MITIGATION OF THE FISHERY-SEA TURTLES INTERACTIONS

Efficiency of the Circle Hook in Comparison with J-Hook in Longline Fishery

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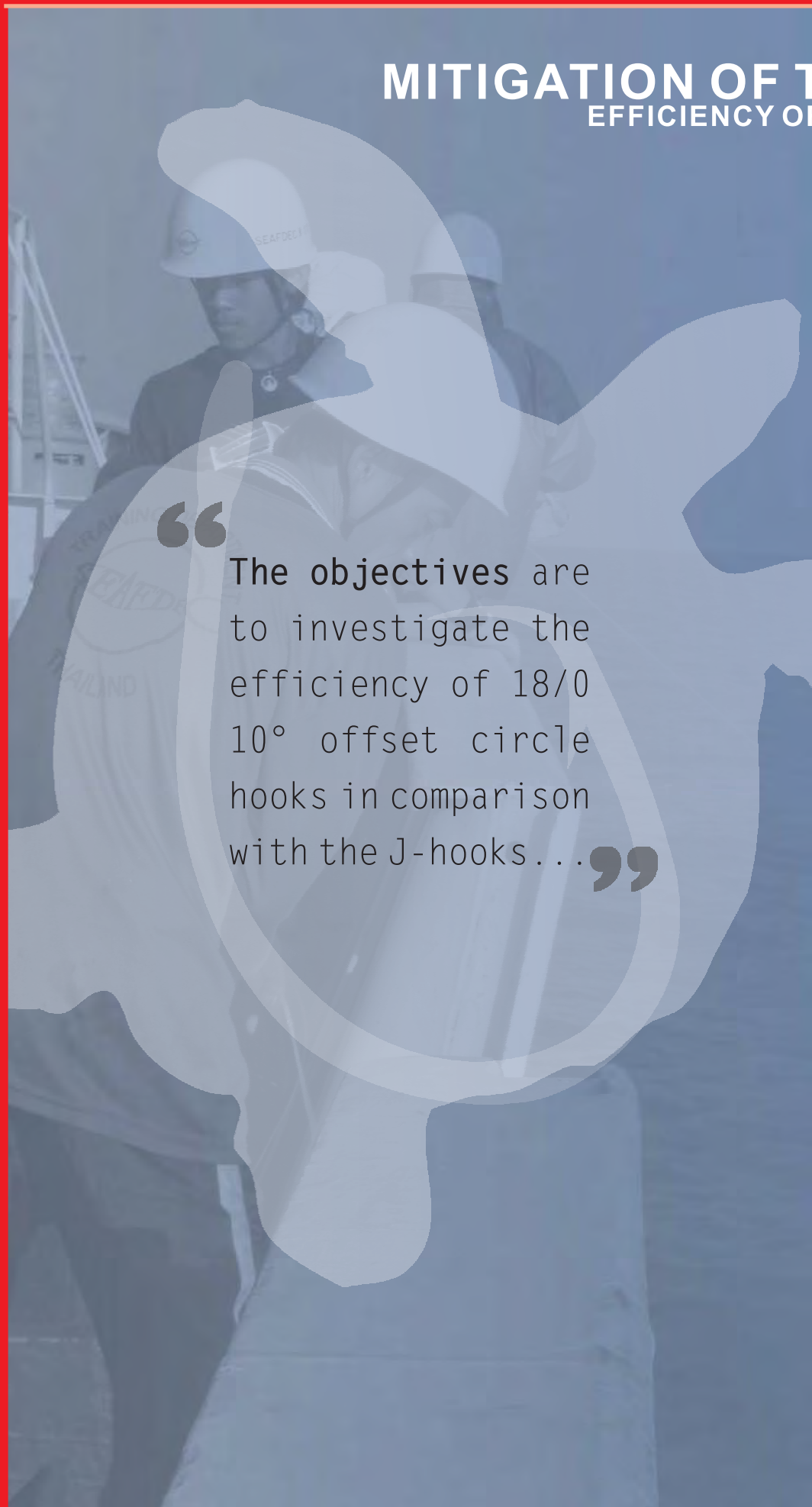
INTRODUCTIO

"To Avoid the application of the same UN strategy to other fisher activities in longline fishery."



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EFFICIENCY O

> "The objectives are to investigate the efficiency of 18/0 10° offset circle hooks in comparison with the J-hooks..."

LINE FISHERY

ON

THE FISHERY-SEA TURTLES INTERACTION :
F THE CIRCLE HOOK IN COMPARISON WITH J-HOOK IN LONGLINE FISHERY

Since August 2002, a campaign, leading by protectionist group aims to raise public concern on the impacts of pelagic logline on sea turtle in the United States. Their strategy is making appeals at the various international forum and mass media. Involving the UN resolution is one of the strategies, such undertaking was previously successful with the global moratorium of drift net fishing. To avoid the application of the same strategy to other fisher activities in longline fishery, many studies on the use of Circle hooks in pelagic longline fishery have demonstrated that 18/0 circle can significantly reduce sea turtle interactions compared to industry standard 9/0 J-hooks. However the impact of circle hooks on pelagic target species and others are still not clear although the efficiency of circle hook comparison to J-hook is also unknown. Therefore, SEAFDEC Training Department as a technical agency in promotion of the responsible fishing technologies and practices in the Southeast Asian Region, considered to study the mitigation of fishery-sea turtles interactions particularly on the efficiency of the circle hook in comparison with J-hook in longline fishery in the SEAFDEC member countries under the funding supported from the Government of Japan through the trust fund program for fishery. The experiments were conducted in collaboration with the Department of Fisheries/Thailand and Bureau of Fisheries and Aquatic Resources, The Philippines. Series of experiments were conducted on board the SEAFDEC vessels by using of 18/0 10^{o} offset circle hooks in comparison with the standard J-hooks in long line fishery.

THE OBJECTIVES are to investigate the efficiency of 18/0 10° offset circle hooks in comparison with the J-hooks, the hooking positions between two different types of hook, and to investigate the impact of longline fishery on mortality of sea turtle as incidental catch in the waters of Southeast Asian Region.

MATERIALS A

SEAFDEC/Training Department **conducted three experiments** in different sea areas namely the North-eastern Indian Ocean, Andaman sea of Thai water and Sulu sea of the Philippines (Fig.1).

The research/training vessels, namely MV SEAFDEC and MV SEAFDEC2, employed for these experiments, made 24 research sets during 3 trips fishing a total of 13,521 hooks which consisted of 18/0 10° offset circle hooks and standard J-hooks used in longline fishery (Fig.2). Number of hooks is 15-20 hooks per one basket, and in each set, the circle hooks were set alternate with the J-hooks, basket by basket (Fig.3). Local baits such as chub-mackerel and milk fishes were used as bait (Fig.4). Hooking positions by all target fishes and by-catch were recorded as appeared in Fig.5.

a

LIST OF FIGURES

2.

4.1

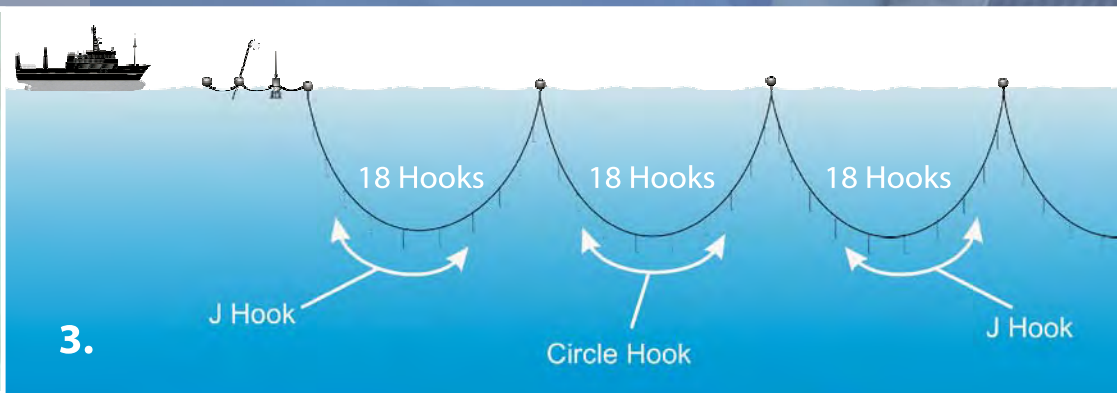
ND METHODS

1.

EXPERIMENTAL AREAS
a. Eastern Indian Ocean by M.V.SEAFDEC
b. Andaman Sea by M.V.SEAFDEC2
c. Sulu Sea by M.V.SEAFDEC2

5.
Mouth Position
Digestive System Position

4.2



3.

RESULTS

SOUND FROM SEAFDEC MEMBER

Dr. Mala Supongpan/ Senior Expert on Marine Fisheries from DOF/Thailand supported the study conducted by TD on the use of Circle Hook in longline fishery which support that Circle hook, as compared to J-hook, has higher catch rate of target species and lower by-catch.

Dr. Alma C. Dickson/ Chief, National Marine Fisheries Development Center/ BFAR,ThePhilippines informed that the experiments on the use of Circle Hook to reduce sea turtle by-catch from longline fishery were also conducted by BFAR, and that in the year 2007; commercial operator in the Philippines will apply the use of the Circle hook in the actual operation, which is also expected to provide useful information.

The result from Temperature-Depth sensors showed that the hooks were set at the depth ranged from 60 to 300 m. No sea turtle was caught during the experiments. Fig.6 shows the hook rate (%) of target species and by-catch caught by circle hook in comparison with J-hook. There was a 3% increasing in total tunas and other target species caught on the 18/0 10° offset circle hooks compared to J-hooks. In contrast, there was 22% reduction a total sharks-rays and other non valued by-catch caught by the 18/0 10° offset circle hooks compared to J-hooks. Fig.7 shows the comparison between the hooking positions for circle hook and J-hook. Almost 85.4% of fishes caught were hooked at mouth and only 3.6% found in the digestive system when used the circle hooks, while there was 24.7% of hooks were found in the digestive system for J-hooks.

LIST OF FIGURES