Information about “Ring-shaped branchline (Meka-ring)" in pelagic longline fisheries and research plan

Daisuke Ochi[1], Daisuke Shiode[2], Hirotaka Ijima[1], Mikihiko Kai[1], Yasuko Semba[1]

[1]Fisheries Resources Institute, Japan Fisheries Research and Education Agency

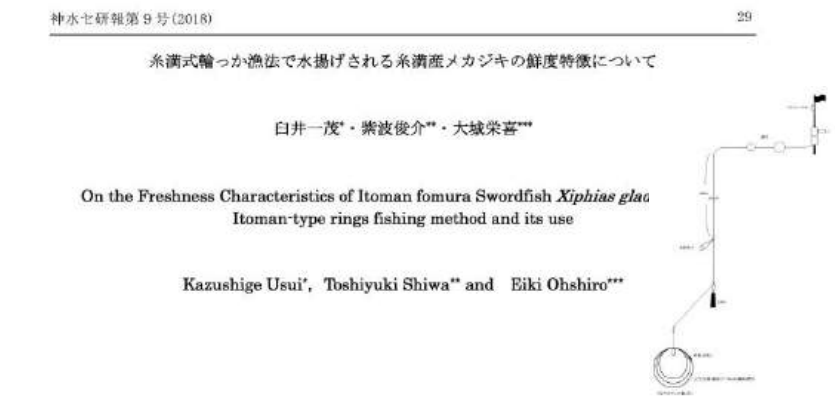
[2]Tokyo University of Marine Science and Technology

Introduction

- A new terminal gear, the "ring-shaped branch line" (meka-ring), has recently been introduced in pelagic longline fleets in Japan and other regions.
- Detailed information about its characteristics and impacts is still being collected.
- This document summarizes current knowledge on the gear, its usage, and potential implications for fisheries and bycatch.
- The goal is to consolidate existing information and outline future plans for information gathering and research.

Historical background

- Developed by vertical line fishermen targeting diamond squid (*Thysanoteuthis rhombus*) for extra swordfish catch (Usui et al. 2018).
- Exact timing of adoption by pelagic longline fleets is unclear, but likely mid-2000s.
- Recent ICCAT-SCRS reports note spread of this gear ("trap line") in Mediterranean longline fisheries (Garibaldi et al. 2024, Valastro et al. 2024).
- Now gradually adopted across several EU countries (STECF 2025).



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糸満式輪っか漁法で水揚げされる糸満産メカジキの鮮度特徴について

白井一茂*・紫波俊介**・大城栄喜***

On the Freshness Characteristics of Itoman fomura Swordfish *Xiphias gla*
Itoman-type rings fishing method and its use

Kazushige Usui*, Toshiyuki Shiwa** and Eiki Ohshiro***

Collect. Vol. Sci. Pap. ICCAT, 81(7), SCRS/2024/064: 1-9 (2024)

A NEW CHALLENGE FOR ASSESSING THE SWORDFISH FISHERY: THE USE OF AN INNOVATIVE FISHING GEAR

Fulvio Garibaldi[1], Antonio Di Natale[2], Bruno Zava[3,4]

SUMMARY

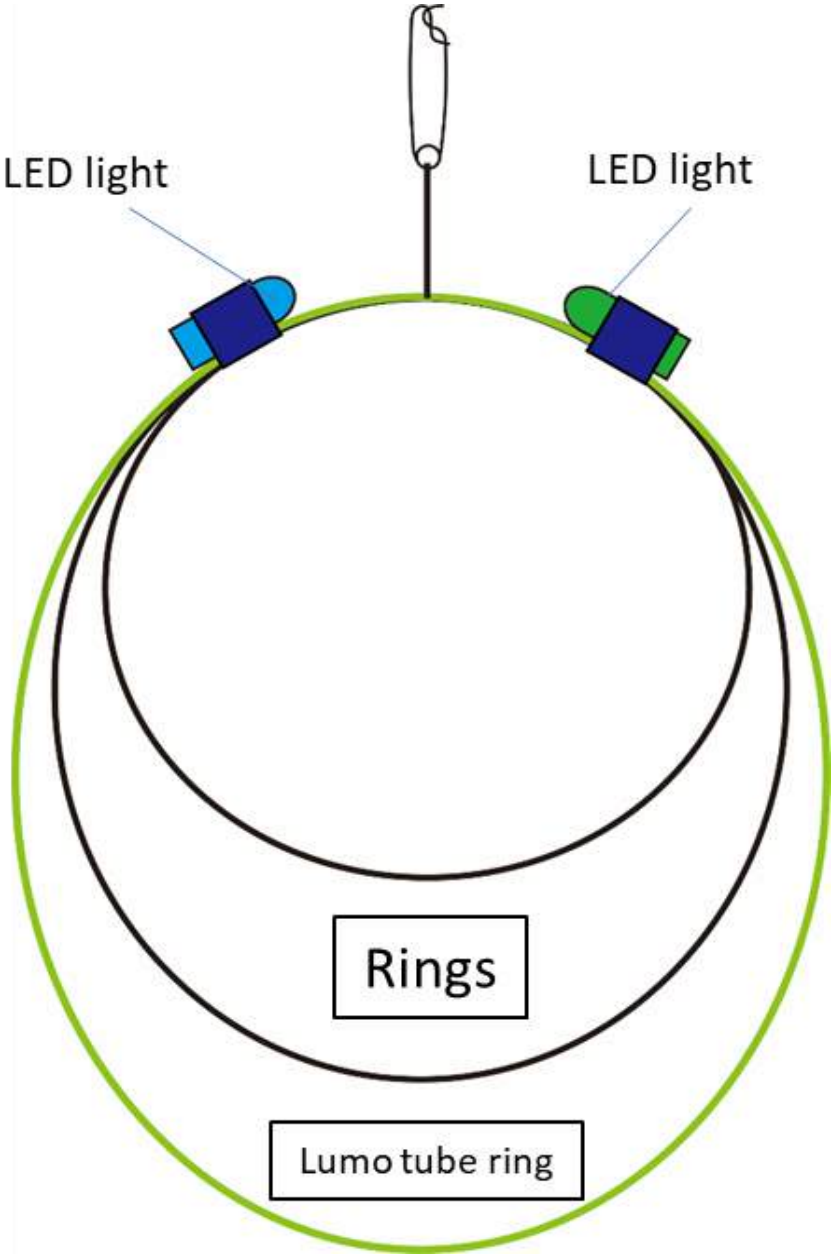
In recent decades, fishers have been very innovative, often proposing technologically advanced fishing gear that could only be scientifically evaluated 'a posteriori'. In swordfish fishing, this has perhaps happened most frequently. Recently, a new fishing gear, which does not fit into any previously known category, has been identified: it is called 'trap-line' and it has supposedly been in use since at least 2021. This gear poses a number of new challenges to researchers, including how to define the CPUE of the last three years. The data collection, management, and regulation of this new gear should pose also new challenges

Gear structure and fishing operation

- Main part consists of 1–5 rings of different diameters, made of wire or nylon, bundled at the top.

- **<u>No natural bait and hook</u>** attached.
(Only occasional use of artificial bait)

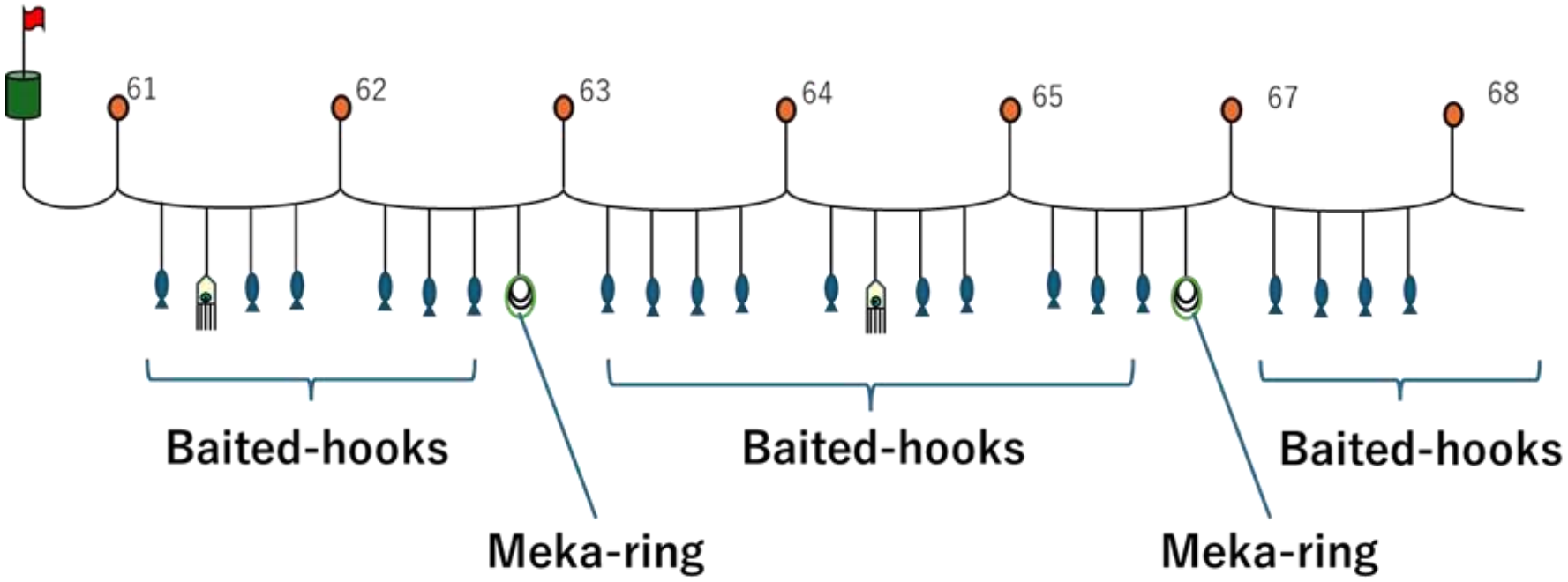
- Blinking LED lights often attached to attract fish.



Gear structure and fishing operation

It is considered inefficient to replace all branch lines with this gear as baited hook has effects of fish aggregation and catch of many species.

Typically, these branch lines constitute only a few percent of total branch lines, and dispersed among normal branch lines.

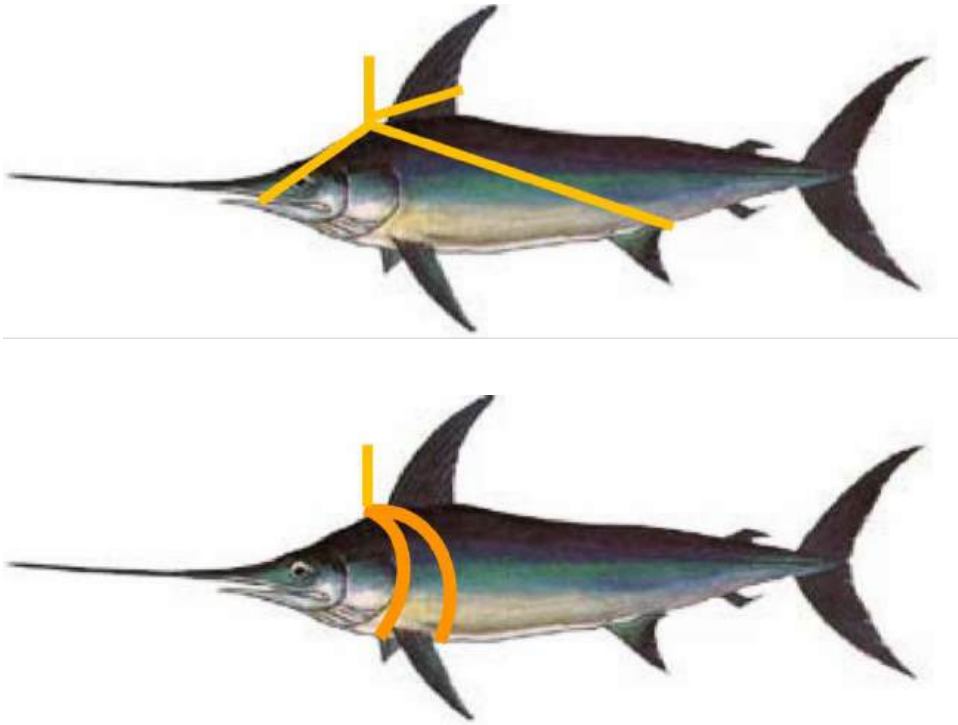


Catch and bycatch characteristics

- Current data shows catches are almost **exclusively swordfish.**
- Very limited catch of other species (e.g., yellowfin tuna, bigeye tuna, striped marlin, blue shark).
- No bycatch of seabirds or marine mammals reported.
- Sea turtle bycatch appears lower than with conventional baited hooks.

Catch and bycatch characteristics

- Mechanics of this device is similar to a snare trap used in hunting.
- Swordfish are caught when their bodies or fins become entangled as they try to pass through the ring.
- Only one individual is caught per ring.
- Haulback mortality may not differ much from that of baited hooks?
- Small-sized swordfishes are less likely to be caught.



Research progress and future plans

- Due to limited information on this fishing gear, we started information collection and research.
- Methods included:
  - Interviews with fishermen
  - Analysis of observer data and logbook data
  - Research cruises to investigate catches and bycatches
- This report is preliminary because of limited data.
- We plan to provide statistical analyses on gear use among Japanese pelagic longliners as more data become available.

References

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