National Report of Taiwan: Ecologically Related Species in the Taiwanese Southern Bluefin Tuna Fishery 2018-2020

Fisheries Agency of Taiwan

Summary

For Taiwanese fishing vessels, only longliner catch SBT. The number of active vessels catching SBT in 2018-2020 calendar years were 77, 72 and 70, respectively, which was consist of seasonal target vessels and bycatch vessels.

The annual catches of quota year (from March 1 of the current year to the end of February of the following year) were 1,211, 1,229 and 1,116 tons for 2018-2020, respectively, while the catches of calendar year were 1,218, 1,229 and 1,116 tons for 2018-2020. The catch in calendar year and quota year were same in 2019 and 2020, due to the seasonal target vessels ended fishing ahead of schedule and shifted to other fishing grounds afterwards.

The observers were sent onboard SBT fishing vessels for collection and record of catch data and ERS bycatch data. The observer coverage rate was all above 10% in terms of effort since 2005. In 2018 calendar year, 12 observers were deployed on 12 of the 46 fishing vessels authorized to target SBT seasonally and 4 observers were deployed on 4 of the 31 fishing vessels authorized to bycatch SBT. In 2019 calendar year, 16 observers were deployed on 16 of the 44 fishing vessels authorized to target SBT seasonally, and 2 were deployed on 2 of the 28 fishing vessels authorized to bycatch SBT. There were 10 observers deployed on 10 of the 38 fishing vessels authorized to target SBT seasonally, and 1 was deployed on 1 of the 32 fishing vessels authorized to bycatch SBT in 2020. The coverage rates were 20.8%, 25.0% and 15.7% by vessels, 12.8%, 15.2% and 10.9% by hooks and 10.8%, 14.1% and 10.0% by catches in 2018-2020, respectively.

Taiwanese SBT fishing vessels mainly operate in the IOTC area, and partial SBT bycatch vessels operate in the ICCAT and WCPFC area. Therefore, the Fisheries Agency of Taiwan has imposed regulations which are based on the resolutions / recommendations adopted by these organizations and enforce our longliners to comply the regulations.

1. Introduction

Taiwanese tuna longline fishery has a long development history. In the 1970s, the main target species of the Taiwanese conventional tuna longline fishery was albacore.

Since 1980s, some operators began to build new vessels and switch to super freezer tuna longline fishing for bigeye tuna and yellowfin tuna, then started fishing SBT seasonally in the early 1990s. In the meantime, some tropical tuna fishing vessels shift southward and mainly operate in the central south Indian Ocean (Area 2 and 14) for SBT during April to September, and some operate in the high seas area off South Africa (Area 14 and 9) for SBT during October to February of the following year.

This report includes information on ecologically related species (ERS) of Taiwanese SBT fishery collected by scientific observers updated to 2020.

2. Review of SBT fisheries

Fleet size and distribution

More than 100 vessels had SBT catch records during 1998-2001. Since 2002, Taiwan has become a member of the Extended Commission of CCSBT and agreed on its national quota of 1,140 tons. Taiwan has imposed strict regulations and started to allocate individual quota to each vessel authorized to fish for SBT since 2002. The foregoing vessels are categorized as (1) seasonal SBT-targeting or (2) SBT bycatch vessels. The number of active vessels for SBT from 2002 to 2020 is shown as Table 1.

Distribution of Catch and Effort

Historically, annual catches of SBT were less than 250 tons in the early 1980s. Thereafter, with the improvement of vessel facilities, the fishing grounds and target species have also been changed. Apart from capturing albacore, some Taiwanese vessels also capture SBT in specific seasons. From 1986 to 1996, annual catch of SBT fluctuated around 400 to 1,450 tons. Since CCSBT has been established, Taiwan, in line with the CCSBT conservation and management measures, voluntarily set up its SBT catch limit at 1996 level of 1,450 tons since 1997. During 1996-2001, the average annual catch of SBT therefore maintain around 1,450 tons. When Taiwan joined CCSBT in 2002, it compromised by reducing 310 tons from its original self-restraint catch limit and set up the annual catch quota to 1,140 tons. In 2006, CCSBT adopted TAC arrangement based on binding allocated catch limits for 2007-2009, and Taiwan's catch quota has been fixed in 1,140 tons. Afterwards, Taiwan fully complies with the Resolutions on the allocation of the global total allowable catch and the limited carry-forward of unfished annual total available catch of SBT.

Taiwan's national allocations were 1,274 tons, 1,275 tons and 1,262 tons in 2018-

2020, respectively. The higher quota year as mentioned above was result from the unused allocation that was carried forward to the following quota year. The total catch of each quota year was 1,211 tons, 1,229 tons and 1,116 in 2018-2020, respectively, while the catch of each calendar year was 1,218 tons in 2018, 1,229 tons in 2019 and 1,116 tons in 2020. The annual catch of SBT by gear from 1969 to 2020 is provided in Table 2.

The fishing locations of SBT fishing vessels are mainly concentrated in the waters of 30°S - 40°S in the Indian Ocean and the waters adjacent to the Atlantic Ocean and Pacific Ocean. The catch distribution of the calendar year from 2018 to 2020 is shown in Fig. 1.

3. Fisheries Monitoring for Each Fleet

Taiwan has been continuously exerted intensive efforts for monitoring the SBT fishery through the following measures:

(1) Since April 2002, vessels authorized to fish for SBT have been required to install VMS equipment in order to monitor the positions of the vessels.

(2) Weekly report for SBT catch is required for submission to the Fisheries Agency (hereafter referred to as FA) of Taiwan through Taiwan Tuna Association. From 2002, provision of such information as daily catch, fishing location and discards is required in the weekly report when applying for SBT statistical document. Since 1 January 2010, the CCSBT SBT Statistical Document has been replaced by the CCSBT Catch Documentation Scheme (CDS). When fishers apply for validation on CDS, the officials authorized by the FA of Taiwan shall check all of the above information consistent with the real catch. Since April 2015, all SBT authorized fishing vessels have been required to report their fishing data through e-logbook system and data fields of e-logbook are the same as the paper logbook. The weekly catch report of individual fishing vessel is thus terminated due to the e-logbook system has been conducted routinely.

(3) The FA of Taiwan has designated two foreign ports (Port Louis and Cape Town) for SBT transshipment and landing since March 2010 and has prohibited transshipment and landing at other foreign ports. Government officials stationed at Port Louis and Cape Town are responsible for inspecting and supervising all SBT catch. Any catch without inspection by the officials shall

not obtain validated catch document.

(4) Besides, the FA of Taiwan has designated fishing port of Qianzhen in Kaohsiung for domestic SBT unloading port by carrier vessels or fishing vessels. Since September 2009, the FA of Taiwan has dispatched officials to supervise all of the SBT catch. Only for those catches are verified, the officials of the FA of Taiwan shall validate catch documents.

(5) In case of transshipment at sea, regional observer of IOTC, ICCAT boarding on carrier vessel shall observe if all of SBT transshipped quantities consistent with the reported catch in the transshipment declaration since 1 April 2009. Besides, catch data were also verified by scientific observers on board. With exception of 2008 and 2011, the observer coverage rate was all above 10% in terms of effort since 2005. In 2008, due to high fuel price, fishing vessels reduced visiting ports and meeting with carrier vessels, it is difficult to dispatch observer onboard. Then in the 2011 quota year, because of the increasing threat of Somalia piracy, considering the safety of observer, the FA of Taiwan stopped dispatching observer on board in the Indian Ocean until the end of December. Since 2012, due to the above-mentioned reason, the FA of Taiwan has suspended dispatching observers to the tropical area of India Ocean, instead the observers have been assigned to the southern India Ocean. Therefore, the observer coverage rate has increased in the southern India Ocean. In 2018 calendar year, 12 observers were deployed on 12 of the 46 fishing vessels authorized to target SBT seasonally and 4 observers were deployed on 4 of the 31 fishing vessels authorized to bycatch SBT. In 2019 calendar year, 16 observers were deployed on 16 of the 44 fishing vessels authorized to target SBT seasonally, and 2 were deployed on 2 of the 28 fishing vessels authorized to bycatch SBT. There were 10 observers being deployed on 10 of the 38 fishing vessels authorized to target SBT seasonally, and 1 was deployed on 1 of the 32 fishing vessels authorized to bycatch SBT in 2020. The coverage rates were 20.8%, 25.0% and 15.7% by vessels, 12.8%, 15.2% and 10.9% by hooks and 10.8%, 14.1% and 10.0% by catches in 2018-2020, respectively. The summary of observed catch and effort by area and month during 2018-2020 are provided in Table 3. In addition to catch data, observers also collected and recorded ecologically related species (ERS) data, such as seabirds, sea turtles, marine mammals, and sharks data. Besides, mitigation

measures adopted by fishing vessels shall be recorded.

(6) Besides, Patrol boats were also dispatched to inspect Taiwanese fishing vessels operating in the three oceans. In 2008, two SBT fishing vessels were boarded and inspected by patrol boats. It accounts for 4.9% of the Taiwanese SBT fishing vessels. In 2009, five SBT fishing vessels were boarded and inspected. It accounts for 7.5% of the Taiwanese SBT fishing vessels. Since 2010, due to the threat of Somalia piracy and for safety consideration, no patrol boat was dispatched to the Indian Ocean for inspection.

(7) There are penalties for over catch, illegal transshipment, unloading catch at any non-designated ports, and any violation of regulations.

(8) The seabird mitigation measures taken during each fishing operation of fishing vessel shall be recorded in the e-logbook and logbook since 20 January 2017.

4. Seabirds

In 2018, 41 seabirds were observed incidentally caught and discarded by SBT vessels. In 2019, 33 seabirds were observed incidentally caught by SBT vessels, among which 1 was released alive, and 32 were discarded. And in 2020, 21 seabirds were observed incidentally caught by SBT vessels, among which 1 was released alive, and 20 were discarded. The distribution of observed seabirds' bycatch by SBT vessels were shown in Fig. 2. The white-chinned petrel (PRO) was a more common species in 2018. There has been a progressive decreased and species evenly distributed in 2019 and 2020.

Table 4, Table 5 and Table 6 show the fate of bycatch captures by CCSBT statistical areas for each seabird species observed by observers from 2018-2020, respectively. The seabird bycatch mitigation measures used on these observed vessels, include tori lines, nighttime setting, weighted branch-lines. Vessels in the south of 25°S are required to use at least two mitigation measures. The proportion of observed effort that apply specific mitigation measures is shown in the Table 4, Table 5 and Table 6.

5. Other Non-target Fishes

For Taiwanese SBT vessels, the main catch is albacore and SBT. Other non-target fishes include bigeye tunas, yellowfin tunas, sharks, and billfishes. For shark species, blue shark was observed as the most dominant species captured, which accounts for 86.29% in 2018, 78.93% in 2019 and 64.15% in 2020. The fate of sharks caught by area from 2018-2020 were shown in Table 7, Table 8 and Table 9.

6. Marine Mammals and Marine Reptiles

According to observer records in 2018-2020, there was no bycatch of cetaceans and sea turtles recorded for the SBT vessels except 2019 and there was 1 sea turtle observed in 2019.

7. Mitigation Measures to Minimize Seabird and Other Bycatch Species

Current Measures

- ***Mandatory Measures for Each Fleet***

Taiwanese SBT fishing vessels mainly operate in the IOTC area, and partial SBT bycatch vessels operate in the ICCAT and WCPFC area, so that the FA of Taiwan has imposed relevant regulations which are based on the resolutions/recommendations adopted by these organizations and has enforced the fishers to comply.

- ***Seabird***

The FA of Taiwan has introduced a regulation which requires vessels fishing at the areas of southern than 30°S to deploy a tori line to reduce seabird incidental catch since 2004[1]. Besides, in line with the IOTC Resolution 08/03 on reducing the incidental catch of seabirds in longline fisheries, all Taiwanese longline vessels fishing south of 30°S shall use at least two of the mitigation measures (tori line, weighted branch line, or night setting) in consistence with the Resolution since 2009.

Since 2010, IOTC requests the longline vessels fishing in the area south of 25°S in Indian Ocean shall use at least two different mitigation measures including tori line and one other measure, such as nighttime setting, weighted branch lines, offal discharge control or line shooting device in consistence with Resolution 10/06. In consistence with the Resolution 12/06, the FA of Taiwan has amended the relevant regulations to request fishing vessels operating in the area south of 25°S in Indian Ocean to use at least two of the three mitigation measures, i.e., nighttime setting with minimum deck lighting, tori lines, or line weighting from 1 July 2014. In addition, fishers shall fill out the specified form regarding the measures adopted by its vessels with photos of the finished mitigation measures and inform the FA of Taiwan in advance of one month of the vessel fishing south of 25°S in the Indian Ocean. Government officials stationed at

[1] Vessels operating in South of 30 ° S must be installed tori line. See" Regulations for fishing vessels catching southern bluefin tuna in three oceans of 2004 (2003.11.28.Code 0921331476)"

Port Louis and Cape Town shall examine the tori line by random and request fishers to make rectification so as to be consistent with the resolution.

Besides, in accordance with ICCAT's Recommendation 2011-09, the FA of Taiwan imposed regulation requiring all Taiwanese longline vessels fishing south of 25°S in the Atlantic Ocean have to use tori lines and line weighting as the mitigation measures, with between 20°S to 25°S that tori lines as compulsory.

In accordance with WCPFC CMM 2018-03 Conservation and Management Measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds. The FA of Taiwan has required firms and industries to take appropriate measures in accordance with the NPOA-seabird to mitigate incidental catch of seabirds. Furthermore, according to the domestic regulations, fishing vessels operating in south of 30°S are required to employ at least two seabird mitigation measures, one should be tori lines, the other should be one of those including: weighted branch lines and nighttime setting with minimum deck lighting. Incidentally caught seabirds are encouraged to release alive. For this purpose, fishing vessels are required to carry de-hookers and line cutters on board.

- ***Sea turtle***

To conserve sea turtles, the FA of Taiwan has publicized domestic management regulations since 2006, which requires fishing vessels to carry necessary devices on board, such as dig nets, de-hookers and line cutters, during voyage or operation periods, for appropriate release of incidentally caught sea turtles. The incidental caught individuals shall be released alive, and the operators shall record all incidents involving marine turtles during fishing operations in their e-logbooks and logbooks.

In addition to the above-mentioned regulations, the FA of Taiwan has imposed "WildLife Conservation Act", forbidding fishers to capture or possess the following kinds of sea turtles, which include green turtle, loggerhead turtle, olive ridley turtle, leatherback turtle and hawksbill turtle. The incidentally caught sea turtles must be released and the fishers are required to record this event in the e-logbook and logbook.

- ***Shark***

According to the recommendations/resolutions adopted by ICCAT and IOTC, the FA of Taiwan has applied mandatory regulations since 2005 to require its authorized vessels fishing in the Atlantic Ocean and the Indian Ocean not to have onboard fins that total more than 5% of the weight of sharks onboard, up to the first point of landing. The

regulation has subsequently applied to the fleets operating in the Pacific Ocean since 2006. Besides, since 2008, the FA of Taiwan has imposed a regulation to prohibit *Rhincodon typus* (whale shark) to be captured, possessed and sold.

In line with IOTC Resolution 10/12 and 12/09, the FA of Taiwan has required that fishers operating in the Indian Ocean not to retain on board, transship, land, store, sell or offer for sale any part or whole carcass of all species of the thresher shark family, Alopiidae, since 2011. In addition, according IOTC Resolution 13/06, the FA of Taiwan has revised the requirement to prohibit vessels from retaining on board, transshipping, landing, storing, selling or offering for sale any part or whole carcass of oceanic whitetip shark since September 1, 2013. In line with IOTC Resolution 17/05, for any tuna longline fishing vessel operating in India Ocean employing ice chilling method to preserve its sharks' catches, shark fins shall naturally attached to the carcasses, and such vessels shall not retain onboard, carry, transship, and land shark catches whose fins are not naturally attached since January 2018.

Besides, based on the ICCAT Recommendations 2009-07, 2010-07, 2010-08, 2011-08 and 2012-05 on sharks, the FA of Taiwan have enacted and revised periodically various domestic regulations, including prohibiting our vessels operating in the Atlantic Ocean from capturing hammerhead sharks (family Sphyrnidae), oceanic whitetip sharks (*Carcharhinus longimanus*), thresher sharks (family Alopiidae), and silky sharks (*Carcharhinus falciformis*).

To further conserve shark resources, the FA of Taiwan adopted the fins attached regulations in January 2012. Starting from January 2013, fishing vessel over 100 tons employing freezing method to preserve their catches are requested to implement regulations of shark fins naturally attached to the carcass, and fishing vessels less than 100 tons employing freezing method to preserve their catches are requested to implement regulations of shark fins naturally attached to the carcass or tied to the carcass when landing in our ports.

Voluntary *Measures for Each Fleet*

No information.

Measures *under Development/Testing*

For mitigation of sea turtle bycatch for tuna longliner, the FA of Taiwan has collaborated with the United States of America for circle hook experiment in the Atlantic Ocean from September 2012 to May 2013. Both sides presented a joint paper

to the ICCAT SCRS meeting in July 2013. This research has been published in Marine Policy in 2016[2].

In 2013, the FA of Taiwan commissioned scholars to collaborate with South Atlantic albacore targeting vessel to perform studies on the effectiveness of combined mitigation measures, such as use of tori line, weighted branch-lines, and nighttime setting.

8. Public Relations and Education Activities

Public Relations Activities

(1) The FA of Taiwan has distributed posters, sheets and booklets for guidance of mitigation measures of reducing seabird bycatch, shark full utilization, and species identification for seabirds, sharks and sea turtles to fishers (CCSBT/0402/Info28).

(2) For sea turtles, the FA of Taiwan encouraged fishers to carry dip net and line clipper on board to safely release sea turtles. Meanwhile, the FA of Taiwan also distributed 3,000 copies of posters entitled “Release the sea turtle incidentally caught” to our fishers in 2003.

(3) In 2004, the FA of Taiwan, the Taiwan Wild Bird Federation, and Birdlife International held a conference in Kaohsiung on the reduction of longline seabird bycatch and exchanged opinions with representatives from the USA, Japan, and Birdlife International, among others. Besides, the FA of Taiwan cooperated with Birdlife International, the Taiwan Wild Bird Federation, and the International Seafood Sustainability Foundation (ISSF) in the “Mitigation of seabird bycatch workshop” held in Kaohsiung in 2013. Experts from the United Kingdom, the USA, and Japan were invited to extensively exchange experiences and opinions with representatives from the industry, government, and academia in Taiwan on issues regarding mitigation devises to avoid seabird bycatch by tuna longline vessels and on possible directions for future cooperation. Furthermore, the FA of Taiwan and Birdlife International held a conference in Kaohsiung on the "Taiwan International Bird Scaring Line (BSL)

[2] Huang, Hsiang-Wen, et al. "Influence of hook type on catch of commercial and bycatch species in an Atlantic tuna fishery." *Marine Policy* 65 (2016): 68-75.

Workshop 2019" inviting the international experts, BSL manufactures and the related industries to discuss how to mitigate bycatching species during fishing operation. In 2019, the FA of Taiwan also sent scholar to South Africa attended the final Seabird Bycatch Assessment Workshop held by ABNJ and Birdlife South Africa to join the analysis and assessment of the status of seabird resources.

(4) In order to avoid incidental catch of sea birds, sea mammals and sea turtles by deep-sea fisheries, Taiwan government sponsored the World Wildlife Fund (WWF) international and Taiwan Wild Bird Federation to hold the International Smart Gear Competition Judges Workshop in Taiwan in September 2007. After the workshop, the FA of Taiwan hosted a forum inviting the international experts and the related industries to discuss how to mitigate bycatching species during fishing operation.

(5) The FA of Taiwan published a seabird identification guideline in 2009 and a shark identification pamphlet for the observer training and for the related staffs training in 2011. Besides, the FA of Taiwan published shark identification pads, 2,000 copies of which were distributed to fishers in 2011.

(6) For disseminating shark fins naturally attached policy, the FA of Taiwan distributed posters, brochures and CDs for fishers, the related fisheries associations and managers for further understanding the regulation and the practical processes of implementing the policy in January 2012.

(7) Fisheries journal as “New Fisheries” and magazines are published and distributed domestically and overseas to fishers, the related fisheries associations / organizations, and managers.

(8) All local governments and related fisheries associations/organizations have been required to strengthen the knowledge to fishers. Besides, broadcasting for educating fishers through the professional fisheries radio station has been conducted regularly. The related information has been passed on to ship masters and crews during observer trips and while in ports.

Education

(1) The FA of Taiwan had authorized Taiwan Wild Bird Federation (TWBF) to implement a fishers' education program for mitigating seabird bycatch in 2005. The WBFT conducted an educational program for Taiwanese fishers in the Port Louis, Mauritius in the fall of 2005. The program was the first trial to discuss the bycatch problems and the efficiency of mitigation measures with fishers in their cabins.

(2) Candidate observers who have passed the oral examination will have to take a 3-week training program, and only those who pass the training program and medical check will be qualified and deployed on board as scientific observers. Observer training program includes basic safety training for seafaring, operations of navigation devices, mini-log thermometer and VMS system, identification of tuna, tuna-like species, sea turtles, seabirds, sharks and marine mammals, sampling skill for muscle tissue, otolith, stomach content and gonad, and data collection for fishing activities, catches and locations. After the training program, they are required to undergo at sea training on a training ship for one week and have a test in identifying tuna and tuna-like species at local fish markets.

(3) In addition to the above-mentioned posters, brochures, and CD, the FA of Taiwan has held a series of education training for fishers, the related association and mangers for promoting shark fins naturally attached since January 2012.

(4) In order to improve the skills to identify the bycatch seabirds from photographs, the FA of Taiwan cooperated with Birdlife International through a collaborative seabird identification training project. In 2014, supporting by Birdlife International, the FA of Taiwan sent an expert to New Zealand to learn the seabird ID method through seabird necropsy and photo ID technique and on-vessel seabird identification techniques.

(5) From 2015 to 2018, the FA of Taiwan cooperated with Birdlife International and the Taiwan Wild Bird Federation to carry out the Port-based Outreach (PBO) program, directly providing practical instructions to skippers. The program was the vital first step for raising awareness of the issues and providing knowledge and skills to use seabird bycatch mitigation measures that should be

optimal for Taiwanese vessels. The FA of Taiwan and Birdlife International also developed an instructional video in Taiwanese for outreach with longline vessels and crews. Two Taiwanese instructors reached 83 longline vessels successfully in Port Louis, Mauritius and gathered feedback from fishermen on mitigation measures in 2016, and 49 longline vessels in 2018.

Information Exchange

In line with the resolution/recommendation adopted by IOTC, ICCAT, WCPFC and IATTC aimed at the protection of ecologically related species (ERS), the FA of Taiwan has reported on its compliance with all current binding and recommendatory measures and on exchanging ERS information to these regional fisheries management organizations annually.

9. Information on Other ERS (Non-bycatch)

For investigating the prey species of southern bluefin tuna (SBT), the FA of Taiwan commissioned scientists to conduct analysis on the stomach content of SBT in 2006 and 2009. The results were as follows.

(1) The stomach contents of 131 southern bluefin tunas captured by Taiwanese longliners in southern central Indian Ocean in August 2004 and in June-July 2005 were examined. The size ranged from 84-187 cm FL (12-115 kg GG). The length and weight frequency distributions indicated that most specimens were in the range of 100-120 cm FL with a body weight between 10 and 20 kg. For the stomachs with prey items, almost all the preys are Pisces, and the proportion of each prey groups are fishes (56.02%), cephalopods (5.39%), and crustaceans (38.59%). In total, seven prey taxa were identified – four species of fish, one unidentified Pisces, one unidentified crustacean, and one unidentified cephalopod. The four fish species fall in the family of Emmelichthyidae, Hemiramphidae, Carangidae, and Clupeidae.

(2) In total 53 stomach samples were collected by observers at mid-western South Indian Ocean from Nov. 2007 to Jan. 2008 and Jun. to Sep. 2008. The mean fork length (FL) were 118.9±1.84 (90-175) cm and 27.2±12.9 (9-74) kg. 95% of the fish samples were within 91-150 cm FL. Among the 18 good stomach samples, the rate of empty stomach was 38.9%, having 11 non-empty stomachs

for further analysis. The prey items can be distinguished into four major groups, i.e. fish, cephalopod, crustacean and marine pollution, and subdivided into 12 items. Paralepididae (Pisces) and Euphausiidae (Crustacean) were the only two families can be identified. The descending orders of the prey-importance were fish > cephalopod > crustacean = marine pollution by occurrence.

10. Others

No other information.

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

In line with "International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries" of FAO, the FA of Taiwan has adopted "National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (NPOA-Seabirds)" which came into force in October 2006 to act as a basis for establishing seabird conservation policy. The FA of Taiwan then updated this NPOA-Seabirds' information in June 2014.
(The website: http://www.fa.gov.tw/en/Policy/content.aspx?id=13&chk=5aa236af-8280-456c-b5a3-867780b7a261&param=pn%3d2)

Similarly, in respect of shark's conservation, the FA of Taiwan has adopted NPOA-sharks which entered into force in May 2006, not only for the guidance to encourage the full usage of shark caught, but also for avoidance of waste. For consistent with the global trend for the conservation and management of sharks, the FA of Taiwan is updating its NPOA-sharks.
(The website: http://www.fa.gov.tw/en/Policy/content.aspx?id=5&chk=505be529-a59a-4528-99f3-7ce83f45261d&param=pn%3d3)

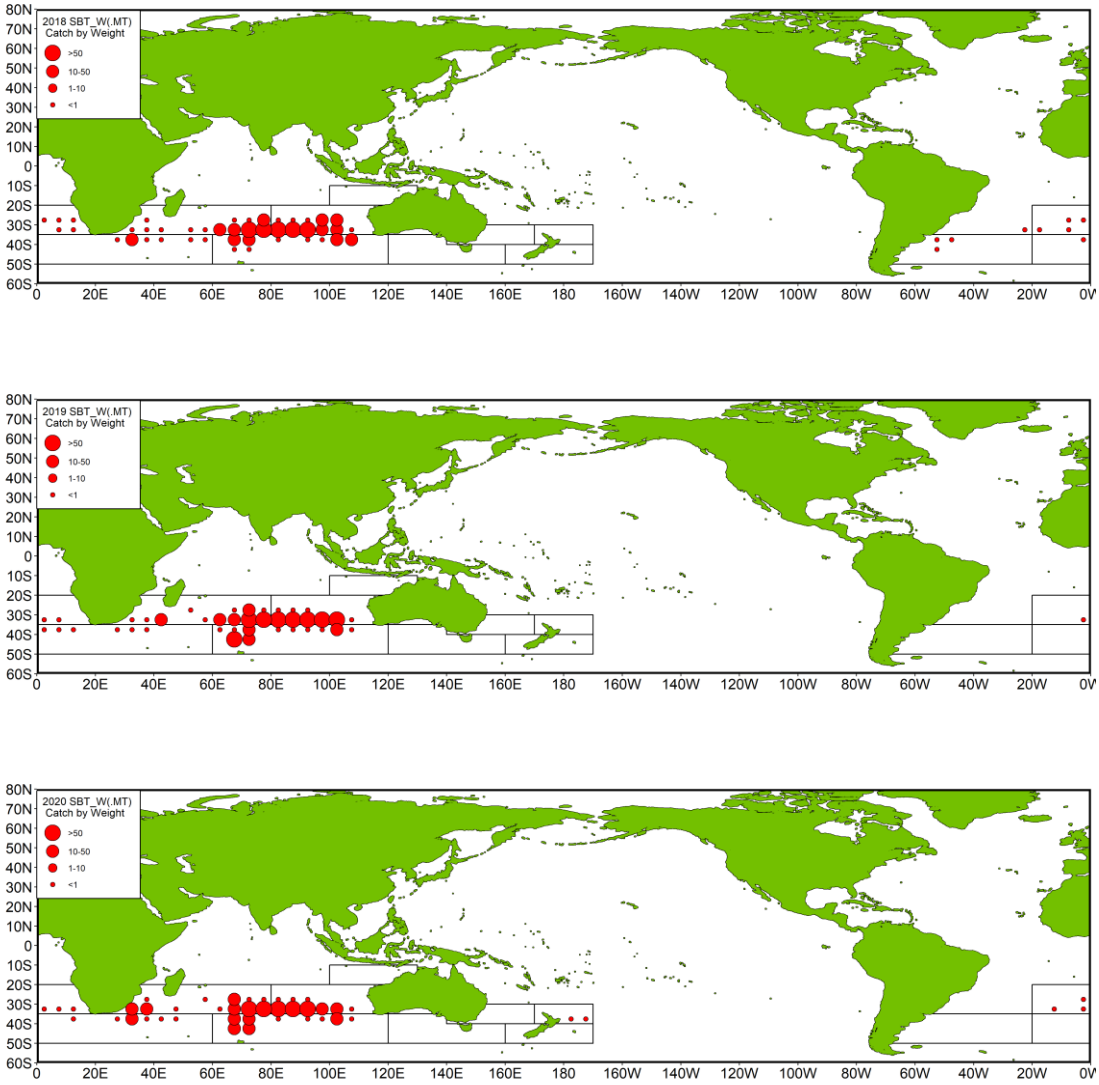

Fig. 1 Distribution of SBT catch by Taiwanese longline fishery from 2018 to 2020

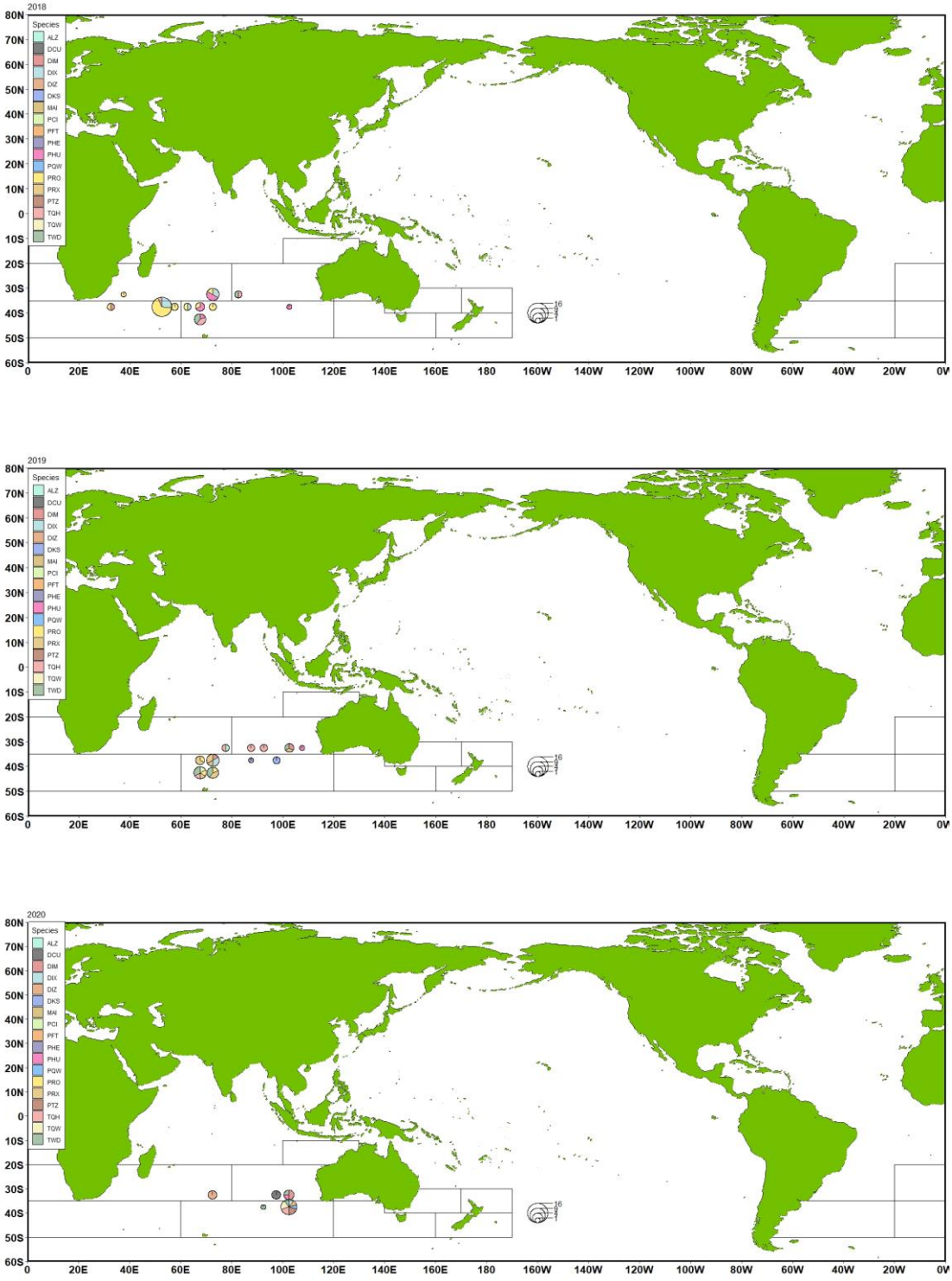

Fig. 2 Distribution of the Seabirds observed by observer from 2018 to 2020

Table 1 The number of active vessels fishing for SBT during 2002-2020 calendar year

Year	No. of seasonal target vessels	No. of bycatch vessels	Total vessels
2002	21	50	71
2003	76	24	100
2004	79	18	97
2005	49	8	57
2006	33	3	36
2007	27	3	30
2008	35	6	41
2009	34	33	67
2010	65	17	82
2011	28	28	56
2012	12	24	36
2013	39	37	76
2014	37	34	71
2015	45	27	72
2016	34	26	60
2017	43	32	75
2018	46	31	77
2019	44	28	72
2020	38	32	70

Table 2 Annual SBT catches by gear for Taiwanese fishing vessels during 1969-2020

Unit: MT

Calendar Year	Catch by Longliner (MT)		Taiwan Gillnet
	Calendar year	Quota year	
1969	80		
1970	130		
1971	30		
1972	70		
1973	90		
1974	100		
1975	15		
1976	15		
1977	5		
1978	80		
1979	53		
1980	64		
1981	92		
1982	171		11
1983	149		12
1984	244		0
1985	174		67
1986	433		81
1987	623		87
1988	622		234
1989	1,076		319
1990	872		305
1991	1,353		107
1992	1,219		3
1993	958		
1994	1,020		
1995	1,431		
1996	1,467		
1997	872		
1998	1,446		
1999	1,513		
2000	1,448		
2001	1,580		
2002	1,137		
2003	1,128		
2004	1,298		
2005	941		
2006	846		
2007	841		
2008[1]	913	926	
2009	921	949	
2010	1,208	1,140	
2011	533	502	
2012	494	496	
2013	1,004	992	
2014	944	962	
2015	1,162	1,145	
2016	1,023	1,026	
2017	1,171	1,175	
2018	1,218	1,211	
2019	1,229	1,229	
2020*	1,116	1,116	

Quota year was applied since 2008.

*Preliminary value and landed weight.

Table 3 Summary of results for scientific observer programs by area and month during 2018-2020

(a) 2018 (calendar year)

Area*	Month	Numbers of vessels observed	Numbers of all vessels	Cover rate for the number of vessels	Number of hooks used by observed vessels	Number of hooks by all vessels	Cover rate for the number of hooks	Number of SBT observed	Number of SBT by all vessels	Cover rate for the number of SBT
Area2	**Total**	7	29	24.1%	659566	4593181	14.4%	2364	16781	14.1%
	3	-	2	-	-	9920	-	-	2	-
	4	2	5	40.0%	14542	35516	40.9%	-	-	-
	5	4	13	30.8%	91084	442186	20.6%	116	430	27.0%
	6	5	19	26.3%	195057	1345765	14.5%	556	4600	12.1%
	7	6	27	22.2%	210365	1534223	13.7%	580	7536	7.7%
	8	6	14	42.9%	148518	985080	15.1%	1112	4013	27.7%
	9	-	6	-	-	240491	-	-	200	-
Area8	**Total**	10	26	38.5%	608364	3992004	15.2%	497	2888	17.2%
	2	-	1	-	-	40200	-	-	-	-
	3	4	14	28.6%	92987	806692	11.5%	135	551	24.5%
	4	8	24	33.3%	235797	1506444	15.7%	61	757	8.1%
	5	10	26	38.5%	217757	1326774	16.4%	124	781	15.9%
	6	3	10	30.0%	61823	311894	19.8%	177	799	22.2%
Area9	**Total**	7	30	23.3%	313385	1763603	17.8%	29	521	5.6%
	1	-	1	-	-	63900	-	-	188	-
	2	-	1	-	-	3800	-	-	1	-
	3	1	3	33.3%	43725	199033	22.0%	1	2	50.0%
	4	6	10	60.0%	84054	430974	19.5%	2	3	66.7%
	5	4	13	30.8%	76882	374766	20.5%	9	65	13.9%
	6	3	14	21.4%	73444	321180	22.9%	10	76	13.2%
	7	2	10	20.0%	35280	210600	16.8%	7	88	8.0%
	8	-	5	-	-	56750	-	-	26	-
	9	-	3	-	-	102600	-	-	72	-
Area14	**Total**	11	53	20.8%	912651	7130318	12.8%	958	15481	6.2%
	1	-	1	-	-	9600	-	-	-	-
	2	-	1	-	-	3150	-	-	-	-
	3	-	1	-	-	18900	-	-	-	-
	4	2	8	25.0%	7238	65025	11.1%	-	-	-
	5	8	15	53.3%	148494	661289	22.5%	17	27	63.0%
	6	7	31	22.6%	209610	1635700	12.8%	371	3612	10.3%
	7	8	43	18.6%	268822	2197515	12.2%	388	8496	4.6%
	8	7	38	18.4%	250345	1789290	14.0%	182	2987	6.1%
	9	3	11	27.3%	28142	490104	5.7%	-	259	-
	10	-	5	-	-	259745	-	-	100	-
Area15	**Total**	1	6	16.7%	8412	2074190	0.4%	6	91	6.6%
	4	1	3	33.3%	2148	145800	1.5%	3	5	60.0%
	5	1	4	25.0%	4284	374940	1.1%	2	4	50.0%
	8	1	6	16.7%	1980	520840	0.4%	1	31	3.2%
Grand Total		16	77	20.8%	2502378	19553296	12.8%	7708	71473	10.8%

*The areas which had observer deployed were appeared.

(b) 2019 (calendar year)

Area*	Month	Numbers of vessels observed	Numbers of all vessels	Cover rate for the number of vessels	Number of hooks used by observed vessels	Number of hooks by all vessels	Cover rate for the number of hooks	Number of SBT observed	Number of SBT by all vessels	Cover rate for the number of SBT
Area2	**Total**	**15**	**34**	**44.1%**	**1551966**	**5988463**	**25.9%**	**3863**	**17511**	**22.1%**
	2	1	1	100.0%	7854	10500	74.8%	-	0	-
	3	1	2	50.0%	6324	9900	63.9%	-	0	-
	4	5	8	62.5%	113158	393745	28.7%	12	65	18.5%
	5	9	21	42.9%	379337	1378395	27.5%	346	1219	28.4%
	6	15	33	45.5%	440127	1600370	27.5%	1162	4737	24.5%
	7	13	28	46.4%	535180	2214453	24.2%	2213	10323	21.4%
	8	6	13	46.2%	69986	362740	19.3%	130	1150	11.3%
	9	-	1	-	-	18360	-	-	17	-
Area8	**Total**	**12**	**30**	**40.0%**	**817054**	**4926875**	**16.6%**	**595**	**3717**	**16.0%**
	3	8	24	33.3%	256830	1475365	17.4%	339	1390	24.4%
	4	12	29	41.4%	373544	2257934	16.5%	232	1777	13.1%
	5	8	27	29.6%	184840	1149184	16.1%	20	486	4.1%
	6	1	5	20.0%	1840	44392	4.1%	4	64	6.3%
Area9	**Total**	**3**	**28**	**10.7%**	**55724**	**2030910**	**2.7%**	**9**	**433**	**2.1%**
	3	-	2	-	-	37800	-	-	5	-
	4	-	4	-	-	123400	-	-	4	-
	5	1	10	10.0%	2125	231446	0.9%	1	55	1.8%
	6	-	10	-	-	177862	-	-	57	-
	7	-	5	-	-	146650	-	-	53	-
	8	2	13	15.4%	37024	530528	7.0%	3	139	2.2%
	9	2	9	22.2%	16575	330974	5.0%	5	92	5.4%
	10	-	4	-	-	152400	-	-	28	-
	11	-	2	-	-	202350	-	-	0	-
	12	-	2	-	-	97500	-	-	0	-
Area14	**Total**	**11**	**50**	**22.0%**	**579210**	**6887132**	**8.4%**	**390**	**12899**	**3.0%**
	2	-	2	-	-	9400	-	-	0	-
	3	-	1	-	-	12180	-	-	0	-
	4	-	1	-	-	3780	-	-	0	-
	5	4	18	22.2%	44614	427958	10.4%	-	61	-
	6	7	33	21.2%	242533	1953445	12.4%	179	2351	7.6%
	7	5	34	14.7%	140155	1518876	9.2%	69	6928	1.0%
	8	8	29	27.6%	118920	1804283	6.6%	142	3418	4.2%
	9	1	17	5.9%	32988	818140	4.0%	-	139	-
	10	-	7	-	-	203670	-	-	2	-
	11	-	2	-	-	99600	-	-	0	-
	12	-	3	-	-	35800	-	-	0	-
Grand Total		**18**	**72**	**25.0%**	**3003954**	**19833380**	**15.2%**	**4857**	**34560**	**14.1%**

*The areas which had observer deployed were appeared.

(c) 2020 (calendar year)

Area*	Month	Numbers of vessels observed	Numbers of all vessels	Cover rate for the number of vessels	Number of hooks used by observed vessels	Number of hooks by all vessels	Cover rate for the number of hooks	Number of SBT observed	Number of SBT by all vessels	Cover rate for the number of SBT
Area2	**Total**	**8**	**22**	**36.4%**	**854487**	**3891745**	**22.0%**	**1743**	**12107**	**14.4%**
	3	-	1	-	-	6960	-	-	15	-
	4	4	7	57.1%	69765	168640	41.4%	32	42	76.2%
	5	6	12	50.0%	212557	738835	28.8%	347	1329	26.1%
	6	8	19	42.1%	281585	1290465	21.8%	741	4424	16.8%
	7	5	17	29.4%	194549	1197230	16.3%	448	4335	10.3%
	8	3	9	33.3%	82511	464615	17.8%	173	1955	8.9%
	9	1	1	100.0%	13520	25000	54.1%	2	7	28.6%
Area8	**Total**	**5**	**25**	**20.0%**	**187323**	**3508928**	**5.3%**	**78**	**4507**	**1.7%**
	3	4	23	17.4%	63972	1212149	5.3%	26	1357	1.9%
	4	4	23	17.4%	115392	1901509	6.1%	40	2681	1.5%
	5	2	12	16.7%	7959	383394	2.1%	12	320	3.8%
	6	-	3	-	-	11876	-	-	149	-
Area9	**Total**	**1**	**32**	**3.1%**	**254520**	**3028287**	**8.4%**	**11**	**842**	**1.3%**
	3	-	2	-	-	67500	-	-	0	-
	4	-	6	-	-	255100	-	-	11	-
	5	1	5	20.0%	60915	353800	17.2%	-	28	-
	6	1	14	7.1%	48135	673452	7.2%	2	57	3.5%
	7	1	15	6.7%	25785	365476	7.1%	4	70	5.7%
	8	1	14	7.1%	38565	273975	14.1%	-	143	-
	9	1	13	7.7%	29490	613060	4.8%	2	386	0.5%
	10	1	9	11.1%	51630	425924	12.1%	3	147	2.0%
Area14	**Total**	**8**	**47**	**17.0%**	**680207**	**7664195**	**8.9%**	**1102**	**12001**	**9.2%**
	1	-	1	-	-	19000	-	-	0	-
	3	-	1	-	-	3500	-	-	0	-
	4	-	13	-	-	163781	-	-	0	-
	5	4	22	18.2%	98773	1416836	7.0%	115	587	19.6%
	6	5	30	16.7%	98696	1079279	9.1%	289	2911	9.9%
	7	6	31	19.4%	237839	2003005	11.9%	586	4282	13.7%
	8	8	33	24.2%	202943	1894309	10.7%	112	3602	3.1%
	9	1	18	5.6%	41956	734805	5.7%	-	619	-
	10	-	10	-	-	349680	-	-	0	-
Grand Total		**11**	**70**	**15.7%**	**1976537**	**18093155**	**10.9%**	**2934**	**29457**	**10.0%**

*The areas which had observer deployed were appeared.

Table 4 Incidental catch of seabirds recorded by observers deployed on Taiwanese SBT vessels

Country: Taiwan Year (calendar year): 2018

		Total & Observed Effort[3]				Observed Captures				Proportion of observed effort with specific mitigation measures								
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[4]	Total Effort[5]	Total Observed Effort[5]	Observer Coverage[6]	Species[7]	Fate (*numbers*)				TP + NS[8]	TP + WB[8]	NS + WB[8]	TP + WB + NS[8]	TP[8]	NS[8]	WB[8]	NIL	Others[9]
						Retained (dead)	Discarded (dead)	Released (live)	Other[10]									
2	OBS	4593181	659566	14.36	TQH	0	1	0	0	90.65%	3.43%	0.62%	4.98%	0%	0%	0%	0%	0.31%
2	OBS	4593181	659566	14.36	TWD	0	1	0	0	90.65%	3.43%	0.62%	4.98%	0%	0%	0%	0%	0.31%
8	OBS	3992004	608364	15.24	DIX	0	1	0	0	100%	0%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3992004	608364	15.24	PHU	0	4	0	0	100%	0%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3992004	608364	15.24	PRO	0	4	0	0	100%	0%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3992004	608364	15.24	TQH	0	2	0	0	100%	0%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3992004	608364	15.24	TWD	0	2	0	0	100%	0%	0%	0%	0%	0%	0%	0%	0%
9	OBS	1763603	313385	17.77	DIM	0	1	0	0	53.57%	0.71%	0%	45.71%	0%	0%	0%	0%	0%
9	OBS	1763603	313385	17.77	DIX	0	4	0	0	53.57%	0.71%	0%	45.71%	0%	0%	0%	0%	0%
9	OBS	1763603	313385	17.77	PRO	0	13	0	0	53.57%	0.71%	0%	45.71%	0%	0%	0%	0%	0%
9	OBS	1763603	313385	17.77	TQH	0	1	0	0	53.57%	0.71%	0%	45.71%	0%	0%	0%	0%	0%
14	OBS	7130318	912651	12.8	DIX	0	2	0	0	85.49%	0.89%	0%	12.50%	1.12%	0%	0%	0%	0%
14	OBS	7130318	912651	12.8	PHU	0	3	0	0	85.49%	0.89%	0%	12.50%	1.12%	0%	0%	0%	0%
14	OBS	7130318	912651	12.8	PRO	0	2	0	0	85.49%	0.89%	0%	12.50%	1.12%	0%	0%	0%	0%

[3] Values in these shaded cells will be repeated for all species within a strata.
[4] 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.
[5] For longline provide number of hooks, for purse seine provide number of sets.
[6] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[7] Use FAO's 3 alpha species codes.
[8] TP = tori poles, NS = night setting, WB = weighted branchline.
[9] Add extra columns for other categories of mitigation measures, if required.
[10] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

Table 5 Incidental catch of seabirds recorded by observers deployed on Taiwanese SBT vessels

Country: Taiwan Year (calendar year):2019

		Total & Observed Effort[11]				Observed Captures				Proportion of observed effort with specific mitigation measures								
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[12]	Total Effort[13]	Total Observed Effort[13]	Observer Coverage[14]	Species[15]	Fate (*numbers*)				TP + NS[16]	TP + WB[16]	NS + WB[16]	TP + WB + NS[16]	TP[16]	NS[16]	WB[16]	NIL	Others[17]
						Retained (dead)	Discarded (dead)	Released (live)	Other[18]									
2	OBS	5988463	1551966	25.92%	DIM	0	1	0	0	71.39%	18.21%	0%	4.68%	5.72%	0%	0%	0%	0%
2	OBS	5988463	1551966	25.92%	MAG	0	1	0	0	71.39%	18.21%	0%	4.68%	5.72%	0%	0%	0%	0%
2	OBS	5988463	1551966	25.92%	PHU	0	1	0	0	71.39%	18.21%	0%	4.68%	5.72%	0%	0%	0%	0%
2	OBS	5988463	1551966	25.92%	TQH	0	4	0	0	71.39%	18.21%	0%	4.68%	5.72%	0%	0%	0%	0%
2	OBS	5988463	1551966	25.92%	TWD	0	1	0	0	71.39%	18.21%	0%	4.68%	5.72%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	DIM	0	1	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	DIX	0	1	1	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	DKS	0	2	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	MAI	0	1	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	PCI	0	1	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	PHE	0	1	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	PRO	0	3	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	PRX	0	7	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	TQH	0	1	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
8	OBS	4926875	817054	16.58%	TWD	0	4	0	0	62.22%	23.17%	7.81%	0%	6.8%	0%	0%	0%	0%
14	OBS	6887132	579210	8.41%	ALZ	0	1	0	0	47.39%	33.96%	10.07%	0.37%	8.21%	0%	0%	0%	0%
14	OBS	6887132	579210	8.41%	TQH	0	1	0	0	47.39%	33.96%	10.07%	0.37%	8.21%	0%	0%	0%	0%

[11] Values in these shaded cells will be repeated for all species within a strata.
[12] 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.
[13] For longline provide number of hooks, for purse seine provide number of sets.
[14] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[15] Use FAO's 3 alpha species codes.
[16] TP = tori poles, NS = night setting, WB = weighted branchline.
[17] Add extra columns for other categories of mitigation measures, if required.
[18] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

Table 6 Incidental catch of seabirds recorded by observers deployed on Taiwanese SBT vessels

Country: Taiwan Year (calendar year):2020

		Total & Observed Effort[19]				Observed Captures				Proportion of observed effort with specific mitigation measures								
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[20]	Total Effort[21]	Total Observed Effort[21]	Observer Coverage[22]	Species[23]	Fate (*numbers*)				TP + NS[24]	TP + WB[24]	NS + WB[24]	TP + WB + NS[24]	TP[24]	NS[24]	WB[24]	NIL	Others[25]
						Retained (dead)	Discarded (dead)	Released (live)	Other[26]									
2	OBS	3891745	854487	21.96%	DCU	0	3	0	0	92.64%	4.6%	0%	2.76%	0%	0%	0%	0%	0%
2	OBS	3891745	854487	21.96%	DIM	0	2	0	0	92.64%	4.6%	0%	2.76%	0%	0%	0%	0%	0%
2	OBS	3891745	854487	21.96%	PHU	0	1	0	0	92.64%	4.6%	0%	2.76%	0%	0%	0%	0%	0%
2	OBS	3891745	854487	21.96%	TWD	0	1	0	0	92.64%	4.6%	0%	2.76%	0%	0%	0%	0%	0%
8	OBS	3508928	187323	5.34%	DIX	0	1	0	0	97.96%	2.04%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3508928	187323	5.34%	PFT	0	1	0	0	97.96%	2.04%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3508928	187323	5.34%	PQW	0	1	0	0	97.96%	2.04%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3508928	187323	5.34%	PTZ	0	1	1	0	97.96%	2.04%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3508928	187323	5.34%	TQH	0	2	0	0	97.96%	2.04%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3508928	187323	5.34%	TQW	0	2	0	0	97.96%	2.04%	0%	0%	0%	0%	0%	0%	0%
8	OBS	3508928	187323	5.34%	TWD	0	2	0	0	97.96%	2.04%	0%	0%	0%	0%	0%	0%	0%
14	OBS	7664195	680207	8.88%	DIZ	0	3	0	0	64.16%	3.94%	0%	13.62%	18.28%	0%	0%	0%	0%

[19] Values in these shaded cells will be repeated for all species within a strata.
[20] 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.
[21] For longline provide number of hooks, for purse seine provide number of sets.
[22] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[23] Use FAO's 3 alpha species codes.
[24] TP = tori poles, NS = night setting, WB = weighted branchline.
[25] Add extra columns for other categories of mitigation measures, if required.
[26] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

Table 7 Incidental catch of sharks recorded by observers deployed on Taiwanese SBT vessels in 2018

Country: Taiwan Year (calendar year): 2018

		Total & Observed Effort[27]				Observed Captures			
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[28]	Total Effort[29]	Total Observed Effort[29]	Observer Coverage[30]	Species[31]	Fate (*numbers*)			
						Retained (dead)	Discarded (dead)	Released (live)	Other[32]
2	OBS	4593181	659566	14.36%	BSH	118	52	77	3
2	OBS	4593181	659566	14.36%	LMA	0	3	10	0
2	OBS	4593181	659566	14.36%	PSK	0	1	2	2
2	OBS	4593181	659566	14.36%	PTH	0	0	1	0
2	OBS	4593181	659566	14.36%	SMA	19	5	1	1
8	OBS	3992004	608364	15.24%	BSH	317	34	26	4
8	OBS	3992004	608364	15.24%	LMA	0	7	5	7
8	OBS	3992004	608364	15.24%	PSK	0	1	0	0
8	OBS	3992004	608364	15.24%	SMA	13	9	20	4
9	OBS	1763603	313385	17.77%	ALV	0	1	0	0
9	OBS	1763603	313385	17.77%	BSH	60	89	25	9
9	OBS	1763603	313385	17.77%	FAL	2	0	0	0
9	OBS	1763603	313385	17.77%	LMA	0	4	3	0
9	OBS	1763603	313385	17.77%	SMA	15	2	0	2
14	OBS	7130318	912651	12.8%	BSH	190	88	74	10
14	OBS	7130318	912651	12.8%	BTH	0	1	0	0
14	OBS	7130318	912651	12.8%	LMA	0	11	6	0
14	OBS	7130318	912651	12.8%	SMA	22	1	4	2
15	OBS	2074190	8412	0.41%	BSH	1	0	0	0

[27] Values in these shaded cells will be repeated for all species within a strata.
[28] 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.
[29] For longline provide number of hooks, for purse seine provide number of sets.
[30] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[31] Use FAO's 3 alpha species codes.
[32] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

Table 8 Incidental catch of sharks recorded by observers deployed on SBT vessels in 2019

Country: Taiwan Year (calendar year): 2019

		Total & Observed Effort[33]				Observed Captures			
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[34]	Total Effort[35]	Total Observed Effort[35]	Observer Coverage[36]	Species[37]	Fate (*numbers*)			
						Retained (dead)	Discarded (dead)	Released (live)	Other[38]
2	OBS	5988463	1551966	25.92%	BSH	212	6	97	226
2	OBS	5988463	1551966	25.92%	BTH	0	0	0	1
2	OBS	5988463	1551966	25.92%	LMA	0	1	4	0
2	OBS	5988463	1551966	25.92%	POR	0	46	9	0
2	OBS	5988463	1551966	25.92%	SMA	35	2	35	5
8	OBS	4926875	817054	16.58%	BSH	284	104	112	22
8	OBS	4926875	817054	16.58%	BTH	0	0	1	1
8	OBS	4926875	817054	16.58%	LMA	0	37	27	2
8	OBS	4926875	817054	16.58%	POR	0	19	3	2
8	OBS	4926875	817054	16.58%	PSK	0	1	11	2
8	OBS	4926875	817054	16.58%	SMA	25	13	20	3
8	OBS	4926875	817054	16.58%	TIG	0	0	1	0
9	OBS	2030910	55724	2.74%	BSH	6	72	18	0
9	OBS	2030910	55724	2.74%	FAL	0	0	1	0
9	OBS	2030910	55724	2.74%	SMA	7	0	0	0
14	OBS	6887132	579210	8.41%	BSH	54	109	16	22
14	OBS	6887132	579210	8.41%	BTH	0	0	0	1
14	OBS	6887132	579210	8.41%	LMA	0	18	1	0
14	OBS	6887132	579210	8.41%	POR	0	0	7	0
14	OBS	6887132	579210	8.41%	PSK	0	1	0	0
14	OBS	6887132	579210	8.41%	SMA	18	1	0	2

[33] Values in these shaded cells will be repeated for all species within a strata.
[34] 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.
[35] For longline provide number of hooks, for purse seine provide number of sets.
[36] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[37] Use FAO's 3 alpha species codes.
[38] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.

Table 9 Incidental catch of sharks recorded by observers deployed on SBT vessels in 2020

Country: Taiwan Year (calendar year): 2020

		Total & Observed Effort[39]				Observed Captures			
Stratum (*CCSBT Statistical Areas or finer scale*)	Human Observer / EM[40]	Total Effort[41]	Total Observed Effort[41]	Observer Coverage[42]	Species[43]	Fate (*numbers*)			
						Retained (dead)	Discarded (dead)	Released (live)	Other[44]
2	OBS	3891745	854487	21.96%	ALV	0	0	1	0
2	OBS	3891745	854487	21.96%	BSH	197	56	233	14
2	OBS	3891745	854487	21.96%	LMA	0	76	6	0
2	OBS	3891745	854487	21.96%	POR	0	11	6	0
2	OBS	3891745	854487	21.96%	SMA	28	13	121	7
8	OBS	3508928	187323	5.34%	BSH	74	9	78	1
8	OBS	3508928	187323	5.34%	BTH	0	0	1	0
8	OBS	3508928	187323	5.34%	LMA	0	65	14	0
8	OBS	3508928	187323	5.34%	POR	0	3	17	0
8	OBS	3508928	187323	5.34%	SMA	3	0	43	0
9	OBS	3028287	254520	8.4%	BSH	105	0	0	0
9	OBS	3028287	254520	8.4%	SMA	46	0	0	0
14	OBS	7664195	680207	8.88%	BSH	148	13	21	3
14	OBS	7664195	680207	8.88%	BTH	0	0	1	1
14	OBS	7664195	680207	8.88%	FAL	1	0	0	0
14	OBS	7664195	680207	8.88%	LMA	0	0	27	0
14	OBS	7664195	680207	8.88%	POR	0	2	0	0
14	OBS	7664195	680207	8.88%	PSK	0	0	2	0
14	OBS	7664195	680207	8.88%	SMA	28	4	5	0

[39] Values in these shaded cells will be repeated for all species within a strata.
[40] 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.
[41] For longline provide number of hooks, for purse seine provide number of sets.
[42] For longline provide as a percentage of the number of hooks, for purse seine provide as a percentage of the number of shots.
[43] Use FAO's 3 alpha species codes.
[44] All other captures not included in the columns for Retained (dead), Discarded (dead), and Released (live), e.g. released with undetermined life status.