



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

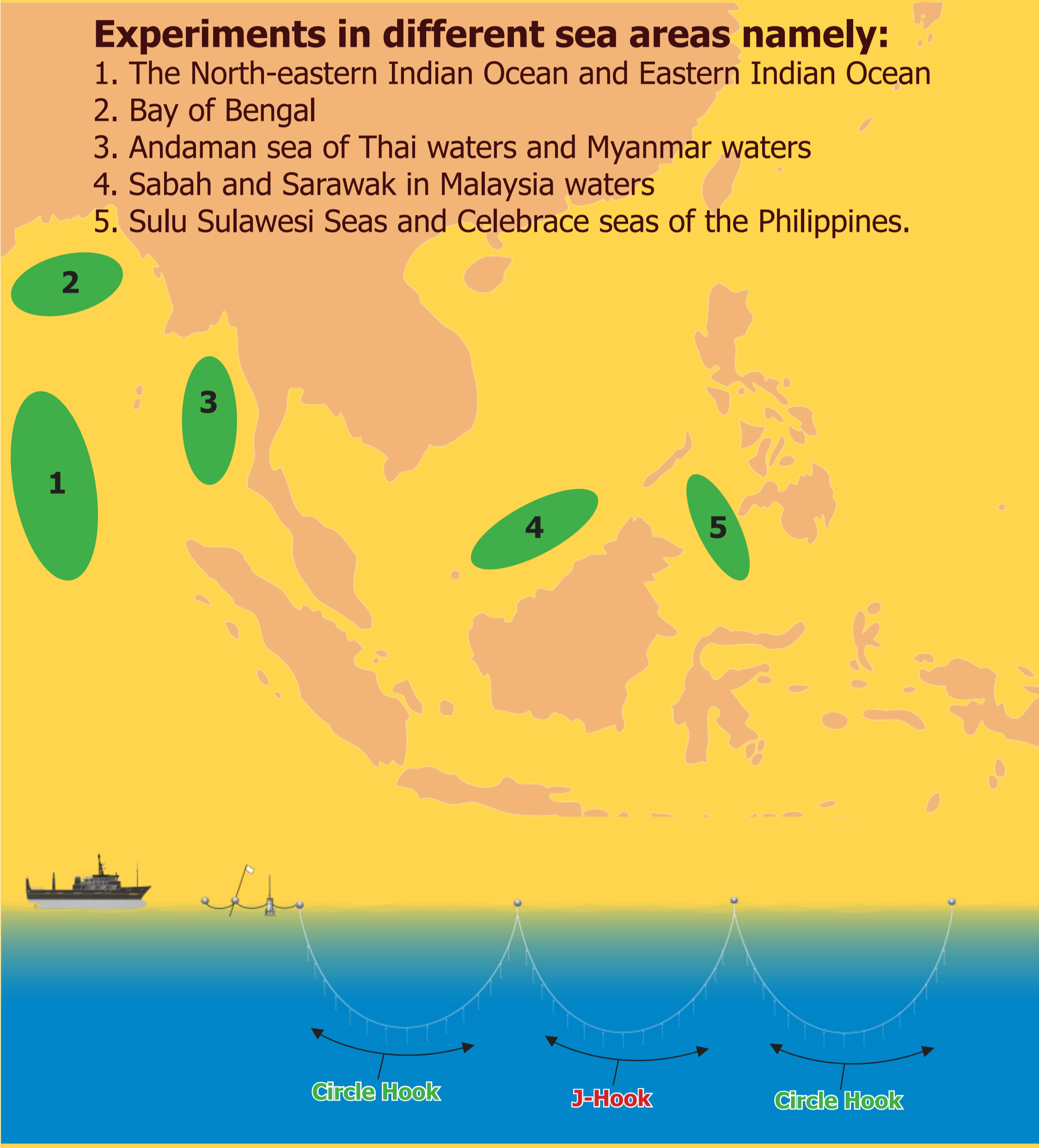
INTRODUCTION

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 Southeast Asia waters 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, Department of Fisheries/Malaysia and Bureau of Fisheries and Aquatic Resources, The Philippines. Series of experiments were conducted on board the SEAFDEC vessels by using of 14/0 and 18/0 10o offset circle hooks in comparison with the standard J-hooks in long line fishery.

Experiments in different sea areas namely:

1. The North-eastern Indian Ocean and Eastern Indian Ocean
2. Bay of Bengal
3. Andaman sea of Thai waters and Myanmar waters
4. Sabah and Sarawak in Malaysia waters
5. Sulu Sulawesi Seas and Celebrance seas of the Philippines.



OBJECTIVES

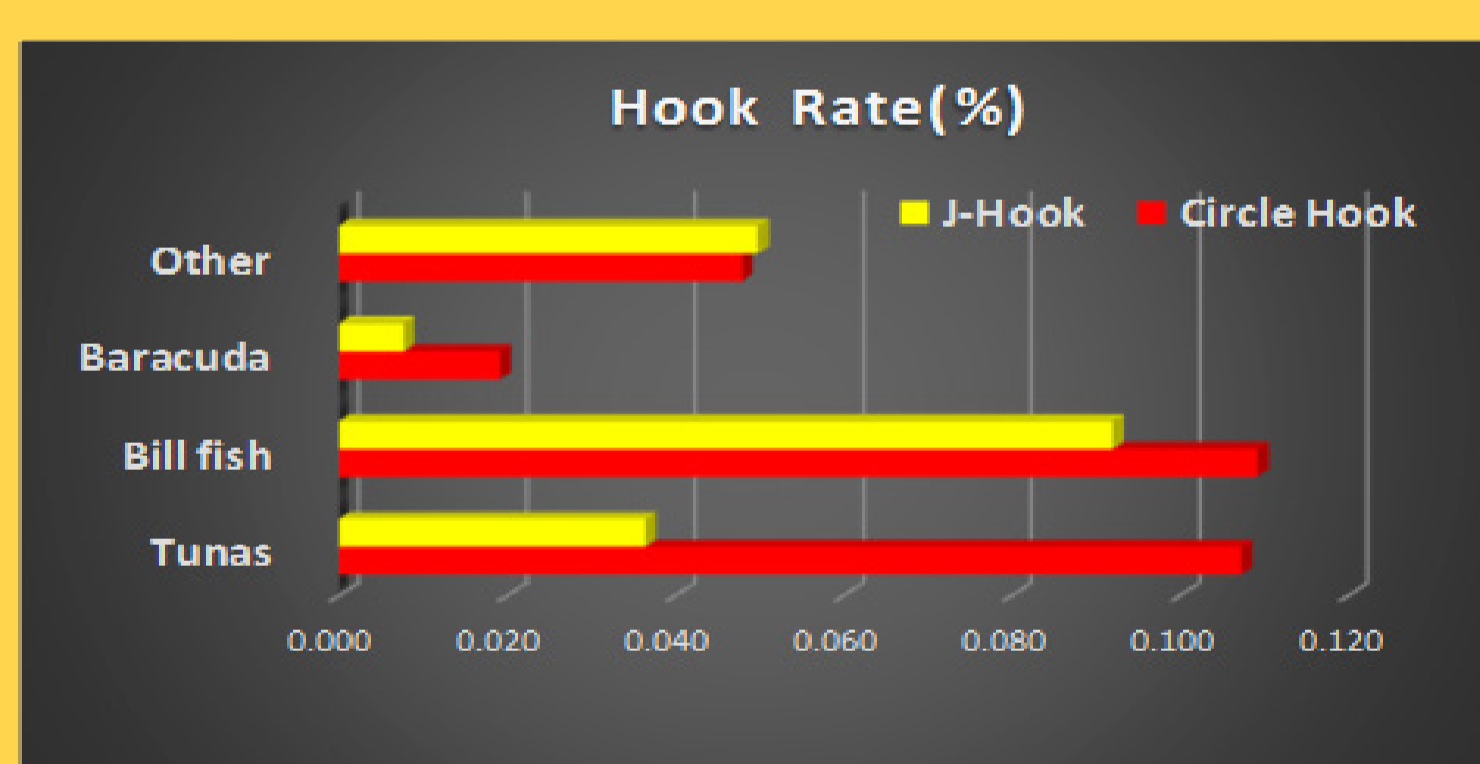
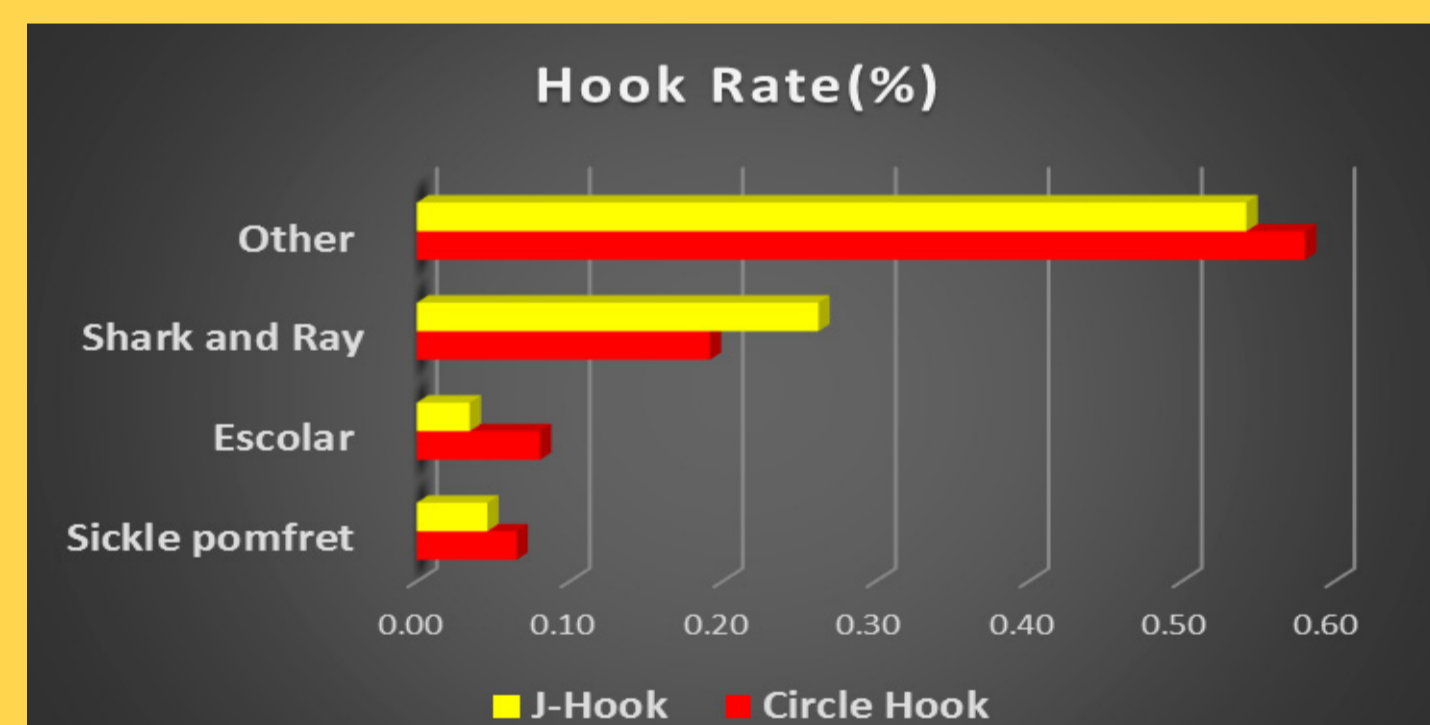
The objectives are to investigate the efficiency of 14/0 and 18/0 10o offset circle hooks in comparison with the J-hooks, the hooking positions between two different types of hook, and to investigate the impact of longline fishery on mortality of sea turtle as incidental catch in the waters of Southeast Asian Region.

MATERIALS AND METHODS

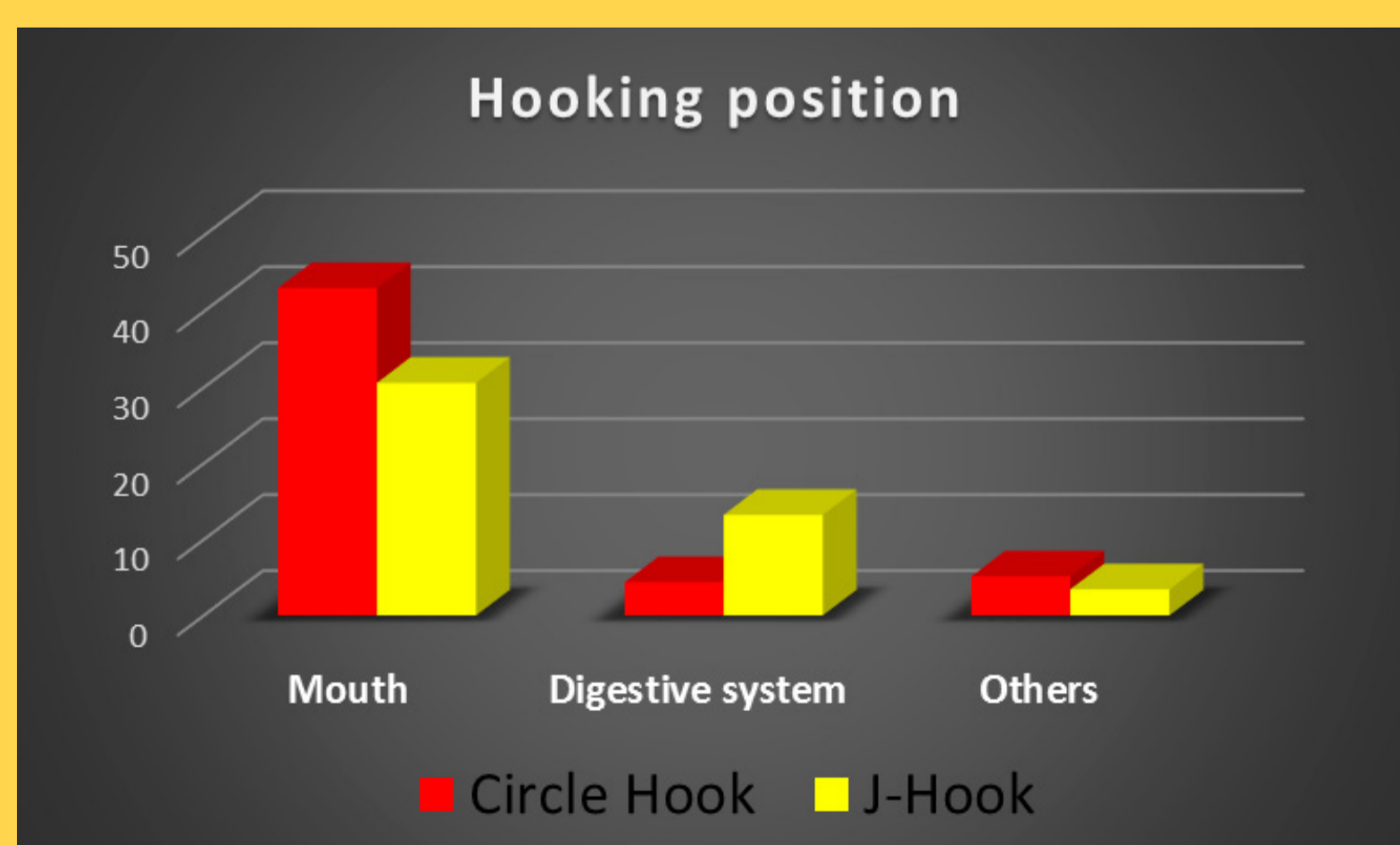
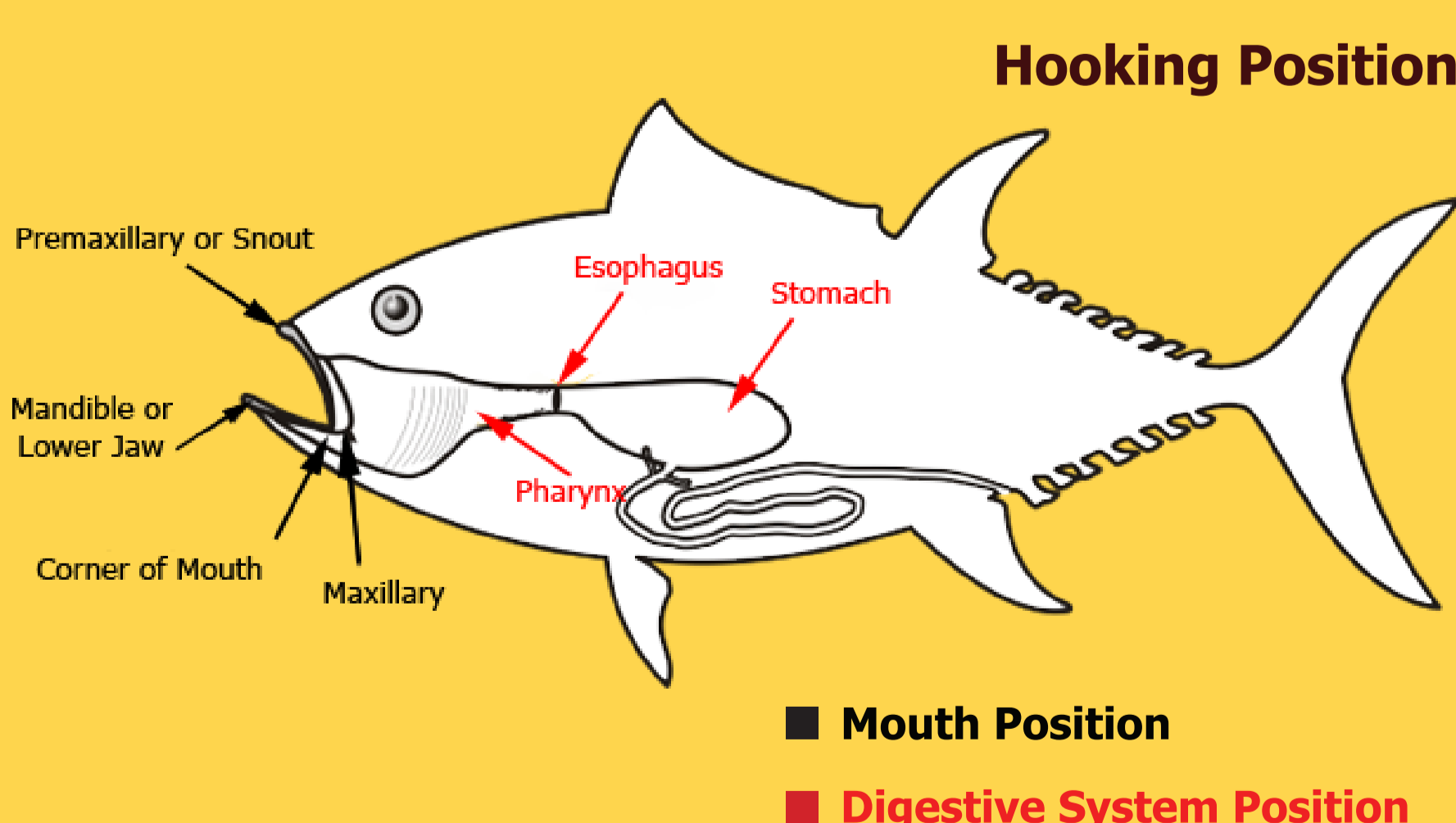
SEAFDEC/Training Department conducted fifteen (15) experiments in different sea areas namely the North-eastern Indian Ocean, Eastern Indian Ocean, Bay of Bengal, Andaman sea of Thai waters and Myanmar waters, Sabah and Sarawak in Malaysia waters, Sulu Sulawesi Seas and Celebrance seas of the Philippines. The research/training vessels, namely MV SEAFDEC and MV SEAFDEC2, employed for these experiments, made 105 fishing operations were conducted during 15 trips fishing a total of 52,195 hooks which consisted of 14/0,18/0 10o offset circle hooks and standard J-hooks used in longline fishery. Number of hooks is 15-25 hooks per one basket, and in each set, the circle hooks were set alternate with the J-hooks, basket by basket. Local baits such as chub-mackerel Round scad and milk fishes were used as bait. Hooking positions by all target fishes and by-catch were recorded.

RESULTS

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. The hook rate (%) of target species and by-catch caught by circle hook in comparison with J-hook. There was a 49% and 2 % increasing in total tunas and other target species respectively caught on the 14/0 and 18/0 10o offset circle hooks compared to J-hooks. In contrast, there was 15% reduction a total sharks-rays caught by the 14/0 and 18/0 10o offset circle hooks compared to J-hooks. The comparison between the hooking positions for circle hook and J-hook. Almost 73.75% of fishes caught were hooked at month and only 4.39% found in the digestive system when used the circle hooks, while there was 13.25% of hooks were found in the digestive system for J-hooks.



The hook rate (%) of target species and by-catch caught by circle hook in comparison with J-hook



J-Hook



Circle Hook

