National Report of Japan

Overview of Researches on Ecologically Related Species in Japanese SBT Longline Fishery, 2021-2022

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要約

日本の漁業においてミナミマグロを対象とするのは、はえ縄漁業である。2021年と2022年におけるミナミマグロはえ縄漁業に従事した漁船数はそれぞれ、78、70隻であった。日本のミナミマグロはえ縄漁船が操業する水域は、CCSBT 統計海区の4、5、7、8 及び9海区である。水産庁は、漁獲成績報告書の提出を船に義務付けると共に、1991年からミナミマグロ漁獲量情報を収集するために漁業データ即時収集プログラム(RTMP)を実施してきた。1995 年にはRTMPをすべてのミナミマグロはえ縄漁船を対象に実施している。

日本の科学オブザーバー計画は、1992 年から開始されており、操業位置、漁獲努力量、漁獲対象・非対象種の漁獲量、生物情報及び海鳥の偶発的捕獲などが本計画において記録されている。2021年と2022年におけるミナミマグロはえ縄漁船の科学オブザーバー配乗はCOVID-19の影響により実施できなかった。

Summary

Japanese fleet is using only longline gear to catch southern bluefin tuna (SBT). Number of vessels engaging the SBT longline fishery was 78 and 70 in 2021 and 2022, respectively. Fishing grounds for SBT in recent years correspond to the CCSBT statistical areas of 4, 5, 7, 8 and to 9. Historically, logbook was submitted from fishermen to government as an obligation. In addition, Fisheries Agency of Japan started Real Time Monitoring Program (RTMP) from 1991 to monitor the catch of SBT. All the vessels for the SBT longline fishery have been monitored through this program since 1995.

Scientific observer program on the SBT fishery has been conducted by Japan since 1992, collecting information on fishing position, effort, catch of target and non-target species, biological information, incidental catch of seabirds, etc. The scientific observers could not be deployed due to COVID-19 in 2021 and 2022.

1. Introduction

Japanese fleet is using only longline gear to catch southern bluefin tuna (SBT). Since 1952, Japanese longline operation has started in the Indian Ocean that targeting yellowfin and bigeye tuna and caught, although SBT as was sub-target species for the longline fishery targeting yellowfin and bigeye tuna during the early stage of fishery. This is because of the fact that SBT in the tropical region were mostly spent of spawning with low meat quality so fishermen did not target it. Further south fishing grounds in the temperate waters for this species were developed in the late 1950s and 1960s. In addition, the innovation of super cold freezer has accelerated demand of “sashimi” grade SBT meat to the Japanese market. Recently the number of fishing vessels targeting SBT has gradually decreased due to the strong regulation for

stock management and government policy to reduce number of longline vessels several times done in the past.

Regarding the incidental catch of seabirds, tori line was used voluntarily by the fishermen in the early 1990s, and the Government of Japan has introduced a mandatory measure for SBT longliners to use tori line since 1997. Research effort to modify tori line, weighted branchline and alternative methods possibly avoiding incidental catch of seabirds have continued. According to the international plans of action for reducing incidental catch of seabirds in longline fisheries and for the conservation and management of sharks, Japan established National Plans of Action in 2001 and has promoting mitigation of incidental take of seabirds, sea turtles and management of pelagic sharks.

2. Review of SBT Fisheries

Fleet size and distribution

The number of longline fishing vessels for SBT has been decreasing since the peak of about 300 in 1985. Fisheries Agency of Japan (FAJ) had reduced number of such vessels by 69 in 1981, 100 in 1982 and 132 in 1998. Vessel reduction policy in 1998 would have influenced further decline of number of vessels after then. The number of vessels has been less than 100 recently. Recent fishing grounds were off Cape of Good Hope (Area 9), southeastern Indian Ocean (Area 8), southeast of Australia (Area 4) and water near Tasmania Island (Area 7). Thus, the Japanese vessels were mainly operating in these areas, namely Area 4, 7, 8 and 9, in the second and third quarters for SBT.

Distribution of Catch and Effort

Catch and Effort data submitted to CCSBT were summarized. Effort of Japanese longline as the number of hooks used distributed widely in the southern hemisphere (Fig. 1). However, the major area of SBT catch came from Area 4, 7, 8 and 9 (Fig. 2).

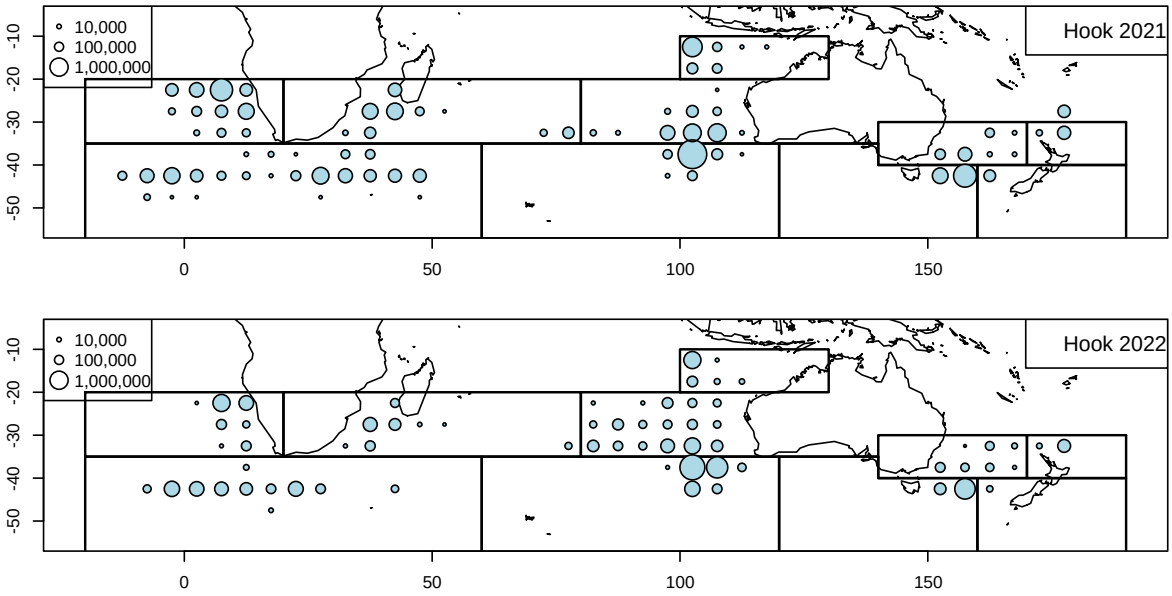

Fig.1. Number of hooks of Japanese longline by 5x5 degrees square in 2021 and 2022.

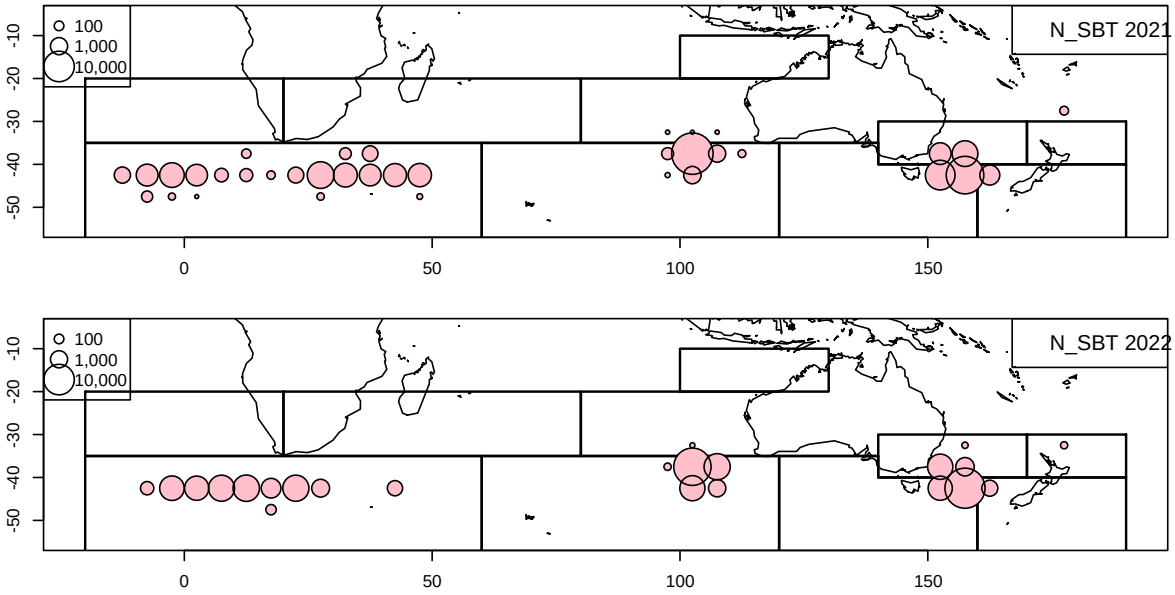

Fig.2. Number of SBT caught by Japanese longline by 5x5 degrees square in 2021 and 2022.

3. Fisheries Monitoring for Each Fleet

Since 1991, FAJ has carried out Real Time Monitoring Program (RTMP) to monitor the catch of SBT. The number of vessels monitored by the program was 12-15 during 1991-1994, and all the vessels operating SBT fishing ground have been monitored by the RTMP since 1995. Each vessel sends daily reports including fishing position, effort, and catch by species in number and weight to the Fisheries Agency. The information is entered into the database in a short time.

Since 1992, Japan has conducted scientific observer program on SBT fishery and collected information including fishing position, effort, catch of target and non-target species, biological information, incidental catch of seabirds, etc. However, data collection could not be conducted in 2021 and 2022 due to the suspension of scientific observer deployments due to COVID-19; data reporting is expected to resume, as scientific observer assignments have resumed in 2023 and the amount of effort for assignments has returned to normal.

4. Seabird

No information.

5. Other Non-target Fish

No information.

6. Marine Mammal and Marine Reptile

No information.

7. Mitigation Measures to Minimize Seabird and Other Species Bycatch

Current Measures

Mandatory measures

All tuna longline fishing vessels including those operating to catch SBT are obliged to comply with respective rules adopted by the WCPFC, IATTC, IOTC and ICCAT, when operating in the Convention areas of these RFMOs. In addition, the Government of Japan has prepared law every time when there is amendment of the mitigation measures of these RFMOs and instructed to obey these measures for tuna longliners to obey these regulations.

Updated conservation and management measure to mitigate seabird bycatch were adopted at IOTC and will enter into force in July 2024. Japan has amended its domestic regulations in compliance with currently active measures and implemented.

The measures that the Government of Japan to enforce and monitor the level of compliance for bycatch mitigation measures included a dispatch of enforcement vessels to the fishing areas, record of mitigation measures deployed through the logbook and collecting necessary information by scientific observers on board the operating vessels. The boarding observers and vessels carrying them are carefully selected so that avoiding the same vessels being selected in subsequent years. In addition to the mitigation measures adopted by each longline boat, Japanese observer program (JOP) has started to collect information of the general specifications of the mitigation measures adopted by each boat, such as the weight and position of swivels in the weighted branch line as well as the general configuration of tori lines, for the future detailed evaluation of the effect of mitigation measures.

Voluntary Measures, including information on proportion of fleet using the voluntary measures:

In February 2001, in accordance with “International Plan of Action for reducing incidental catch of seabirds in longline fisheries” of FAO, the Government of Japan

developed "Japan's National Plan of Action for reducing incidental catch of seabirds in longline fisheries", in which FAJ instructed every fishermen to voluntarily carry out night setting, use of weighted branch line to ensure speedy precipitation of bait and use of properly defrozen bait in addition to the use tori lines which was already mandatory at that time.

Measures under Development/Testing

1) Mitigation measures:

Effectiveness of tori-line and weighted branchline by Japanese research vessel was examined in the North Pacific from April to May 2014-2016. The result indicated that tori-line and weighted branchline are effective mitigation measures for tuna longline operations in the North Pacific. The further research on tori-line for small-scale vessels to reduce incidental catch of seabirds in the north Pacific has been carried out during 2017-2020 and use of light-weight materials for main line of tori line can create enough aerial extent to prevent seabird attack to baited hooks.

2) Conservation and management

Large number of leatherback turtles is known to nest in Jamursba-medi and Wermon, West Papua, Indonesia. Nest counts, assessment of hatching success, and improvement of nesting environments for leatherbacks have been conducted since 1999 in Indonesia with the collaboration of the Indonesia Sea Turtle Research Center and Everlasting Nature of Asia, which is a Non-Profit Organization (NPO) in Japan. The nesting survey revealed that Indonesian population of leatherback turtles were suffering from poor reproductive success due to beach erosion, egg predation and low hatching rates. The Everlasting Nature constructed electric fences in the highest density nesting area to prevent pig predation on leatherback eggs. The electric fence drastically reduced the predation rates of eggs. Sea turtle populations have been affected by many factors on land and at sea (disappearance of nesting beaches, hatchling production, predation of eggs and turtles, interaction with fisheries such as trawl, gillnet, set-net, trap, purse-seine, and longline). Therefore, holistic management is necessary for the conservation of sea turtles, especially leatherback turtles.

In order to develop a management basis, Japan collaborated with New Zealand on the development of a statistical model for assessing seabird bycatch risk in SBT fisheries and developed a tool to harmonize seabird biological information with fishery data (CCSBT-ERSWG/2406/13 & 16).

8. Public Relations and Education Activities

Public Relation Activities

Educational materials, including booklets, pamphlets, video program (DVD/VHS), cartoons were prepared by FRA, the Global Guardian Trust (GGT), Japan NUS and the Organization for the Promotion of Responsible Tuna Fisheries (OPRT), and were distributed to fishermen and other parties related to fishing industry to explain the importance of reducing incidental catch of seabirds and sea turtles.

- Identification guide for sharks, seabirds and sea turtles.
- Booklets and leaflets that illustrate methods for avoiding incidental catch and appropriate handling of seabirds and sea turtles.
- A guidebook which summarizes the NPOA-Seabirds and NPOA-Sharks.
- A video program (VHS and DVD) which explains mitigation measures to reduce longline interactions with seabirds and sea turtles.

Education

Japan Tuna Fisheries Cooperative Association has distributed weight on branch line to Japanese SBT longline vessels before the commencement of the fishing season.

Japan Tuna Fisheries Cooperative Association has held the workshops on seabird mitigation measures for captains, fish masters and owners of Japanese SBT longline vessels, taking advantage of the opportunities that fishers meet in one place.

Japan Tuna Fisheries Cooperative Association will continue its efforts to further promote implementation of seabird mitigation measures by Japanese SBT longline vessels, including holding workshops, providing opportunities for fishers to be educated on seabird mitigation at Japanese port and distribution of seabird mitigation devices.

In addition, in February 2024, workshops on the implementation of seabird bycatch mitigation measures for tuna longline fishermen was held by CCSBT and FAJ at two Japanese longline fishing ports (Shizuoka and Kesen-numa) as part of CCSBT Seabird Project, with many fishermen attending.

Observers

Before the cruises, scientific observer candidates are obligated to take a training seminar. JOP held the training seminars twice a year to train scientific observers in usual year. During the training seminars, the candidates brushed up their knowledge and skills on research method, recording procedure and safety. Training included the practices of measuring the fish size and of collecting the biological samples. After the return from the commercial longline vessels, every observer reported their research activity. Their experiences and information have been used for the improvement of the observer program and next research activity.

9. Information on other ERS (non-bycatch) such as prey and predator species

No other information.

10. Others

No other information.

11. Implementation of the NPOA-Seabirds and IPOA-Sharks

Japan developed its own National Plans of Action (NPOAs) for both seabirds and sharks in 2001 according to the FAO International Plans of Action (IPOAs) and revised them in 2016 taking into account the latest management measures taken by several RFMOs. FAJ disseminated the NPOAs to fishermen through local governments and fishermen's organizations. FAJ has reviewed implementation status of these two NPOAs and submitted its implementation reports to the FAO Committee on Fisheries (COFI) every two years since 2003.

Table 1: Reporting form for estimation of total mortality of ERS in CCSBT fisheries

Country _____Japan_____ Year (calendar year) ____2018_____

		Total & Observed Effort[1]				Observed Captures				Proportion of observed effort with specific mitigation measures								
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[2]	Total Effort[3]	Total Observed Effort[3]	Observer Coverage[4]	Species[5]	Fate (*numbers*)				TP + NS[6]	TP + WB[6]	NS + WB[6]	TP + WB + NS[6]	TP[6]	NS[6]	WB[6]	NIL	Others[7]
						Retained (dead)	Discarded (dead)	Released (live)	Other[8]									
4	OBS	1,203,461	98,140	8%	BSH	0	236	342	3	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	BSH													
6	OBS	0	0		BSH													
7	OBS	4,819,712	103,240	2%	BSH	0	242	315	6	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	BSH	1,180	491	638	800	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	BSH	375	303	394	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	SMA	0	5	10	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	SMA													

[1] Values in these shaded cells will be repeated for all species within a strata.
[2] Use codes OBS = Human observers, EM = Electronic monitoring. The ERSWG recognised that there was no agreement that EM replace the requirement for 10% observer coverage, and that the proposed inclusion of the option to report on EM results was not intended to imply any such agreement but only to clarify the source of any data that were reported.
[3] For longline provide number of hooks, for purse seine provide number of sets.
[4] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[5] Use FAO's 3 alpha species codes.
[6] TP = tori poles, NS = night setting, WB = weighted branchline.
[7] Add extra columns for other categories of mitigation measures, if required.
[8] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

6	OBS	0	0		SMA													
7	OBS	4,819,712	103,240	2%	SMA	0	1	1	1	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	SMA	12	0	1	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	SMA	3	0	0	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	POR	0	5	6	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	POR													
6	OBS	0	0		POR													
7	OBS	4,819,712	103,240	2%	POR	0	10	17	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	POR	0	145	84	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	POR	0	162	206	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	SHK	0	2	31	3	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	SHK													
6	OBS	0	0		SHK													
7	OBS	4,819,712	103,240	2%	SHK	0	2	23	2	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	SHK	0	12	9	2	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	SHK	0	53	313	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	DAL	0	0	0	0	32%	0%	0%	0%	68%	0%	0%	0%	

5	OBS	974,625	0	0%	DAL													
6	OBS	0	0		DAL													
7	OBS	4,819,712	103,240	2%	DAL	0	0	0	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	DAL	0	0	0	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	DAL	0	21	0	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	LAL	0	1	0	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	LAL													
6	OBS	0	0		LAL													
7	OBS	4,819,712	103,240	2%	LAL	0	0	2	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	LAL	0	3	0	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	LAL	0	3	1	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	OAL	0	13	1	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	OAL													
6	OBS	0	0		OAL													
7	OBS	4,819,712	103,240	2%	OAL	0	13	1	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	OAL	0	18	0	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	OAL	0	166	1	0	34%	0%	0%	0%	66%	0%	0%	0%	

4	OBS	1,203,461	98,140	8%	UAL	0	0	0	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	UAL													
6	OBS	0	0		UAL													
7	OBS	4,819,712	103,240	2%	UAL	0	0	0	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	UAL	0	2	0	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	UAL	0	4	1	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	OPT	0	0	0	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	OPT													
6	OBS	0	0		OPT													
7	OBS	4,819,712	103,240	2%	OPT	0	0	0	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	OPT	0	0	0	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	OPT	0	0	0	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	OSB	0	0	0	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	OSB													
6	OBS	0	0		OSB													
7	OBS	4,819,712	103,240	2%	OSB	0	0	0	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	OSB	0	0	0	0	3%	0%	0%	0%	97%	0%	0%	0%	

9	OBS	6,772,686	440,088	6%	OSB	0	5	0	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	USB	0	0	0	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	USB													
6	OBS	0	0		USB													
7	OBS	4,819,712	103,240	2%	USB	0	0	0	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	USB	0	1	0	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	USB	0	0	0	0	34%	0%	0%	0%	66%	0%	0%	0%	
4	OBS	1,203,461	98,140	8%	TTL	0	0	0	0	32%	0%	0%	0%	68%	0%	0%	0%	
5	OBS	974,625	0	0%	TTL													
6	OBS	0	0		TTL													
7	OBS	4,819,712	103,240	2%	TTL	0	0	0	0	31%	0%	0%	0%	69%	0%	0%	0%	
8	OBS	3,170,450	437,771	14%	TTL	0	0	0	0	3%	0%	0%	0%	97%	0%	0%	0%	
9	OBS	6,772,686	440,088	6%	TTL	0	0	0	0	34%	0%	0%	0%	66%	0%	0%	0%	
TOTAL		16,940,934	1,079,239	6%		1,570	1,919	2,397	817	21%	0%	0%	0%	79%	0%	0%	0%	

Table 1: Continued

Country _____Japan_____ Year (calendar year) ____2019_____

		Total & Observed Effort[9]				Observed Captures				Proportion of observed effort with specific mitigation measures								
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[10]	Total Effort[11]	Total Observed Effort[3]	Observer Coverage[12]	Species[13]	Fate (*numbers*)				TP + NS[14]	TP + WB[6]	NS + WB[6]	TP + WB + NS[6]	TP[6]	NS[6]	WB[6]	NIL	Others[15]
						Retained (dead)	Discarded (dead)	Released (live)	Other[16]									
4	OBS	793,271	120,577	15%	BSH	23	22	254	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	BSH	37	0	20	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	BSH													
7	OBS	3,961,222	963,709	24%	BSH	182	125	1,548	0	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	BSH	714	88	1,123	7	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	BSH	2,612	387	2,055	8	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	SMA	5	7	14	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	SMA	10	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%

[9] Values in these shaded cells will be repeated for all species within a strata.
[10] Use codes OBS = Human observers, EM = Electronic monitoring. The ERSWG recognised that there was no agreement that EM replace the requirement for 10% observer coverage, and that the proposed inclusion of the option to report on EM results was not intended to imply any such agreement but only to clarify the source of any data that were reported.
[11] For longline provide number of hooks, for purse seine provide number of sets.
[12] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[13] Use FAO's 3 alpha species codes.
[14] TP = tori poles, NS = night setting, WB = weighted branchline.
[15] Add extra columns for other categories of mitigation measures, if required.
[16] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

6	OBS	0	0	0%	SMA													
7	OBS	3,961,222	963,709	24%	SMA	29	24	88	2	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	SMA	11	1	8	0	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	SMA	57	0	14	0	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	POR	0	1	9	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	POR	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	POR													
7	OBS	3,961,222	963,709	24%	POR	0	80	399	0	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	POR	0	113	493	0	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	POR	1	433	780	1	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	SHK	0	3	38	1	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	SHK	0	0	36	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	SHK													
7	OBS	3,961,222	963,709	24%	SHK	0	8	86	122	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	SHK	0	2	49	0	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	SHK	0	31	743	1	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	DAL	0	1	0	0	26%	13%	0%	7%	54%	0%	0%	0%	0%

5	OBS	627,957	98,556	16%	DAL	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	DAL													
7	OBS	3,961,222	963,709	24%	DAL	0	1	0	0	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	DAL	0	1	0	0	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	DAL	0	87	1	0	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	LAL	0	2	0	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	LAL	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	LAL													
7	OBS	3,961,222	963,709	24%	LAL	0	40	2	0	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	LAL	0	0	0	0	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	LAL	0	47	4	0	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	OAL	0	52	1	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	OAL	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	OAL													
7	OBS	3,961,222	963,709	24%	OAL	0	700	10	0	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	OAL	0	16	0	3	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	OAL	0	213	2	0	10%	6%	0%	3%	74%	1%	0%	0%	2%

4	OBS	793,271	120,577	15%	UAL	0	0	0	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	UAL	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	UAL													
7	OBS	3,961,222	963,709	24%	UAL	0	0	0	176	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	UAL	0	5	0	27	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	UAL	0	1	0	137	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	GPT	0	1	0	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	GPT	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	GPT													
7	OBS	3,961,222	963,709	24%	GPT	0	108	1	37	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	GPT	0	7	0	8	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	GPT	0	290	3	0	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	OSB	0	0	0	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	OSB	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	OSB													
7	OBS	3,961,222	963,709	24%	OSB	0	0	0	0	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	OSB	0	0	0	0	7%	19%	0%	1%	73%	0%	0%	0%	0%

9	OBS	5,570,508	1,438,404	26%	OSB	0	5	2	0	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	USB	0	0	0	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	USB	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	USB													
7	OBS	3,961,222	963,709	24%	USB	0	0	0	8	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	USB	0	0	0	0	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	USB	0	0	0	0	10%	6%	0%	3%	74%	1%	0%	0%	2%
4	OBS	793,271	120,577	15%	TTL	0	0	0	0	26%	13%	0%	7%	54%	0%	0%	0%	0%
5	OBS	627,957	98,556	16%	TTL	0	0	0	0	0%	0%	8%	0%	0%	16%	25%	0%	50%
6	OBS	0	0	0%	TTL													
7	OBS	3,961,222	963,709	24%	TTL	0	0	1	0	19%	14%	0%	4%	63%	0%	0%	0%	0%
8	OBS	2,324,044	299,681	13%	TTL	0	0	0	0	7%	19%	0%	1%	73%	0%	0%	0%	0%
9	OBS	5,570,508	1,438,404	26%	TTL	0	0	0	0	10%	6%	0%	3%	74%	1%	0%	0%	2%
TOTAL		13,277,002	2,920,927	22%		3,681	2,902	7,784	538	13%	10%	0%	3%	67%	1%	1%	0%	3%

Table 1: Continued

Country _____Japan_____ Year (calendar year) ____2020_____

		Total & Observed Effort[17]				Observed Captures				Proportion of observed effort with specific mitigation measures								
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[18]	Total Effort[19]	Total Observed Effort[3]	Observer Coverage[20]	Species[21]	Fate (*numbers*)				TP + NS[22]	TP + WB[6]	NS + WB[6]	TP + WB + NS[6]	TP[6]	NS[6]	WB[6]	NIL	Others[23]
						Retained (dead)	Discarded (dead)	Released (live)	Other[24]									
4	OBS	568,194	0	0%	BSH													
5	OBS	404,818	71,600	18%	BSH	184	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	BSH	5	3	2	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	BSH	99	79	130	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	BSH	175	0	4	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	BSH	1,392	959	475	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	SMA													
5	OBS	404,818	71,600	18%	SMA	0	1	4	1	0%	10%	17%	5%	0%	0%	68%	0%	0%

[17] Values in these shaded cells will be repeated for all species within a strata.
[18] Use codes OBS = Human observers, EM = Electronic monitoring. The ERSWG recognised that there was no agreement that EM replace the requirement for 10% observer coverage, and that the proposed inclusion of the option to report on EM results was not intended to imply any such agreement but only to clarify the source of any data that were reported.
[19] For longline provide number of hooks, for purse seine provide number of sets.
[20] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[21] Use FAO's 3 alpha species codes.
[22] TP = tori poles, NS = night setting, WB = weighted branchline.
[23] Add extra columns for other categories of mitigation measures, if required.
[24] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

6	OBS	103,320	5,605	5%	SMA	0	1	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	SMA	0	15	3	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	SMA	0	0	1	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	SMA	0	7	9	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	POR													
5	OBS	404,818	71,600	18%	POR	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	POR	0	1	5	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	POR	0	27	123	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	POR	0	0	22	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	POR	0	550	537	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	SHK													
5	OBS	404,818	71,600	18%	SHK	0	1	30	8	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	SHK	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	SHK	0	1	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	SHK	0	0	2	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	SHK	0	51	181	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	DAL													

5	OBS	404,818	71,600	18%	DAL	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	DAL	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	DAL	0	0	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	DAL	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	DAL	0	21	0	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	LAL													
5	OBS	404,818	71,600	18%	LAL	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	LAL	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	LAL	0	1	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	LAL	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	LAL	0	14	7	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	OAL													
5	OBS	404,818	71,600	18%	OAL	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	OAL	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	OAL	0	6	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	OAL	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	OAL	0	56	5	0	43%	18%	0%	6%	32%	0%	0%	0%	0%

4	OBS	568,194	0	0%	UAL													
5	OBS	404,818	71,600	18%	UAL	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	UAL	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	UAL	0	0	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	UAL	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	UAL	0	0	0	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	GPT													
5	OBS	404,818	71,600	18%	GPT	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	GPT	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	GPT	0	6	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	GPT	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	GPT	0	52	4	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	OSB													
5	OBS	404,818	71,600	18%	OSB	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	OSB	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	OSB	0	0	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	OSB	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%

9	OBS	6,520,563	721,504	11%	OSB	0	6	4	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	USB													
5	OBS	404,818	71,600	18%	USB	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	USB	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	USB	0	0	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	USB	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	USB	0	0	0	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
4	OBS	568,194	0	0%	TTL													
5	OBS	404,818	71,600	18%	TTL	0	0	0	0	0%	10%	17%	5%	0%	0%	68%	0%	0%
6	OBS	103,320	5,605	5%	TTL	0	0	0	0	0%	10%	0%	90%	0%	0%	0%	0%	0%
7	OBS	2,697,048	128,246	5%	TTL	0	0	0	0	0%	31%	0%	69%	0%	0%	0%	0%	0%
8	OBS	3,538,838	104,080	3%	TTL	0	0	0	0	24%	6%	0%	2%	68%	0%	0%	0%	0%
9	OBS	6,520,563	721,504	11%	TTL	0	0	0	0	43%	18%	0%	6%	32%	0%	0%	0%	0%
TOTAL		13,832,781	1,031,035	7%		1,855	1,858	1,548	9	33%	18%	1%	14%	29%	0%	5%	0%	0%