KOREAN OFF-SHORE TRAWLING

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ABSTRACT

Describes the results of a Survey conducted on the productivity of off-shore trawling operations during 1967.

INTRODUCTION

There lies a vast continental-shelf under the seas adjacent to Korean Peninsula. Accordingly a variety of fishing activities have been conducted for catching various kinds of fishes off the Peninsula. Among them danish seining and shrimp trawling are major demersal fisheries, from the stand point of vessel-size and mechanization.

The Office of Fisheries conducted in 1967 a fact-finding survey on the productivity and business operations of the off-shore trawling in the light of its importance to Korean fisheries. This paper has quoted and analyzed a part of the above survey report.

PAST AND CURRENT SITUATION

The first development of Korean danish seining was begun in 1922 with four danish seiners. At the early stages of the development the vessels employed as their dragging sources the power of the sea current and wind as well as man-power.

Proc. Indo-Pacific Fish. Coun., 13(III). 614-620.

The introduction of engines, adaptation of improved fishing gear and methods, and enlargement of fishing boats have given the fishery an impetus for a rapid development. In 1967 the fishery was composed of 320 large trawlers and 118 medium trawlers.

. Exploratory trawling was attempted in 1956 to conduct shrimp trawling and following this, commercial shrimp trawling has been conducted since 1959.

Table I

Licenced Trawlers by Year

Fishery	Boat-Size	1962	1963	1964	1965	1966	1967
Large Trawling	50 G/T	287	290	244	316	346	320
Medium Trawling	30-50 G/T	108	112	131	137	140	118
Shrimp Trawling	30-60 G/T	25	25	25	25	25	25

Such a rapid growth of the off-shore trawling has brought about some conservation problems of marine resources. Therefore, a series of fishery regulations has begun to enforce the establishment of trawling prohibition areas and limitation of number of vessels.

FISHING METHODS AND GEAR

A. Large Trawling

Large trawling belongs to movable seining which also belongs to bottom seining. The trawling net is composed of cod-end part and wing parts to which two lines of warp are attached in order to drag the net horizontally under the sea collecting the fish in the cod-end part. The body part of the trawl net is constructed with square, belly, and flapper for preventing fish escapement.

From the fishing method viewpoint, the fishery is divided into two systems; one is one-boat system and the other is two-boat system. The fishery is also divided into two types such as large trawling (over 50 G/T) and medium trawling (30-50 G/T) according to the boat size and fishing area.

B. Shrimp Trawling

Shrimp trawling is conducted with the side-trawl fishing method and fishing gear is composed of a trawl net with otter-boards.

FISHING GROUND AND SEASON

A. Large Trawling

Although there is a vast continental-shelf around the waters of Korean Peninsula, the area of longitude 128 degrees westward is especially suitable for trawling since the bottom bed is smooth enough to conduct trawling.

Eastern Sea

As the bottom of the sea rapidly slopes from the coastal lines, the area of fishing ground is very narrow in comparison with those of other seas. In the eastern sea, however, the mixture of the cold and warm currents attracts abundance of demersal fishes.

Major species are Alaska pollack, flat fish, cod and optimum fishing season covers from November to March.

Southern Sea

The depth of fishing area ranges from 40 to 140 m. Optimum fishing season is composed of two rounds yearly; from February to March and November to December. Major species of fish are shark, flounder, ray, sea bream and so on.

Western Sea

The sea is the best fishing ground in Korea with a huge continental-shelf of which depth ranges from 60 m to 90 m.

Yellow corvina, flounder, shark, ray, croaker and shrimp are main species of fish supporting November to April fishing season.

FISHING OPERATION AND FISH CATCHES

A. Fishing Operation

Table II shows fishing operations by fishery prepared by the Office of Fisheries based on the fact-finding survey in 1967.

Table II

Fishing Operation

Fishery	Year			Trip		
	Navigation Days	Fishing Days	No. of Net Hauling	Navigation Days	Fishing Days	No. of Net Hauling
Large Trawling						
One-Boat System	205	175	1,201	13	12	85
Two-Boat System	238	209	1,499	19	18	131
Medium Trawling						
Eastern Area	221	176	892	6	5	24
Southern Area	167	146	849	5	5	18
Western Area	221	191	1,322	13	11	76
Shrimp Trawling	231	206	706	23	20	69

Table II shows that one-boat system (large trawling) has better operation rates in comparison with other trawling methods owing to the enlargement of fishing vessels and the possibility of rough-sea fishing.

Number of net casting per fishing day ranges 6.9 in medium trawlers, 5.4 in large trawlers and 3.5 in shrimp trawlers, respectively.

Following Table shows required hours for one fishing cycle.

Table III

Hours Required for Fishing

Fishery	Hours
Large Trawler	40 min. - 2 hours and 10 min.
Medium Trawler	1 hour - 2 hours and 10 min.
Shrimp Trawler	3 hours and 12 min. - 3 hours and 14 min.

B. Fish Catches

Fish catches of recent years are in following table.

Table IV

Trawling Fish Catches by Year

Fishery	1962	1963	1964	1965	1966	1967
	Catches	Catches	Catches	Catches	Catches	Catches
	M/T	M/T	M/T	M/T	M/T	M/T
Large Trawler	26,831	47,882	49,109	58,692	58,692	76,761
Medium Trawler	15,758	28,086	25,510	35,095	30,863	34,097
Shrimp Trawler	1,139	2,642	1,845	3,280	3,442	3,569

Table V presents average fish catches per sampling boat prepared by the 1967 survey.

Table V

Productivity per Boat

Fishery	Average Catch per Boat	Average CAtch per Boat/per day	Average Catch per Hauling
	Kg	Kg	Kg
Large Trawler			
One-Boat Type	302,150	1,732	257
Two-Boat Type	571,440	2,728	381
Medium Trawler			
Eastern Area	212,593	1,207	238
Southern Area	166,685	1,146	196
Western Area	300,033	1,574	227
Shrimp Trawl	161,245	785	228

Annual fish catches per large trawler is on the average the same as that of the medium trawlers while average fish catches per hauling of the one-boat system (large trawling), medium trawling and shrimp trawling are all the same.

In the daily fish catches, large trawling shows prevailing figures because of many haulings, while shrimp trawling shows the lowest figures on account of few haulings.

Large Trawler

One-boat system shows 302 metric tons of average annual fish catches per boat, which means 1.7 metric tons per average fishing day and 0.3 metric ton per unit hauling. Two-boat system shows 571 metric tons of average annual fish catches per boat, 2.7 metric tons per average fishing day and 0.38 ton per unit hauling.

This is mainly caused by the larger dragging area and larger size of the two-boat system than the one-boat system, although there are differences between fishing areas.

Medium Trawler

In the eastern area, the average annual fish catches per boat amounts to 213 metric tons and fish catches per fishing day and hauling amounts to 1.2 metric tons and 0.2 metric ton, respectively.

The average annual fish catch per boat in the southern area amounts to 167 metric tons, and fish catches per fishing day and hauling amounts to 1.1 metric tons and 0.2 metric ton, respectively.

In the western area, fish catches per boat, fishing day and hauling amounts to 300 metric tons, 1.6 metric tons, and 0.23 metric ton, respectively. Accordingly the highest fish catches per boat prevails in the western area, while the highest catches per hauling prevails in the eastern area.

Shrimp Trawling

The average annual fish catches per boat amounts to 161 metric tons while catches per fishing day and per hauling amounts to 0.8 metric ton and 0.2 metric ton.

This means quite lower productivity of the shrimp trawling in comparison with those of large trawling and medium trawling. The reason of lower productivity may be that shrimp trawling is conducted on the selected fishing areas for catching mainly shrimps. However, it is expected that the lower productivity would be increased on the deep-sea fishing areas by using bigger trawling powers followed by the enlargement of fishing vessels.