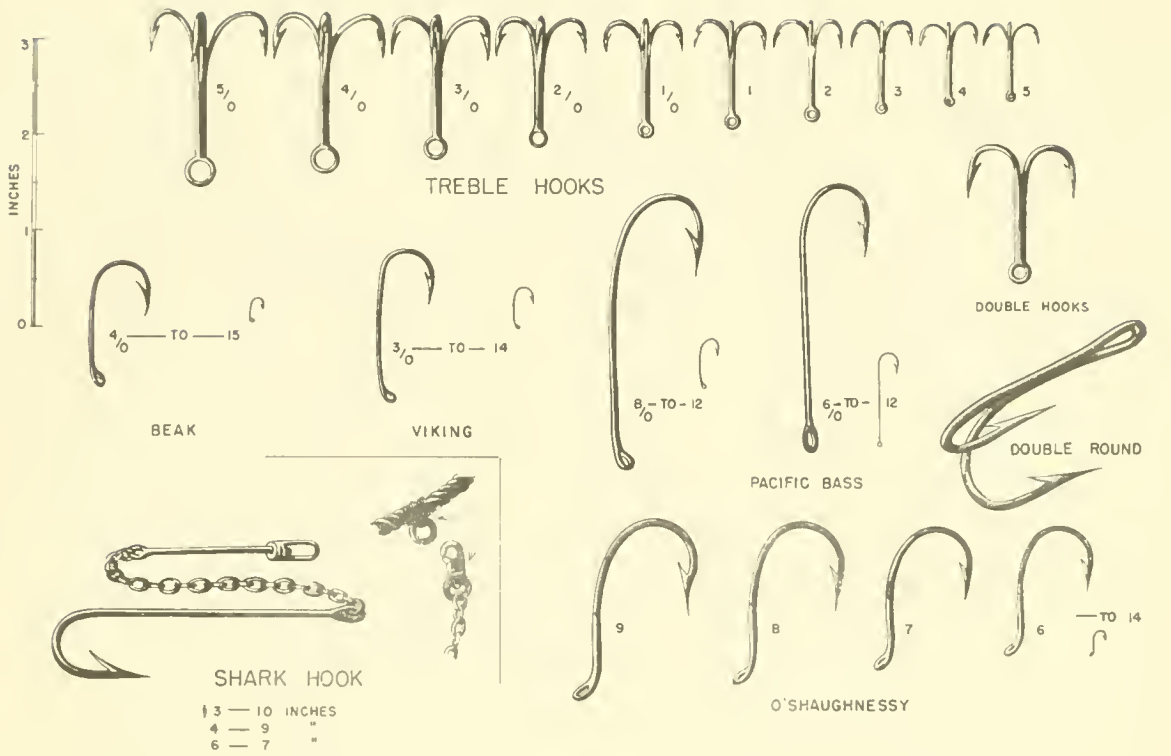


FISH HOOKS

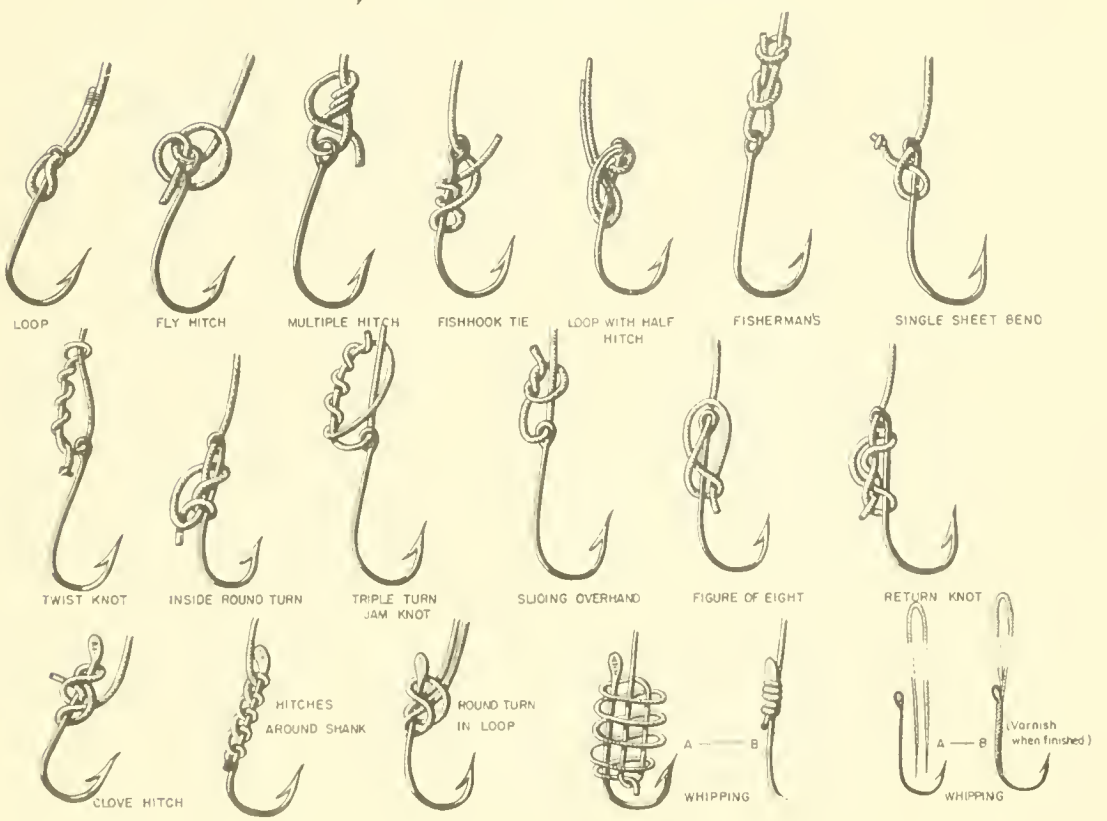
Variety of Patterns



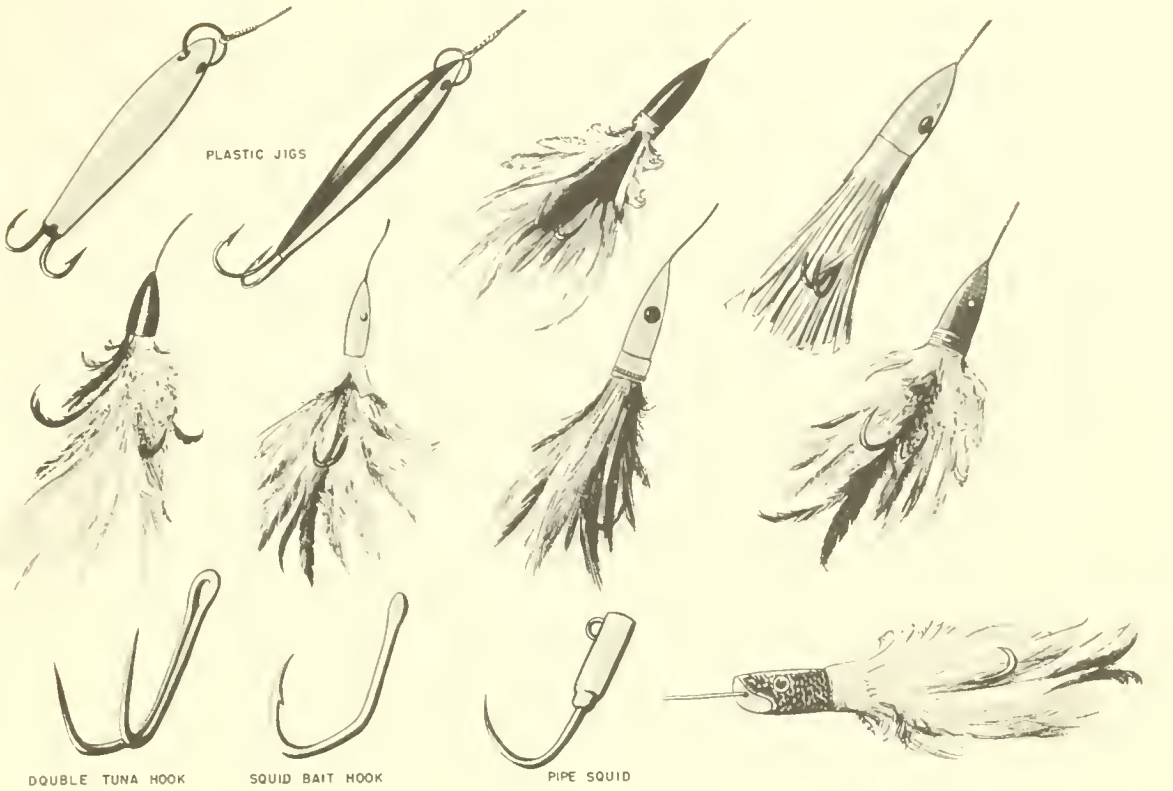




TIES for EYE and TAD HOOKS

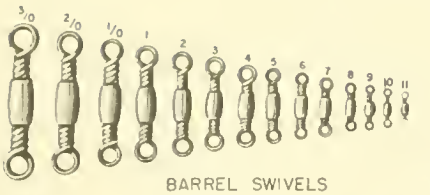


TUNA JIGS



FISHING SPOONS
for
The Commercial Fisherman

SWIVELS

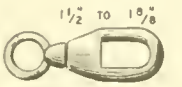


BARREL SWIVELS

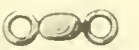
SNAP SWIVEL

LINK SWIVEL

BOX SWIVELS



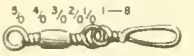
TROLLING SWIVEL



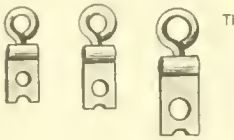
HEAVY DUTY SWIVEL
450 — 500 POUND TEST

THREE POLE
TUNA SWIVEL

PUMP SWIVEL



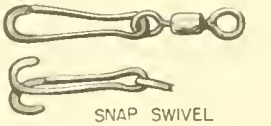
BUCKLE SWIVEL



CODFISH SWIVELS

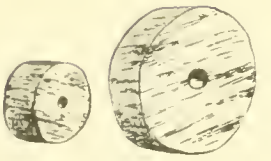
CROSS LINE SWIVEL

PURSE LINE SWIVEL and LINKS



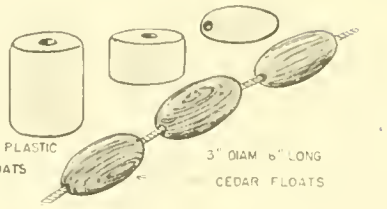
SNAP SWIVEL

FLOATS and BUOYS

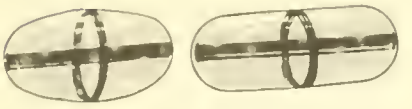


2½" TO 6" DIAM.
CORK SEINE FLOATS

AMBER
CLEAR
4½" TO 6" DIAM
GLASS FLOATS



EXPANDED PLASTIC
FLOATS
3" DIAM 6" LONG
CEDAR FLOATS



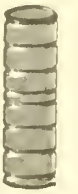
3" DIAM 5" LONG
5" DIAM 9" LONG
PLASTIC FLOATS

17" DIAM
ROUND CANVAS FLOAT

SCOTCH BUOY BAG
Tar impregnated linen duck

MONTARA FLOAT
Rubber bladder in canvas bag

STEEL BUOY
8" DIAM



TRAP NET FLOATS
3" x 6" to 6" x 22"

BUOY KEG
5 to 15 gallon

U. S GOVERNMENT PRINTING OFFICE 1957 O—428737

FISHERY LEAFLETS

F. L. 64 - Construction and Operation of Lobster Gear
F. L. 225 - Gear Used in the Sea Scallop Fishery
F. L. 262 - Crab Pot Construction (Chesapeake Bay Type)
F. L. 291 - Trotline Construction, Operation and Maintenance (Chesapeake Bay Type)
F. L. 373 - Atlantic Coast Mackerel Purse Seine
F. L. 379 - New England Sink Gill Net
F. L. 386 - Pacific Salmon Drift Gill Netting
F. L. 387 - Commercial Salmon Trolling
F. L. 394 - Gulf of Mexico Shrimp Trawl Design
F. L. 302 - Kite Rigs for Otter Trawl Gear
F. L. 316 - Increasing the Spread of Shrimp Trawls
F. L. 343 - Floating Trawls
F. L. 365 - Drum Seining
F. L. 400 - The Pond Net Fishery in Virginia
F. L. 419 - Dungeness Crab Pots
F. L. 422 - Construction Details of Improved Tuna Long-Line Gear
F. L. 437 - Assembly Methods for Otter-Trawl Nets

Send requests to--

U. S. Fish and Wildlife Service
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Give leaflet number and title.