An assessment of the potential social and economic impacts of banning the use of wire leader on Taiwanese longline fishery in the Indian Ocean

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Abstract

Banning wire leader could result in at least US$24 million direct economic loss of Taiwanese longline fishery in the Indian Ocean. It could cause around 500 inhabitants of Donggang Township, which is located in Taiwanese southwest part, losing their jobs; furthermore, it could seriously damage the community image of Donggang Township boasting a longstanding icon of three culinary treasures: bluefin tuna, sakura shrimp, and oilfish roe.

Introduction

The aim of this paper is to respond to the request of SC27 to report to WPSE on the assessment of the potential social and economic impacts which possible shark mitigation measures may have on Taiwanese longline fishery in the Indian Ocean. The possible shark mitigation measures include limiting the use of wire trace as branch lines or leaders and shark lines.

Taiwanese longline fleet which is seasonal targeting oilfish in the South Indian Ocean could be adversely affected by banning the use of wire trace as branch lines or leaders. Mature oilfish has two pairs of fang-like teeth in the upper jaw, and it bites off monofilament or braided multifilament leader easily while getting hooked. To diminish the escape rate of hooked oilfish and run the fishery on a profitable commercial scale, the use of wire leader is crucial to fishing vessels targeting oilfish. Banning the use of wire leader will terminate this fishery and bring adverse impacts on the related family-run processing plants and the local communities.

The scope of the assessment

The scope of the social and economic impacts of banning the use of wire leader on Taiwanese longline fishery in the Indian Ocean will limit to its longline fleet targeting oilfish, the related family-run oilfish roe processing plants and the local communities where the plants are located.

The biological characteristics of oilfish

Oilfish has biological characteristics of daily migrating vertically from mesopelagic zone to epipelagic zone at night for foraging, so the fishing vessels start casting hooks to waters of 100 m to 150 m deep to fish oilfish after sunset. There are some differences in the gear configurations between tropical tuna and oilfish fisheries. Compared to the typical tropical tuna fishery, longline vessels targeting oilfish deploy shorter float lines, use only finfish as baits and employ wire leaders.

The oilfish longline fleet and catch

Oilfish, including *Ruvettus pretiosus* (oilfish, OIL) and *Lepidocybium flavobrunneum* (escolar, LEC), were bycatch species of large-scale (larger than 100 gross tonnages) tuna longline fleet prior to 2005. The species was mainly harvested by longliners targeting albacore in the southwest Indian Ocean, area of south of 25°S and west of 60°E. Due to the decrease of profit margins, some tuna longliners started shifting to the southwest Indian Ocean for fishing oilfish seasonally after 2005 to obtain extra earnings. The number of longliners fishing for oilfish seasonally fluctuated from 37 to 51 between 2020 and 2023, and there were 56 tuna longliners authorized to fish for oilfish in 2024. From 2022 to 2024, the oilfish catch are 4,649 tons, 8,411 tons and 7,317 tons respectively with a mean of around 6,800 tons. The weight of roe, the most valuable byproduct, is estimated at 230 tons from the mean catch.

The estimate of social and economic impacts

The oilfish catch of Taiwanese fishing fleet is mainly exported to China or transshipped back for domestic consumption, and most of oilfish roe is transshipped back to be processed domestically.

The price of oilfish remained at a stable level in recent years, which varied by size. From the sales slips, it is noted that the price cap is around US$5/kg for large size oilfish (>10 kgs/pc) and the lowest price is about US$0.5/kg for small size (less than 1kg/pc). The mean price estimated is around US$3/kg, the mean catch in recent 3 years is 6,800 tons, and direct economic loss of oilfish longline fishery is around US$20.04 million. The economic loss of by product, oilfish roe, is around US$23 million, for it is a very high-end banquet dish and fetches at least US$60 per 600 grams. As a result, the total quantifiable direct economic loss of Taiwanese oilfish fishery will be more than US$43 million.

The unquantifiable social and economic impacts of termination of oilfish longline fishery are the unemployment in the fishing communities and the diminishing tourism image of Donggang Township. There are around dozens of family-run roe processing plants in the fishing communities of Donggang Township, and the termination of oilfish longline fishery will have a seriously adverse effect on around 500 people losing their jobs. Also, according to the statistics published by the local government, the visitor arrivals in Donggang Township are about 1.9 million, and most tourists are attracted by the iconic seafoods of Donggang Township, namely bluefin tuna sashimi, Sakura shrimp and oilfish roe. If the oilfsih roe disappears from the menu of local restaurants, it will have a huge adverse impact on the travel industry of Donggang Township.

Conclusion

The study provides a preliminary analysis of the potential social and economic impacts of banning the use of wire leaders by Taiwanese

longline fishery. These impacts include the termination of seasonal targeting oilfish longline fishery in the Indian Ocean with direct economic loss of more than US$40 million, bring unemployment to around 500 people in the local fishing communities, and the erosion of tourism brand of Donggang Township due to the disappearance of iconic seafood product, oilfish roe.