

## Review of Japanese Southern Bluefin Tuna Fisheries in 2016

日本のミナミマグロ漁業のレビュー：2016年

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### 要約

本文書では、日本はえ縄漁業による2016年のミナミマグロの漁獲量、努力量、ノミナルCPUE、体長組成、隻数と操業海域分布を記す。2016年には88隻により4,721トン、約8.0万尾を漁獲した。科学オブザーバを19隻に配乗し、SBT漁獲尾数で18.3%をカバーした。耳石551個体分を収集し、210個体分の年齢査定を行った。

### Summary

This document describes the Japanese commercial longline fishery for southern bluefin tuna (SBT) for catch, effort, nominal CPUE, length frequency, number of vessels and geographical distribution of fishing operations in 2016. In 2016, 88 vessels caught 4,721 ton and about 80 thousand individuals of SBT. Scientific observers were deployed on 19 vessels and covered 18.3 % of the number of SBT caught by all vessels. Otoliths were collected from 551 SBT from scientific observer program and 210 SBT were age estimated.

## 1. 緒言

定められた提出書式（Template for the annual review of national SBT fisheries for the Extended Scientific Committee）に従い、日本によるミナミマグロ漁業の歴史と 2016 年の状況を概観する。日本のミナミマグロの漁獲は全てはえ縄による。漁獲は 1952 年に本格的に始まった。当初漁獲されていたミナミマグロは、インド洋東部の低緯度水域（CCSBT 統計海区 1,2 海区。以下では単に海区と称す）でのメバチやキハダを対象とした操業で混獲された経産卵魚であり、その肉質は悪かった。その後、良質の魚を求めて漁場は高緯度域へと拡大していき、1956 年にニュージーランド北東部海域（5 海区）、1961 年にタスマニア島周辺からオーストラリア南東岸沖（4,7 海区）、1965 年に南インド漁場（8 海区）、1967 年にケープ沖漁場（9 海区）が開発された。1960 年代にミナミマグロを対象としていた操業隻数は約 300 隻であった。さらに、ニュージーランド東部からチリ沖合にかけての海域、ケープの西沖からアルゼンチン沖合にかけての海域でも操業が行われた。これらの海域では、ミナミマグロの漁獲はあったものの、その分布密度が低いと評価されたため、主要な漁場とはならなかった。

1970 年代には、親魚の漁獲量の減少と、総漁獲に占める小型魚の増加から、資源量の低下が懸念され、1971 年 10 月から産卵場における 12-3 月の操業、ならびに小型魚が多獲される漁場（シドニー沖 5-7 月、オーストラリア大湾 10-3 月、ケープ沖 10-1 月）での操業を禁止する国内規制が導入された。これらの規制ならびに漁業者がより高価な漁獲物を志向するようになったことにより、1・2 海区での操業は激減した。また、1973-1974 年に日本のまぐろはえ縄漁業では深縄を導入し始め、ミナミマグロ狙いからメバチ狙いへ転換していく船も相当数あった。

1980 年代前半にオーストラリアの表層漁業による漁獲が急増したのに対し、日本のはえ縄漁業での漁獲量は低下した。1982 年には日、豪、NZ によるミナミマグロ三国間会議が組織され、1985 年に 3 国の漁獲割当量が設定された。この時点での日本の割当量は 23,150 トンであり、その後 1986 年会議で 19,500 トン、1988 年会議で 8,800 トン、1989 年会議で 6,065 トンへと漸減した。1989 年以降、漁獲枠管理のため、日本は公的に操業海区／時期規制を導入した。1994 年にはミナミマグロ保存条約（CCSBT）が発効した。日本の漁獲割当量は 1997 年まで 6,065 トンが維持され、その後、2003 年の年次会合において 6,065 トンで合意されるまで自主規制枠（6,065 トン）を設定していた。2006 年の漁獲割当量も前年同様の 6,065 トンであったが、2005 年に 1790 トンの漁獲量超過が見つかったため、同量を差し引いた 4,275 トンを漁獲量の上限として漁獲が管理された。2006 年の年次会合では、2007 年以降 5 年間の日本の漁獲割当量を 3000 トンに削減することで合意されたものの、資源状態の悪化を受けて 2010・2011 年の漁獲量の上限をそれぞれ 2,200 トン・2,600 トン<sup>1</sup>として管理した。その後の日本の漁獲割当量は、2012 年は 2,519 トン、2013 年は 2,703 トン、2014 年は 3,403 トン、2015 年は 4,737 トン、2016 年は 4,737 トンで推移している<sup>2</sup>。

割当量に対する日本漁船の漁獲量の管理方策としては、1990 年から 2005 年までは、主要 3 漁場に対し、入漁隻数、操業開始日、漁場別の漁獲割当量を各々設定し、漁獲状況に応じて漁場閉鎖日を設定するオリンピック方式の漁業管理制度を用いていたが、2006 年からは個々の漁船に対する漁獲枠の個別割当制度（IQ 制）へ転換した。また同年より、漁獲したミナミマグロ全個体に識別標識を装着する制度を併せて導入し、漁獲量管理を強化した。現在、ミナミマグロの高い

<sup>1</sup> ニュージーランドからの年間移譲分（139 トン）が含まれる。

<sup>2</sup> 繰越を含まない。

CPUE に対し、各漁船は少ない漁獲枠しか持たないため、少ない操業回数で漁獲枠を消化しミナミマグロ漁場を離脱するケースが多い。20156 年における日本漁船の操業パターンの詳細は CCSBT-CPUE/1706/09 を参照。

## 2. 漁獲量と努力量

1965 年から最近年までのミナミマグロの漁獲尾数と努力量（釣钩数）を CCSBT 統計海區別または月別に示す（Table1-4）。近年の漁獲の多くは 4 海区、7 海区、8 海区、9 海区からのものであり、また 4 月から 9 月のものである。努力量も同様だが、例えば 2 海区のように他の海区、月の占める割合が漁獲尾数での割合よりも多い。これはミナミマグロが 1 個体でも漁獲された場合、その年のその 5 度区画の努力量は全て含めるという CCSBT のデータ特性による。

日本はえ縄船によるミナミマグロの製品形態は、基本的に鰹、内臓、および尾部を除去した「GG」であり、原魚重量換算する場合は製品重量に係数「1.15」を掛け合わせる。2016 年の日本商業はえ縄漁船による総漁獲重量（暦年）は 88 隻によって 4,721 トン、総漁獲尾数は約 8.0 万尾であった。なお、漁獲統計値は提出された漁獲成績報告書に基づくが、漁獲成績報告書の収集およびデータ処理は漸次行われるため、最近数年間は値が変更されていく。本レポートの 2016 年の統計値は主として RTMP 調査から得られた暫定値である。日本はえ縄船からは個別漁獲枠の有効利用の面から放流が行われている。2016 年には合計 12,462 尾の放流、投棄が漁船から RTMP により報告された。11,653 個体（93.5%）は生存放流で、809 個体（6.5%）は死亡投棄であった。

## 3. ノミナル CPUE

1965 年から最近年までの Nominal CPUE を、CCSBT 統計海區別（Table 5）ならびに月別（Table 6）に示す。CPUE は 7 海区、8 海区、9 海区で他の海区よりも高く、それらの海区での操業時期である 4 月から 12 月に高い。

## 4. サイズ組成

1995 年に RTMP がミナミマグロ対象漁船全船に拡大されてから、RTMP で報告する全てのミナミマグロについて、個体別の体長が船上で測定され報告されるようになった。それに伴い、日本はえ縄船のほぼ全てのミナミマグロ漁獲について、体長データが得られている。

10 年ごとの合計漁獲尾数から求めた体長組成を Fig.1 に示す。体長モードは 1960-1980 年代には 150cmFL にあったが、1990 年代に 120cmFL へ小型化した。2000 年代は 120cm から 160cm の魚が多く、2010 年代には 130cm から 160cm の魚が多かった。

近年 5 年間の体長組成を Fig.2 に示す。漁獲のほとんどは 80 cm から 200 cm の範囲にある。約 120cmFL と約 140-150cmFL に二つのモードが見られ、2012 年から 2014 年には後者の組成が大きく、2015 年には同程度の頻度であり、2016 年には小型魚の方が多くなった。なお、日本はえ縄船からの放流魚の多くは小型魚と考えられ、体長組成の小型部分については放流の影響を受けていると思われる。

## 5. 漁船数と分布

ミナミマグロを漁獲した日本はえ縄船は、2015 年に 90 隻、2016 年に 88 隻であった。使用釣钩数とミナミマグロ漁獲尾数の地理的分布を、1965 年から最近年までのデータを用いて、5 度区別に示す（Fig.3）。最近 5 年間について、年別の使用釣钩数分布を Fig.4 に、ミナミマグロ漁獲尾数

の分布を Fig.5 に示す。大きな違いは認められない。

## 6. 科学オブザーバプログラム

2016年にミナミマグロを対象とした操業許可を持つ19隻の日本はえ縄漁船へオブザーバを派遣し、ミナミマグロ主要漁場（4-9海区）でのミナミマグロ操業を観察した。4～9海区での調査カバー率は、隻数で21.3%、使用釣鉤数で17.5%、ミナミマグロ漁獲尾数で18.3%であった。詳細は別文書（CCSBT-ESC/1708/19）を参照されたい。

## 7. 他の関連情報

### 【標識の回収】

2016年7月以降に日本のはえ縄漁船から国際水研を通じて報告された再捕は、通常標識が16本（10個体分。CCSBTおよびNewSouthWales）であった。また、日本が曳縄調査で放流したアーカイバルタグのうち、6個体が再捕、報告された。

### 【耳石収集活動および分析】

2016年にオブザーバ活動にて484個体分の耳石を、2017年曳縄調査において67個体分の耳石を収集した。また、2016年にはミナミマグロ210個体の年齢を査定し、2017年のデータ交換においてデータをCCSBT事務局へ提出した（CCSBT-ESC/1708/21）。

### 【調査死亡枠】

2017年1-2月に曳縄調査を行い、2016年4月から2017年3月までの期間における調査死亡は281kgであった（CCSBT-ESC/1708/28）。2018年曳縄調査のために、1.0トンの調査死亡枠を申請する（CCSBT-ESC/1708/28）。

## 1. Introduction

This document is a review of the historic and current Japanese longline fisheries of Southern Bluefin tuna *Thunnus maccoyii* (SBT) according to the template for the annual review of national SBT fisheries for the Extended Scientific Committee.

Longline is the only method that Japanese commercial fleet has used to catch SBT. The fisheries started in 1952 in the tropical Eastern Indian Ocean (CCSBT statistical area 1 and 2). Back in those days, post-spawning adult SBT were caught as the bycatch of bigeye tuna and yellowfin tuna fishing. The quality of fish meat in this area was not good, and thus Japanese fishermen extended the fishing ground to the high latitude area. Japanese longline fleets reached the northeastern region of New Zealand (Area 5) in 1956, around the Tasman Sea (Area 4, 7) in 1961, Southern Indian Ocean (Area 8) in 1965 and around the off Cape Town (Area 9) in 1967. Number of Japanese vessels that caught SBT in the 1960s was estimated as about 300. Eastern Pacific (Area 12) and off Argentina (Area 10) where some SBT were caught were not established as SBT fishing grounds because of the lower fish density.

In the 1970s, as the increasing catches of small SBT and decreasing catches of adult SBT raised concerns on the stock condition, Japan had adopted the voluntary area-closures for its domestic longline fisheries since October 1971; The spawning ground was closed between December and March to protect migrating adults, and some fishing grounds was closed seasonally to protect small SBT (off Sydney in May-July; Great Australian Bight in October-March; off Cape Town in October-January). In addition, because Japanese fishermen began to target high-quality SBT, the number of fishing operation in Area 1 and Area 2 dropped drastically. Further, when Japanese vessels began using “deep tuna longline” in 1973-1974, considerable number of vessels changed their target from SBT to bigeye tuna.

In the early 1980s, SBT catches by Australian surface fisheries increased rapidly and significantly while Japanese longline catches decreased. In 1982, Japan, Australia, and New Zealand organized a voluntary trilateral management framework for SBT, and began to apply quotas to their fisheries in 1985. Japanese national allocation was 23,150 t in 1985, and decreased to 19,500 t, 8,800 t, and 6,065 t at the 1986, 1988, and 1989 trilateral meeting, respectively. After 1989, Japan adopted official area/time-closures to domestic longline fisheries to manage the Japanese SBT quota (Table 1). In 1994, the Convention for the Conservation of Southern Bluefin Tuna (CCSBT) came into force. Japan was applied 6,065 t as its national allocation in 1989-1997, and voluntarily maintained it as the self-regulation every year to 2003. Japanese allocation was 6,065 t in 2004-2006 also, but Japan set a quota of 4,275 t for 2006 because of 1,790 t of exceeds in 2005. The commission meeting in 2006 (CCSBT13) decided to reduce Japanese quota to 3,000 t in the next 5 years (2007-2011). Further reduction of the TAC in 2010-2011 was decided due to the lower stock status in 2009, and Japanese allocation resulted in 2200 t and 2600<sup>3</sup> t, respectively. In the following years, allocation was 2,519 t in 2012, 2,703 ton in 2013, 3,403 t in 2014, 4,737 t in 2015 and 4,737 t in 2016<sup>4</sup>.

Area/time-closures in main fishing ground by the “Olympic system” had been used to manage the Japanese quota during 1990-2005. Under this management system, Fisheries Agency of Japan set the quota,

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<sup>3</sup> Allocation for each year includes annual transfer (139 t) from New Zealand. Refer to CCSBT-EC/1010/14 for more information.

<sup>4</sup> The allocation does not include carry over from previous seasons.

number of fishing vessels operating, starting date for each of the three main fishing grounds beforehand, monitored the SBT catches of authorized vessels, and closed the fishing grounds before the quota was exhausted. In 2006, Japan adopted an individual quota (IQ) system for SBT fisheries, and abolished the area/time-closures at the same time. In addition, the catch monitoring tag was adopted to further strengthen domestic management system. As IQ for each vessel has been relatively small considering recent higher CPUE, Japanese vessels tend to consume all of their IQ by a small number of operations targeting SBT and to move out soon from the SBT fishing grounds in recent years. The details of operation pattern in 2016 are described in CCSBT-CPUE/1706/09.

## **2. Catch and Effort**

Catches and efforts for Japanese longline vessels by calendar year since 1965 to the most recent year are provided in Table 1 to Table 4 by CCSBT statistical area or month. Most of catches in recent years are brought from Area 4, Area 7, Area 8 and Area 9 and between April and September. Effort distribution showed similar trend, but the proportions of other Areas (e.g. Area 2) or months were larger than those of catch. This is due to CCSBT definition of effort data that counts all the efforts in any five degree square grid in which more than one SBT individual is caught.

Since Japanese usual product type is “GG (Gilled and Guttled, tail removed)”, the total SBT catch weight was produced using the conversion factors “1.15” from the processed weight. The total catch weight in the 2016 calendar year by 88 vessels was 4,721 t, and the total catch number was about 80 thousand. Note that the official statistic is based on the logbook. Until the data from logbook become available, the data from Real Time Monitoring Program (RTMP) are used temporarily. There could be revision of the statistical values for a few recent years as logbook data are collected and processed. Some Japanese longliners release or discard some of their SBT hooked in order to use their limited IQ effectively. The number of released or discarded SBT was reported as 12,462 in 2016 through RTMP system. 11,653 SBT (93.5%) was live release and 809 SBT (6.5%) was dead discard.

## **3. Nominal CPUE**

Nominal CPUE of SBT by Japanese longline vessels between 1965 and the most recent year are provided in Table 5 and Table 6 by CCSBT statistical area or month. CPUE was higher in Area 7, Area 8 and Area 9 than in other areas, in the period between April and November which is the fishing season of those areas.

## **4. Size composition**

Since 1995 when all of authorized Japanese vessels targeting SBT joined the RTMP, they have measured fork length of all the SBT individuals and reported it immediately. Thus, Japan has been able to provide the size data of most of the SBT catch since 1995.

Catch-at-length is provided in Fig. 1 by decade. The length modes were around 150 cmFL in the 1960s to 1980s. It shifted to 120 cmFL in the 1990s. A large part of fish was between 120 cm and 160 cm in the 2000s and between 130 cm and 160 cm in the 2010s.

Catch-at-length in the recent five years is provided in Fig. 2 by year. The most fish ranged between 80 cm and 200 cmFL. There were two length mode around 120 cmFL and 140-150cmFL. In 2012 to 2014, numbers of fish in the 120 cmFL were larger, while those in 140-150 cmFL was larger in 2016. Note that small sized fish in length frequency may be affected by release and discards.

## **5. Fleet size and distribution**

The total numbers of Japanese vessels that caught SBT was 90 in 2015 and 88 in 2016.

Geographical distribution of hooks used and SBT caught are provided in Fig. 3 for all the years since 1965 and in Fig .4 and Fig. 5 for every year in the most recent five years in a resolution of five degree square. No large difference was observed in the distribution in the recent five years.

## **6. Scientific observer program**

A total of 19 authorized Japanese SBT longline vessels were observed in area 4-9 by the scientific observers in 2016. Observer coverages were 21.3% in the number of vessels, 17.5% in the number of hooks used, and 18.3% in the number of SBT caught. The details of scientific observer activities are given in document CCSBT-ESC/1708/19.

## **7. Other relevant information**

[Tag recovery]

Conventional tags from a total of 10 individuals (16 tags; CCSBT and New South Wales) were recovered from Japanese longline vessels and reported from NRIFSF since July 2016. Archival tags released in the Japanese trolling survey were recovered from 6 individuals.

[Activities of otolith collection]

In 2016, SBT otoliths were collected through the scientific observer program from 484 individuals. Otoliths were also collected from 67 SBT in the trolling survey in 2017. In 2016, 210 SBT otoliths were analyzed for their ages and the data were submitted to the 2017 CCSBT data exchange process. The details are given in CCSBT-ESC/1708/21.

[Research mortality allowance]

As the trolling survey was carried out in 2017 January-February, there was 281kg of research mortality of SBT from April 2016 to March 2017 (CCSBT-ESC/1708/28). Research mortality allowance of 1.0 ton is requested for the trolling survey in 2017 (CCSBT-ESC/1708/28).

## References

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Table 1. Catch of southern bluefin tuna by Japanese longline by statistical area.

Catch is the number of southern bluefin tuna retained.

| Year | Area1  | Area2   | Area3  | Area4   | Area5  | Area6   | Area7   | Area8   | Area9   | Area10 | Area11 | Area12 | Area14 | Area15 | All     |
|------|--------|---------|--------|---------|--------|---------|---------|---------|---------|--------|--------|--------|--------|--------|---------|
| 1965 | 24,816 | 379,069 |        | 164,823 | 81,262 | 5,878   | 65,092  | 97      | 236     | 13     | 543    |        | 481    | 138    | 722,448 |
| 1966 | 19,836 | 225,102 | 560    | 185,200 | 59,419 | 4,867   | 149,359 | 31,937  | 262     | 0      | 6,506  |        | 620    | 0      | 683,668 |
| 1967 | 6,335  | 210,860 | 2      | 101,421 | 34,033 | 6,487   | 96,066  | 475,851 | 767     | 0      | 882    |        | 660    | 0      | 933,364 |
| 1968 | 7,196  | 18,785  | 31,953 | 80,776  | 30,112 | 18,377  | 273,389 | 267,676 | 95,762  | 5      | 1,168  |        | 1,800  | 4,303  | 831,302 |
| 1969 | 2,361  | 8,085   | 24,857 | 33,777  | 37,138 | 68,837  | 121,373 | 199,537 | 347,262 | 1,127  | 520    |        | 603    | 215    | 845,692 |
| 1970 | 1,210  | 10,801  | 1,121  | 35,002  | 15,982 | 65,921  | 206,644 | 105,502 | 256,058 | 5,110  | 349    |        | 596    | 464    | 704,760 |
| 1971 | 468    | 4,919   | 1,759  | 84,292  | 43,340 | 102,616 | 265,439 | 62,010  | 132,475 | 46     | 373    |        | 313    | 20     | 698,070 |
| 1972 | 98     | 256     |        | 100,216 | 70,591 | 80,343  | 232,617 | 47,785  | 270,377 | 757    | 134    |        | 27     | 134    | 803,335 |
| 1973 | 254    | 1,221   | 14     | 90,142  | 39,597 | 30,713  | 126,254 | 67,893  | 295,003 | 165    | 200    |        | 1      | 5      | 651,462 |
| 1974 | 904    | 3,821   | 43     | 70,003  | 40,634 | 36,524  | 164,840 | 60,570  | 294,666 | 94     | 312    |        | 431    | 229    | 673,071 |
| 1975 | 571    | 1,512   | 2,990  | 21,845  | 29,822 | 47,698  | 90,827  | 89,708  | 156,003 |        | 106    |        | 18     | 0      | 441,100 |
| 1976 | 116    | 43      | 5,573  | 16,155  | 60,566 | 96,246  | 137,257 | 149,449 | 168,845 |        | 133    |        | 3      | 46     | 634,432 |
| 1977 | 159    | 184     | 4,641  | 52,404  | 11,891 | 27,238  | 94,704  | 173,855 | 170,935 |        | 100    |        | 2      | 2      | 536,115 |
| 1978 | 45     | 807     | 11,993 | 56,932  | 3      | 10,275  | 102,429 | 44,437  | 224,521 | 96     | 111    |        | 0      | 6      | 451,655 |
| 1979 | 70     | 114     | 1,463  | 40,618  | 22,745 | 49,242  | 62,158  | 49,118  | 294,094 | 315    | 30     |        | 17     | 3      | 519,987 |
| 1980 | 165    | 3,172   | 106    | 51,686  | 54,541 | 68,495  | 112,756 | 76,635  | 215,759 | 2,273  | 34     |        | 0      | 138    | 585,760 |
| 1981 | 188    | 494     |        | 48,696  | 36,944 | 55,574  | 70,761  | 39,187  | 217,184 | 7,525  | 124    |        | 19     | 0      | 476,696 |
| 1982 | 231    | 27      |        | 25,249  | 20,395 | 28,957  | 27,972  | 46,307  | 177,121 | 4,368  | 5      |        | 2      | 0      | 330,634 |
| 1983 | 260    | 109     |        | 21,987  | 13,955 | 13,286  | 55,944  | 61,428  | 258,854 | 448    | 57     |        | 16     | 16     | 426,360 |
| 1984 | 934    | 401     |        | 9,408   | 10,371 | 16,046  | 62,621  | 92,035  | 172,950 | 11     | 78     |        | 134    | 4      | 364,993 |
| 1985 | 511    | 370     |        | 1,678   | 9,201  | 17,245  | 62,085  | 95,505  | 117,637 | 142    | 13     |        | 18     | 25     | 304,430 |
| 1986 | 143    | 257     |        | 5,573   | 7,693  | 11,872  | 19,095  | 87,950  | 79,488  | 354    | 27     |        | 14     | 80     | 212,546 |
| 1987 | 158    | 1,350   |        | 2,716   | 10,420 | 11,700  | 37,204  | 43,864  | 86,020  | 5      | 102    |        | 85     | 46     | 193,670 |
| 1988 | 86     | 279     |        | 4,244   | 5,874  | 5,609   | 32,299  | 31,907  | 84,449  | 0      | 95     |        | 103    | 0      | 164,945 |
| 1989 | 83     | 106     |        | 10,151  | 2,695  | 5,301   | 43,929  | 40,098  | 72,711  | 0      | 17     |        | 44     | 82     | 175,217 |
| 1990 | 58     | 324     |        | 10,244  | 4,977  | 6,049   | 43,964  | 30,847  | 42,169  | 77     |        |        | 224    | 46     | 138,979 |
| 1991 | 2      | 364     |        | 14,262  | 5,033  | 6,987   | 25,830  | 25,229  | 75,380  | 28     | 6      |        | 72     | 1      | 153,194 |
| 1992 | 3      | 503     |        | 27,637  | 2,757  | 6,243   | 15,481  | 18,925  | 75,952  | 19     | 24     |        | 104    | 5      | 147,653 |
| 1993 | 0      | 1,158   |        | 48,160  | 582    | 2,446   | 20,091  | 5,842   | 97,490  | 0      | 21     |        | 77     | 7      | 175,874 |
| 1994 | 0      | 1,063   |        | 30,743  | 19     | 1,343   | 12,438  | 31,126  | 55,330  | 14     | 30     |        | 144    | 14     | 132,264 |
| 1995 | 57     | 2,385   |        | 17,244  | 18     | 1,793   | 17,417  | 37,165  | 47,421  | 0      | 241    |        | 59     | 5      | 123,805 |
| 1996 | 10     | 1,010   |        | 17,483  | 0      |         | 10,906  | 37,206  | 53,260  |        | 38     |        | 195    | 1      | 120,109 |
| 1997 | 27     | 972     |        | 14,485  | 595    | 469     | 18,392  | 21,791  | 62,521  |        | 56     |        | 209    | 21     | 119,538 |
| 1998 | 17     | 376     |        | 15,164  | 787    | 1,113   | 12,666  | 35,654  | 63,556  |        | 25     |        | 326    | 0      | 129,684 |
| 1999 | 197    | 62      |        | 13,832  | 14     | 1,135   | 23,333  | 17,083  | 54,856  |        | 25     |        | 557    | 14     | 111,108 |
| 2000 | 388    | 431     |        | 12,673  | 3      | 57      | 20,915  | 32,799  | 45,606  | 0      | 23     |        | 326    | 0      | 113,221 |
| 2001 | 51     | 245     |        | 11,969  | 0      | 796     | 30,190  | 25,351  | 64,503  | 0      | 8      |        | 5,970  | 0      | 139,083 |
| 2002 | 100    | 1,682   |        | 19,921  | 0      | 691     | 22,879  | 9,059   | 64,410  | 60     | 6      |        | 435    | 0      | 119,243 |
| 2003 | 93     | 1,342   |        | 22,585  | 9      | 410     | 12,064  | 15,133  | 53,682  | 0      | 17     |        | 0      | 0      | 105,335 |
| 2004 | 0      | 2,247   |        | 15,148  | 3      | 376     | 4,637   | 24,969  | 58,284  |        | 5      |        | 17     | 0      | 105,686 |
| 2005 | 0      | 11,620  |        | 15,096  | 346    | 0       | 3,728   | 31,884  | 65,327  |        | 113    |        | 323    | 224    | 128,661 |
| 2006 | 0      | 10,025  |        | 7,049   | 14     | 1       | 4,197   | 12,277  | 44,229  |        |        |        | 202    | 0      | 77,994  |
| 2007 | 20     | 2,131   |        | 6,848   | 196    | 910     | 4,366   | 16,345  | 25,892  |        | 34     |        | 226    | 0      | 56,968  |
| 2008 | 46     | 197     |        | 3,815   | 50     | 1,395   | 6,480   | 13,089  | 23,249  |        | 13     |        | 236    | 9      | 48,579  |
| 2009 | 42     | 90      |        | 7,683   | 163    | 3,281   | 4,495   | 20,303  | 20,186  |        | 5      |        | 67     | 0      | 56,320  |
| 2010 | 183    | 1,302   |        | 4,507   | 1      | 0       | 9,169   | 5,740   | 25,203  |        | 13     |        | 37     | 0      | 46,212  |
| 2011 | 23     | 2,706   |        | 2,983   | 100    | 0       | 14,329  | 6,792   | 31,668  |        | 1      |        | 770    | 0      | 59,405  |
| 2012 | 105    | 656     |        | 1,323   | 11     | 0       | 14,772  | 6,684   | 28,055  |        | 0      |        | 148    | 0      | 51,754  |
| 2013 | 18     | 284     |        | 1,451   | 57     | 0       | 15,300  | 9,162   | 22,613  |        | 287    |        | 217    | 0      | 49,399  |
| 2014 | 8      | 1,052   |        | 2,910   | 0      | 0       | 17,887  | 14,065  | 23,590  |        | 1      |        | 37     | 0      | 59,550  |
| 2015 | 19     | 1,773   |        | 5,168   | 30     | 0       | 20,237  | 19,588  | 38,330  |        |        |        | 1      | 55     | 85,226  |
| 2016 | 0      | 704     |        | 3,351   | 15     | 0       | 24,378  | 18,943  | 32,943  |        |        |        | 25     | 146    | 80,533  |

Table 2. Catch of southern bluefin tuna by Japanese longline by month.

Catch is the number of southern bluefin tuna retained.

| Year | Jan     | Feb    | Mar    | Apr    | May    | Jun     | Jul     | Aug     | Sep     | Oct     | Nov     | Dec    | All     |
|------|---------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|--------|---------|
| 1965 | 130,538 | 90,232 | 44,267 | 23,512 | 10,321 | 34,308  | 68,775  | 49,602  | 68,667  | 78,813  | 65,378  | 58,035 | 722,448 |
| 1966 | 70,323  | 47,696 | 39,105 | 33,870 | 21,581 | 56,039  | 104,970 | 53,021  | 48,250  | 66,016  | 75,713  | 67,084 | 683,668 |
| 1967 | 77,756  | 89,413 | 55,518 | 22,943 | 21,989 | 78,265  | 64,197  | 71,892  | 116,016 | 149,574 | 106,986 | 78,815 | 933,364 |
| 1968 | 65,797  | 56,547 | 75,917 | 41,884 | 56,963 | 51,256  | 92,132  | 97,427  | 78,868  | 58,835  | 76,659  | 79,017 | 831,302 |
| 1969 | 45,254  | 34,598 | 40,633 | 45,312 | 63,402 | 81,336  | 115,333 | 116,290 | 88,712  | 85,226  | 74,105  | 55,491 | 845,692 |
| 1970 | 55,761  | 68,617 | 56,757 | 61,958 | 56,540 | 61,060  | 81,478  | 75,997  | 46,647  | 26,136  | 63,713  | 50,096 | 704,760 |
| 1971 | 42,092  | 29,508 | 73,570 | 97,441 | 64,989 | 88,004  | 84,445  | 65,138  | 34,963  | 23,324  | 54,270  | 40,326 | 698,070 |
| 1972 | 37,414  | 32,184 | 57,094 | 78,542 | 93,319 | 122,793 | 122,477 | 109,614 | 69,982  | 23,680  | 28,350  | 27,886 | 803,335 |
| 1973 | 37,578  | 26,010 | 64,072 | 74,193 | 57,908 | 100,421 | 102,880 | 88,294  | 41,650  | 26,132  | 21,348  | 10,976 | 651,462 |
| 1974 | 15,394  | 24,631 | 59,810 | 72,237 | 66,071 | 83,947  | 129,592 | 91,384  | 49,592  | 29,226  | 28,694  | 22,493 | 673,071 |
| 1975 | 13,062  | 16,474 | 40,709 | 50,872 | 36,752 | 53,619  | 59,982  | 60,505  | 27,760  | 32,099  | 24,666  | 24,600 | 441,100 |
| 1976 | 25,714  | 31,587 | 56,608 | 75,969 | 60,060 | 83,369  | 83,611  | 69,208  | 43,233  | 43,089  | 33,236  | 28,748 | 634,432 |
| 1977 | 24,574  | 44,765 | 50,863 | 45,697 | 55,448 | 66,406  | 82,591  | 63,443  | 34,367  | 17,367  | 27,326  | 23,268 | 536,115 |
| 1978 | 17,524  | 18,317 | 33,492 | 67,967 | 56,034 | 64,673  | 66,689  | 43,840  | 30,730  | 15,721  | 21,609  | 15,059 | 451,655 |
| 1979 | 12,757  | 14,003 | 60,010 | 75,848 | 61,072 | 64,346  | 88,263  | 60,974  | 27,997  | 12,253  | 21,431  | 21,033 | 519,987 |
| 1980 | 20,480  | 14,895 | 23,924 | 53,313 | 68,927 | 95,609  | 118,944 | 66,445  | 29,474  | 21,372  | 33,324  | 39,053 | 585,760 |
| 1981 | 11,543  | 8,921  | 22,126 | 76,920 | 80,299 | 69,701  | 96,922  | 54,946  | 17,913  | 11,213  | 15,131  | 11,061 | 476,696 |
| 1982 | 3,519   | 3,076  | 9,238  | 28,798 | 49,376 | 57,957  | 66,314  | 43,599  | 25,131  | 16,035  | 14,694  | 12,897 | 330,634 |
| 1983 | 3,632   | 2,730  | 13,782 | 63,564 | 71,407 | 50,511  | 70,524  | 55,932  | 26,947  | 19,742  | 28,080  | 19,509 | 426,360 |
| 1984 | 8,695   | 19,507 | 17,020 | 43,827 | 38,354 | 44,751  | 61,904  | 50,301  | 28,166  | 17,038  | 19,913  | 15,517 | 364,993 |
| 1985 | 12,869  | 17,991 | 24,006 | 31,080 | 31,592 | 31,018  | 42,429  | 49,513  | 20,959  | 13,055  | 16,136  | 13,782 | 304,430 |
| 1986 | 1,621   | 268    | 4,065  | 17,040 | 23,618 | 25,426  | 35,682  | 40,409  | 23,911  | 14,362  | 16,562  | 9,582  | 212,546 |
| 1987 | 1,179   | 1,319  | 8,808  | 21,099 | 29,979 | 28,500  | 34,215  | 28,138  | 16,887  | 6,915   | 8,386   | 8,245  | 193,670 |
| 1988 | 775     | 338    | 3,968  | 18,369 | 18,362 | 27,321  | 28,833  | 28,324  | 17,113  | 4,127   | 9,191   | 8,224  | 164,945 |
| 1989 | 833     | 248    | 5,603  | 20,138 | 28,102 | 29,296  | 31,849  | 29,658  | 13,665  | 4,796   | 6,121   | 4,908  | 175,217 |
| 1990 | 45      | 212    | 612    | 26,315 | 33,577 | 24,143  | 33,843  | 19,105  | 508     | 195     | 155     | 269    | 138,979 |
| 1991 | 29      | 47     | 525    | 16,896 | 30,516 | 34,844  | 42,054  | 14,807  | 9,687   | 1,230   | 1,607   | 952    | 153,194 |
| 1992 | 6       | 0      | 533    | 13,099 | 22,893 | 28,981  | 53,325  | 15,241  | 7,558   | 3,426   | 2,230   | 361    | 147,653 |
| 1993 | 129     | 96     | 220    | 17,339 | 46,327 | 74,688  | 25,737  | 7,104   | 3,382   | 339     | 150     | 363    | 175,874 |
| 1994 | 188     | 76     | 857    | 1,049  | 33,486 | 54,595  | 9,919   | 9,511   | 19,645  | 2,679   | 235     | 24     | 132,264 |
| 1995 | 511     | 345    | 1,222  | 1,874  | 38,596 | 36,925  | 6,200   | 7,603   | 17,111  | 7,954   | 3,313   | 2,151  | 123,805 |
| 1996 | 374     | 4      | 27     | 35     | 27,026 | 28,174  | 23,562  | 2,739   | 14,370  | 10,311  | 10,775  | 2,712  | 120,109 |
| 1997 | 8       | 17     | 15     | 2,240  | 32,830 | 31,611  | 28,260  | 768     | 8,439   | 7,948   | 4,566   | 2,836  | 119,538 |
| 1998 | 2       | 8      | 0      | 2,735  | 22,699 | 31,262  | 29,913  | 6,415   | 13,691  | 9,650   | 11,322  | 1,987  | 129,684 |
| 1999 | 58      | 36     | 4      | 5,264  | 33,491 | 24,127  | 23,465  | 4,043   | 9,083   | 5,026   | 6,502   | 9      | 111,108 |
| 2000 | 9       | 2      | 4      | 3,498  | 22,385 | 23,525  | 25,553  | 367     | 14,548  | 9,990   | 7,327   | 6,013  | 113,221 |
| 2001 | 48      | 7      | 0      | 5,249  | 33,417 | 32,930  | 34,011  | 3,307   | 13,113  | 10,239  | 6,739   | 23     | 139,083 |
| 2002 | 2       | 1      | 115    | 4,892  | 40,798 | 43,737  | 17,430  | 1,779   | 6,551   | 2,650   | 1,194   | 94     | 119,243 |
| 2003 | 93      | 0      | 0      | 3,345  | 33,230 | 31,494  | 17,029  | 180     | 5,008   | 5,165   | 6,901   | 2,890  | 105,335 |
| 2004 | 109     | 8      | 0      | 1,975  | 21,489 | 23,634  | 29,010  | 5,355   | 3,656   | 4,267   | 9,829   | 6,354  | 105,686 |
| 2005 | 2,529   | 1,094  | 1      | 2,052  | 22,152 | 24,176  | 27,475  | 13,229  | 5,848   | 7,795   | 8,243   | 14,067 | 128,661 |
| 2006 | 5,358   | 2,486  | 62     | 0      | 8,584  | 9,213   | 13,365  | 20,654  | 9,293   | 3,656   | 2,412   | 2,911  | 77,994  |
| 2007 | 1,023   | 38     | 582    | 1,136  | 5,045  | 8,586   | 6,876   | 14,616  | 9,320   | 3,837   | 5,330   | 579    | 56,968  |
| 2008 | 70      | 113    | 587    | 3,958  | 8,103  | 8,228   | 8,826   | 8,649   | 5,092   | 1,719   | 2,274   | 960    | 48,579  |
| 2009 | 42      | 1      | 1      | 4,622  | 8,998  | 6,759   | 10,508  | 10,044  | 8,181   | 2,532   | 2,646   | 1,986  | 56,320  |
| 2010 | 643     | 293    | 2,051  | 12,346 | 11,916 | 7,186   | 4,220   | 4,932   | 496     | 269     | 1,842   | 18     | 46,212  |
| 2011 | 9       | 0      | 434    | 13,523 | 11,042 | 12,224  | 10,210  | 4,658   | 4,366   | 1,173   | 1,305   | 461    | 59,405  |
| 2012 | 26      | 13     | 1,829  | 15,484 | 8,012  | 9,210   | 7,182   | 7,015   | 2,493   | 101     | 379     | 10     | 51,754  |
| 2013 | 0       | 0      | 510    | 9,318  | 13,910 | 10,832  | 4,950   | 7,049   | 1,791   | 499     | 540     | 0      | 49,399  |
| 2014 | 3       | 0      | 486    | 14,850 | 12,673 | 9,407   | 7,145   | 12,053  | 1,867   | 31      | 678     | 357    | 59,550  |
| 2015 | 2       | 0      | 338    | 18,644 | 20,581 | 16,516  | 7,712   | 15,408  | 4,770   | 703     | 399     | 153    | 85,226  |
| 2016 | 0       | 0      | 1,339  | 14,503 | 21,897 | 12,916  | 10,174  | 13,848  | 5,502   | 354     | 0       | 0      | 80,533  |

Table 3. Effort of Japanese longline for southern bluefin tuna in the number of hooks used by statistical area.

| Year | Area1  | Area2  | Area3 | Area4  | Area5  | Area6  | Area7  | Area8  | Area9  | Area10 | Area11 | Area12 | Area14 | Area15 | All     |
|------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 1965 | 7,685  | 21,381 |       | 7,543  | 3,111  | 282    | 2,531  | 21     | 740    | 77     | 3,002  |        | 2,957  | 4,774  | 54,104  |
| 1966 | 7,098  | 14,302 | 29    | 9,746  | 3,804  | 370    | 10,375 | 1,293  | 1,079  | 321    | 15,808 |        | 5,975  | 9,962  | 80,162  |
| 1967 | 6,240  | 15,569 | 5     | 5,654  | 3,657  | 730    | 6,806  | 28,132 | 1,134  | 71     | 8,279  |        | 7,091  | 2,305  | 85,672  |
| 1968 | 10,123 | 7,411  | 1,196 | 4,789  | 2,475  | 1,343  | 23,023 | 24,243 | 5,394  | 47     | 7,758  |        | 6,113  | 5,692  | 99,608  |
| 1969 | 3,554  | 2,521  | 1,069 | 4,398  | 4,662  | 7,575  | 14,984 | 19,863 | 23,355 | 912    | 5,388  |        | 6,046  | 1,096  | 95,425  |
| 1970 | 4,526  | 7,973  | 82    | 3,813  | 2,899  | 9,826  | 23,473 | 14,408 | 21,090 | 5,850  | 4,076  |        | 2,925  | 1,041  | 101,982 |
| 1971 | 2,407  | 10,109 | 53    | 8,096  | 6,985  | 15,336 | 33,963 | 13,628 | 14,187 | 652    | 1,990  |        | 3,065  | 1,211  | 111,681 |
| 1972 | 714    | 1,542  |       | 8,938  | 7,089  | 12,740 | 31,507 | 8,213  | 24,260 | 1,515  | 1,083  |        | 683    | 269    | 98,552  |
| 1973 | 1,618  | 3,048  | 7     | 10,136 | 3,266  | 8,383  | 26,126 | 14,535 | 32,974 | 448    | 3,010  |        | 956    | 696    | 105,203 |
| 1974 | 4,223  | 5,100  | 7     | 9,311  | 5,307  | 9,307  | 23,771 | 10,142 | 33,202 | 18     | 4,038  |        | 1,737  | 450    | 106,613 |
| 1975 | 5,513  | 4,665  | 322   | 3,656  | 3,765  | 9,200  | 19,208 | 18,324 | 27,491 |        | 1,905  |        | 966    | 972    | 95,986  |
| 1976 | 1,129  | 1,151  | 278   | 3,874  | 8,274  | 21,433 | 23,973 | 26,997 | 23,246 |        | 1,310  |        | 506    | 185    | 112,355 |
| 1977 | 698    | 1,119  | 160   | 2,299  | 2,689  | 15,031 | 16,629 | 30,469 | 20,010 |        | 434    |        | 112    | 78     | 89,729  |
| 1978 | 2,112  | 2,182  | 458   | 4,278  | 446    | 2,732  | 18,101 | 12,531 | 40,918 | 92     | 3,751  |        | 573    | 57     | 88,231  |
| 1979 | 1,109  | 1,558  | 64    | 5,220  | 4,711  | 13,446 | 17,727 | 13,719 | 49,196 | 160    | 1,555  |        | 1,663  | 203    | 110,330 |
| 1980 | 2,573  | 2,034  | 2     | 4,276  | 7,842  | 18,629 | 26,963 | 21,267 | 43,312 | 2,312  | 1,040  |        | 1,381  | 343    | 131,975 |
| 1981 | 2,716  | 2,464  |       | 6,052  | 8,235  | 18,115 | 18,993 | 13,197 | 46,166 | 6,109  | 1,574  |        | 2,483  | 246    | 126,349 |
| 1982 | 2,462  | 871    |       | 6,304  | 11,181 | 13,036 | 8,234  | 16,186 | 44,947 | 3,855  | 1,269  |        | 1,428  | 878    | 110,650 |
| 1983 | 3,531  | 2,232  |       | 7,174  | 8,060  | 7,702  | 14,689 | 23,007 | 46,399 | 548    | 1,381  |        | 1,017  | 543    | 116,283 |
| 1984 | 9,685  | 3,236  |       | 4,023  | 5,310  | 9,286  | 15,334 | 28,432 | 49,476 | 45     | 6,783  |        | 2,535  | 1,072  | 135,217 |
| 1985 | 5,059  | 5,550  |       | 3,461  | 4,865  | 7,285  | 18,585 | 36,375 | 41,261 | 227    | 1,659  |        | 2,681  | 917    | 127,924 |
| 1986 | 3,358  | 2,458  |       | 5,178  | 5,546  | 7,346  | 8,706  | 46,344 | 37,158 | 1,135  | 4,162  |        | 1,812  | 479    | 123,680 |
| 1987 | 1,938  | 5,389  |       | 5,515  | 8,603  | 8,337  | 17,535 | 32,240 | 32,889 | 72     | 7,467  |        | 1,314  | 755    | 122,057 |
| 1988 | 1,371  | 1,623  |       | 8,792  | 5,489  | 7,083  | 15,030 | 21,618 | 35,108 | 4      | 6,237  |        | 2,922  | 424    | 105,700 |
| 1989 | 1,343  | 1,513  |       | 9,267  | 2,823  | 5,204  | 13,127 | 23,593 | 35,416 | 18     | 2,741  |        | 2,371  | 1,587  | 99,002  |
| 1990 | 1,826  | 2,699  |       | 8,309  | 3,506  | 3,416  | 12,507 | 5,456  | 23,312 | 53     |        |        | 5,595  | 2,340  | 69,019  |
| 1991 | 788    | 10,575 |       | 6,301  | 5,494  | 6,542  | 5,530  | 8,839  | 26,217 | 189    | 3,163  |        | 7,832  | 3,056  | 84,527  |
| 1992 | 524    | 5,392  |       | 8,610  | 4,216  | 3,652  | 2,974  | 7,750  | 28,625 | 74     | 7,112  |        | 8,736  | 2,586  | 80,251  |
| 1993 | 342    | 14,490 |       | 12,514 | 545    | 2,109  | 2,482  | 1,904  | 28,305 | 92     | 10,499 |        | 5,820  | 2,463  | 81,565  |
| 1994 | 250    | 21,258 |       | 12,389 | 66     | 330    | 2,221  | 5,478  | 22,683 | 530    | 11,395 |        | 19,484 | 6,951  | 103,034 |
| 1995 | 1,862  | 32,469 |       | 10,789 | 95     | 699    | 3,059  | 11,972 | 21,314 | 23     | 41,262 |        | 16,736 | 6,192  | 146,472 |
| 1996 | 1,823  | 26,978 |       | 14,781 | 200    |        | 2,980  | 17,136 | 24,749 |        | 16,401 |        | 23,661 | 5,999  | 134,709 |
| 1997 | 2,286  | 22,061 |       | 13,674 | 122    | 164    | 6,269  | 15,064 | 26,686 |        | 13,551 |        | 23,585 | 2,753  | 126,215 |
| 1998 | 1,791  | 8,428  |       | 12,602 | 326    | 392    | 7,564  | 14,435 | 25,597 |        | 34,070 |        | 25,410 | 3,109  | 133,723 |
| 1999 | 3,258  | 8,683  |       | 6,665  | 568    | 491    | 10,627 | 8,109  | 21,913 |        | 18,224 |        | 22,072 | 5,254  | 105,863 |
| 2000 | 2,395  | 9,134  |       | 5,583  | 142    | 61     | 9,865  | 16,631 | 18,686 | 242    | 4,661  |        | 17,119 | 2,316  | 86,837  |
| 2001 | 3,819  | 18,889 |       | 4,826  | 457    | 214    | 11,952 | 12,473 | 22,916 | 118    | 15,528 |        | 15,493 | 2,970  | 109,656 |
| 2002 | 2,843  | 19,878 |       | 7,693  | 55     | 173    | 11,417 | 7,811  | 15,205 | 143    | 11,125 |        | 17,702 | 1,782  | 95,826  |
| 2003 | 1,395  | 4,825  |       | 10,025 | 305    | 245    | 6,092  | 8,492  | 17,811 | 165    | 15,715 |        | 17,498 | 4,692  | 87,258  |
| 2004 | 1,416  | 4,041  |       | 9,852  | 315    | 251    | 3,332  | 8,980  | 25,153 |        | 4,410  |        | 18,439 | 3,270  | 79,461  |
| 2005 | 654    | 6,699  |       | 10,612 | 788    | 34     | 3,526  | 9,774  | 28,896 |        | 10,372 |        | 16,970 | 1,521  | 89,846  |
| 2006 | 119    | 5,427  |       | 4,761  | 197    | 3      | 1,083  | 6,238  | 21,118 |        |        |        | 20,420 | 485    | 59,852  |
| 2007 | 900    | 4,050  |       | 2,574  | 895    | 552    | 1,631  | 9,221  | 10,088 |        | 1,779  |        | 12,571 | 517    | 44,779  |
| 2008 | 3,041  | 5,709  |       | 3,415  | 723    | 283    | 1,274  | 7,967  | 12,013 |        | 1,827  |        | 10,524 | 2,797  | 49,573  |
| 2009 | 3,683  | 5,539  |       | 3,466  | 877    | 718    | 856    | 8,238  | 6,507  | 1,321  | 2,540  |        | 6,645  | 555    | 40,945  |
| 2010 | 2,503  | 6,703  |       | 3,810  | 359    | 0      | 1,304  | 2,442  | 7,758  | 799    | 5,281  |        | 8,233  | 864    | 40,056  |
| 2011 | 621    | 4,249  |       | 4,077  | 1,637  | 0      | 1,986  | 2,801  | 7,252  | 909    | 2,033  |        | 12,695 | 528    | 38,788  |
| 2012 | 356    | 4,785  |       | 3,379  | 1,490  | 0      | 2,452  | 2,608  | 6,149  | 23     |        |        | 10,986 | 4,822  | 37,049  |
| 2013 | 478    | 4,279  |       | 2,680  | 604    | 0      | 3,217  | 3,600  | 4,591  | 484    | 1,203  |        | 8,275  | 5,813  | 35,223  |
| 2014 | 749    | 4,695  |       | 2,003  | 760    | 0      | 2,770  | 6,200  | 4,311  |        | 3,160  |        | 7,713  | 2,342  | 34,703  |
| 2015 | 857    | 4,275  |       | 1,674  | 543    | 0      | 2,976  | 6,617  | 5,140  |        |        | 167    | 5,950  | 4,733  | 32,932  |
| 2016 | 149    | 4,521  |       | 1,054  | 1,128  | 0      | 3,898  | 6,445  | 5,838  |        |        | 198    | 3,985  | 2,018  | 29,233  |

Unit is 1000 hooks.

Table 4. Effort of Japanese longline for southern bluefin tuna in the number of hooks used by month.

| Year | Jan   | Feb   | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    | Oct    | Nov    | Dec    | All     |
|------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 1965 | 6,369 | 4,890 | 3,272  | 1,488  | 2,363  | 4,835  | 5,422  | 3,834  | 4,820  | 7,017  | 5,857  | 3,936  | 54,104  |
| 1966 | 4,851 | 4,146 | 3,528  | 3,818  | 4,615  | 7,333  | 10,316 | 10,079 | 7,707  | 7,658  | 7,844  | 8,265  | 80,162  |
| 1967 | 6,765 | 6,455 | 5,078  | 4,003  | 5,451  | 6,842  | 9,427  | 8,220  | 9,087  | 8,856  | 7,415  | 8,072  | 85,672  |
| 1968 | 9,122 | 7,659 | 7,166  | 6,501  | 8,031  | 8,037  | 9,421  | 10,295 | 9,362  | 8,550  | 7,395  | 8,071  | 99,608  |
| 1969 | 6,964 | 5,424 | 5,673  | 5,232  | 8,322  | 9,327  | 11,405 | 11,552 | 9,493  | 8,721  | 7,216  | 6,095  | 95,425  |
| 1970 | 6,293 | 7,313 | 8,572  | 8,860  | 10,233 | 10,080 | 9,679  | 9,003  | 8,567  | 7,652  | 8,243  | 7,487  | 101,982 |
| 1971 | 9,143 | 8,705 | 10,260 | 11,311 | 11,836 | 12,441 | 10,579 | 9,621  | 6,720  | 6,535  | 7,998  | 6,532  | 111,681 |
| 1972 | 6,980 | 7,267 | 8,745  | 9,312  | 10,554 | 10,711 | 10,359 | 8,943  | 8,075  | 5,633  | 6,246  | 5,727  | 98,552  |
| 1973 | 8,903 | 7,493 | 9,598  | 11,317 | 10,915 | 11,187 | 9,813  | 9,523  | 8,274  | 7,644  | 6,333  | 4,204  | 105,203 |
| 1974 | 6,886 | 6,809 | 9,948  | 11,449 | 11,699 | 11,286 | 11,643 | 9,833  | 8,823  | 7,130  | 5,903  | 5,203  | 106,613 |
| 1975 | 5,858 | 6,473 | 9,031  | 9,461  | 9,078  | 9,882  | 8,944  | 9,539  | 7,556  | 7,078  | 6,242  | 6,844  | 95,986  |
| 1976 | 6,543 | 7,631 | 10,834 | 12,307 | 11,216 | 11,505 | 10,679 | 9,376  | 9,743  | 8,317  | 7,212  | 6,993  | 112,355 |
| 1977 | 6,841 | 6,788 | 9,402  | 9,315  | 8,516  | 8,879  | 8,023  | 8,651  | 7,443  | 5,587  | 5,747  | 4,539  | 89,729  |
| 1978 | 4,763 | 5,621 | 8,024  | 9,153  | 9,370  | 10,128 | 10,060 | 9,617  | 7,612  | 4,851  | 5,101  | 3,930  | 88,231  |
| 1979 | 4,699 | 4,821 | 10,605 | 13,129 | 13,573 | 13,767 | 12,991 | 10,375 | 8,721  | 5,800  | 6,266  | 5,584  | 110,330 |
| 1980 | 8,093 | 6,140 | 9,792  | 13,201 | 14,808 | 15,853 | 15,466 | 10,658 | 9,256  | 7,846  | 9,270  | 11,591 | 131,975 |
| 1981 | 5,366 | 6,566 | 11,675 | 15,072 | 16,749 | 17,051 | 16,242 | 11,447 | 7,437  | 6,290  | 7,067  | 5,386  | 126,349 |
| 1982 | 3,654 | 3,947 | 7,126  | 10,338 | 15,307 | 15,940 | 15,944 | 12,689 | 8,532  | 6,039  | 6,154  | 4,979  | 110,650 |
| 1983 | 2,847 | 3,088 | 5,264  | 10,686 | 15,421 | 15,172 | 15,000 | 14,124 | 10,794 | 8,443  | 8,130  | 7,314  | 116,283 |
| 1984 | 5,214 | 5,557 | 7,555  | 13,935 | 15,952 | 17,188 | 19,591 | 13,816 | 11,000 | 9,292  | 9,237  | 6,882  | 135,217 |
| 1985 | 6,189 | 3,313 | 6,024  | 12,040 | 14,483 | 16,343 | 17,211 | 16,208 | 10,782 | 8,229  | 8,877  | 8,225  | 127,924 |
| 1986 | 4,423 | 2,852 | 4,267  | 10,922 | 14,756 | 15,466 | 15,757 | 14,566 | 12,327 | 10,658 | 9,425  | 8,259  | 123,680 |
| 1987 | 4,865 | 3,185 | 5,068  | 9,539  | 13,743 | 16,224 | 15,390 | 18,752 | 12,454 | 9,064  | 7,925  | 5,847  | 122,057 |
| 1988 | 1,861 | 1,764 | 3,504  | 10,333 | 13,885 | 17,686 | 15,240 | 14,815 | 10,343 | 4,774  | 5,740  | 5,754  | 105,700 |
| 1989 | 1,507 | 766   | 3,108  | 9,153  | 14,448 | 15,050 | 15,013 | 13,122 | 9,465  | 5,925  | 6,861  | 4,584  | 99,002  |
| 1990 | 1,444 | 816   | 1,893  | 9,398  | 12,650 | 13,716 | 14,781 | 9,901  | 2,395  | 1,052  | 430    | 542    | 69,019  |
| 1991 | 763   | 717   | 2,730  | 9,065  | 12,888 | 13,775 | 15,668 | 10,681 | 7,765  | 4,499  | 3,762  | 2,215  | 84,527  |
| 1992 | 743   | 880   | 3,518  | 8,744  | 11,241 | 14,423 | 13,449 | 9,519  | 5,611  | 4,228  | 4,164  | 3,732  | 80,251  |
| 1993 | 2,564 | 841   | 2,331  | 9,078  | 11,737 | 13,152 | 11,024 | 8,980  | 7,493  | 6,349  | 4,066  | 3,951  | 81,565  |
| 1994 | 2,474 | 1,508 | 6,704  | 11,066 | 14,021 | 14,061 | 12,116 | 10,951 | 9,519  | 6,647  | 6,398  | 7,568  | 103,034 |
| 1995 | 6,903 | 6,708 | 10,951 | 13,920 | 18,250 | 17,267 | 13,932 | 14,208 | 13,368 | 10,962 | 10,111 | 9,891  | 146,472 |
| 1996 | 4,125 | 3,995 | 10,014 | 14,727 | 18,819 | 18,197 | 15,362 | 11,632 | 11,380 | 9,871  | 9,769  | 6,817  | 134,709 |
| 1997 | 2,913 | 2,288 | 6,894  | 12,228 | 18,847 | 17,483 | 15,857 | 13,274 | 12,304 | 10,447 | 8,837  | 4,842  | 126,215 |
| 1998 | 2,961 | 4,320 | 8,574  | 11,785 | 17,283 | 19,106 | 16,149 | 9,448  | 11,921 | 13,380 | 11,853 | 6,943  | 133,723 |
| 1999 | 3,350 | 3,590 | 7,465  | 11,351 | 17,060 | 14,174 | 12,794 | 7,163  | 9,713  | 8,799  | 6,852  | 3,552  | 105,863 |
| 2000 | 2,092 | 1,647 | 3,515  | 7,505  | 12,746 | 11,678 | 9,956  | 6,805  | 9,054  | 8,336  | 7,439  | 6,064  | 86,837  |
| 2001 | 3,070 | 3,516 | 4,888  | 8,888  | 15,011 | 15,007 | 13,036 | 12,566 | 11,449 | 9,052  | 8,465  | 4,710  | 109,656 |
| 2002 | 3,008 | 2,170 | 6,821  | 9,185  | 13,535 | 12,736 | 9,083  | 13,332 | 10,193 | 7,680  | 5,231  | 2,852  | 95,826  |
| 2003 | 3,054 | 2,717 | 5,589  | 8,916  | 13,507 | 13,395 | 9,932  | 7,076  | 6,892  | 5,359  | 6,251  | 4,570  | 87,258  |
| 2004 | 1,423 | 1,033 | 3,336  | 8,100  | 11,497 | 12,572 | 12,503 | 7,871  | 8,346  | 5,740  | 3,767  | 3,275  | 79,461  |
| 2005 | 2,216 | 1,688 | 3,332  | 8,039  | 12,988 | 13,329 | 13,332 | 9,888  | 9,685  | 7,121  | 4,527  | 3,701  | 89,846  |
| 2006 | 4,423 | 3,282 | 2,003  | 2,917  | 7,396  | 8,092  | 8,525  | 7,663  | 4,930  | 2,915  | 3,967  | 3,739  | 59,852  |
| 2007 | 3,318 | 2,618 | 1,433  | 1,075  | 3,028  | 5,859  | 6,251  | 6,855  | 5,490  | 3,252  | 3,594  | 2,006  | 44,779  |
| 2008 | 3,126 | 2,488 | 1,420  | 2,477  | 4,299  | 6,858  | 7,446  | 7,113  | 4,881  | 3,561  | 2,912  | 2,992  | 49,573  |
| 2009 | 3,349 | 2,010 | 1,338  | 2,192  | 4,050  | 5,115  | 5,246  | 6,601  | 5,423  | 2,211  | 1,701  | 1,707  | 40,945  |
| 2010 | 2,701 | 2,196 | 2,464  | 3,969  | 5,534  | 6,491  | 5,052  | 3,915  | 2,407  | 1,807  | 1,852  | 1,670  | 40,056  |
| 2011 | 1,972 | 2,173 | 2,672  | 3,705  | 5,382  | 5,177  | 5,055  | 3,988  | 3,276  | 2,134  | 1,920  | 1,335  | 38,788  |
| 2012 | 1,573 | 1,784 | 2,298  | 4,650  | 5,007  | 5,125  | 4,874  | 4,987  | 3,470  | 2,039  | 590    | 651    | 37,049  |
| 2013 | 1,036 | 1,363 | 2,030  | 4,132  | 5,621  | 5,754  | 4,913  | 4,854  | 3,013  | 916    | 673    | 918    | 35,223  |
| 2014 | 1,683 | 1,256 | 1,317  | 4,567  | 5,116  | 5,006  | 5,162  | 3,774  | 1,435  | 1,301  | 1,993  | 2,094  | 34,703  |
| 2015 | 903   | 884   | 1,618  | 4,778  | 4,739  | 5,066  | 4,548  | 5,061  | 2,598  | 1,308  | 602    | 826    | 32,932  |
| 2016 | 1,029 | 1,069 | 1,712  | 4,237  | 5,536  | 5,415  | 5,219  | 3,827  | 1,086  | 101    | 3      | 0      | 29,233  |

Unit is 1000 hooks.

Table 5. Nominal CPUE of Japanese longline in number of southern bluefin tuna per 1000 hooks by statistical area.

| Year | Area1 | Area2 | Area3 | Area4 | Area5 | Area6 | Area7 | Area8 | Area9 | Area10 | Area11 | Area12 | Area14 | Area15 | All   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| 1965 | 3.23  | 17.73 |       | 21.85 | 26.12 | 20.83 | 25.72 | 4.52  | 0.32  | 0.17   | 0.18   |        | 0.16   | 0.03   | 13.35 |
| 1966 | 2.79  | 15.74 | 19.06 | 19.00 | 15.62 | 13.15 | 14.40 | 24.70 | 0.24  | 0.00   | 0.41   |        | 0.10   | 0.00   | 8.53  |
| 1967 | 1.02  | 13.54 | 0.41  | 17.94 | 9.31  | 8.88  | 14.12 | 16.91 | 0.68  | 0.00   | 0.11   |        | 0.09   | 0.00   | 10.89 |
| 1968 | 0.71  | 2.53  | 26.71 | 16.87 | 12.17 | 13.69 | 11.87 | 11.04 | 17.75 | 0.11   | 0.15   |        | 0.29   | 0.76   | 8.35  |
| 1969 | 0.66  | 3.21  | 23.26 | 7.68  | 7.97  | 9.09  | 8.10  | 10.05 | 14.87 | 1.24   | 0.10   |        | 0.10   | 0.20   | 8.86  |
| 1970 | 0.27  | 1.35  | 13.72 | 9.18  | 5.51  | 6.71  | 8.80  | 7.32  | 12.14 | 0.87   | 0.09   |        | 0.20   | 0.45   | 6.91  |
| 1971 | 0.19  | 0.49  | 32.98 | 10.41 | 6.20  | 6.69  | 7.82  | 4.55  | 9.34  | 0.07   | 0.19   |        | 0.10   | 0.02   | 6.25  |
| 1972 | 0.14  | 0.17  |       | 11.21 | 9.96  | 6.31  | 7.38  | 5.82  | 11.15 | 0.50   | 0.12   |        | 0.04   | 0.50   | 8.15  |
| 1973 | 0.16  | 0.40  | 1.92  | 8.89  | 12.12 | 3.66  | 4.83  | 4.67  | 8.95  | 0.37   | 0.07   |        | 0.00   | 0.01   | 6.19  |
| 1974 | 0.21  | 0.75  | 5.75  | 7.52  | 7.66  | 3.92  | 6.93  | 5.97  | 8.88  | 5.24   | 0.08   |        | 0.25   | 0.51   | 6.31  |
| 1975 | 0.10  | 0.32  | 9.29  | 5.97  | 7.92  | 5.18  | 4.73  | 4.90  | 5.67  |        | 0.06   |        | 0.02   | 0.00   | 4.60  |
| 1976 | 0.10  | 0.04  | 20.06 | 4.17  | 7.32  | 4.49  | 5.73  | 5.54  | 7.26  |        | 0.10   |        | 0.01   | 0.25   | 5.65  |
| 1977 | 0.23  | 0.16  | 28.99 | 22.79 | 4.42  | 1.81  | 5.70  | 5.71  | 8.54  |        | 0.23   |        | 0.02   | 0.03   | 5.97  |
| 1978 | 0.02  | 0.37  | 26.18 | 13.31 | 0.01  | 3.76  | 5.66  | 3.55  | 5.49  | 1.04   | 0.03   |        | 0.00   | 0.10   | 5.12  |
| 1979 | 0.06  | 0.07  | 22.86 | 7.78  | 4.83  | 3.66  | 3.51  | 3.58  | 5.98  | 1.97   | 0.02   |        | 0.01   | 0.01   | 4.71  |
| 1980 | 0.06  | 1.56  | 49.30 | 12.09 | 6.96  | 3.68  | 4.18  | 3.60  | 4.98  | 0.98   | 0.03   |        | 0.00   | 0.40   | 4.44  |
| 1981 | 0.07  | 0.20  |       | 8.05  | 4.49  | 3.07  | 3.73  | 2.97  | 4.70  | 1.23   | 0.08   |        | 0.01   | 0.00   | 3.77  |
| 1982 | 0.09  | 0.03  |       | 4.00  | 1.82  | 2.22  | 3.40  | 2.86  | 3.94  | 1.13   | 0.00   |        | 0.00   | 0.00   | 2.99  |
| 1983 | 0.07  | 0.05  |       | 3.06  | 1.73  | 1.72  | 3.81  | 2.67  | 5.58  | 0.82   | 0.04   |        | 0.02   | 0.03   | 3.67  |
| 1984 | 0.10  | 0.12  |       | 2.34  | 1.95  | 1.73  | 4.08  | 3.24  | 3.50  | 0.24   | 0.01   |        | 0.05   | 0.00   | 2.70  |
| 1985 | 0.10  | 0.07  |       | 0.48  | 1.89  | 2.37  | 3.34  | 2.63  | 2.85  | 0.62   | 0.01   |        | 0.01   | 0.03   | 2.38  |
| 1986 | 0.04  | 0.10  |       | 1.08  | 1.39  | 1.62  | 2.19  | 1.90  | 2.14  | 0.31   | 0.01   |        | 0.01   | 0.17   | 1.72  |
| 1987 | 0.08  | 0.25  |       | 0.49  | 1.21  | 1.40  | 2.12  | 1.36  | 2.62  | 0.07   | 0.01   |        | 0.06   | 0.06   | 1.59  |
| 1988 | 0.06  | 0.17  |       | 0.48  | 1.07  | 0.79  | 2.15  | 1.48  | 2.41  | 0.00   | 0.02   |        | 0.04   | 0.00   | 1.56  |
| 1989 | 0.06  | 0.07  |       | 1.10  | 0.95  | 1.02  | 3.35  | 1.70  | 2.05  | 0.00   | 0.01   |        | 0.02   | 0.05   | 1.77  |
| 1990 | 0.03  | 0.12  |       | 1.23  | 1.42  | 1.77  | 3.52  | 5.65  | 1.81  | 1.46   |        |        | 0.04   | 0.02   | 2.01  |
| 1991 | 0.00  | 0.03  |       | 2.26  | 0.92  | 1.07  | 4.67  | 2.85  | 2.88  | 0.15   | 0.00   |        | 0.01   | 0.00   | 1.81  |
| 1992 | 0.01  | 0.09  |       | 3.21  | 0.65  | 1.71  | 5.20  | 2.44  | 2.65  | 0.26   | 0.00   |        | 0.01   | 0.00   | 1.84  |
| 1993 | 0.00  | 0.08  |       | 3.85  | 1.07  | 1.16  | 8.09  | 3.07  | 3.44  | 0.00   | 0.00   |        | 0.01   | 0.00   | 2.16  |
| 1994 | 0.00  | 0.05  |       | 2.48  | 0.29  | 4.07  | 5.60  | 5.68  | 2.44  | 0.03   | 0.00   |        | 0.01   | 0.00   | 1.28  |
| 1995 | 0.03  | 0.07  |       | 1.60  | 0.19  | 2.56  | 5.69  | 3.10  | 2.22  | 0.00   | 0.01   |        | 0.00   | 0.00   | 0.85  |
| 1996 | 0.01  | 0.04  |       | 1.18  | 0.00  |       | 3.66  | 2.17  | 2.15  |        | 0.00   |        | 0.01   | 0.00   | 0.89  |
| 1997 | 0.01  | 0.04  |       | 1.06  | 4.88  | 2.86  | 2.93  | 1.45  | 2.34  |        | 0.00   |        | 0.01   | 0.01   | 0.95  |
| 1998 | 0.01  | 0.04  |       | 1.20  | 2.41  | 2.84  | 1.67  | 2.47  | 2.48  |        | 0.00   |        | 0.01   | 0.00   | 0.97  |
| 1999 | 0.06  | 0.01  |       | 2.08  | 0.02  | 2.31  | 2.20  | 2.11  | 2.50  |        | 0.00   |        | 0.03   | 0.00   | 1.05  |
| 2000 | 0.16  | 0.05  |       | 2.27  | 0.02  | 0.94  | 2.12  | 1.97  | 2.44  | 0.00   | 0.00   |        | 0.02   | 0.00   | 1.30  |
| 2001 | 0.01  | 0.01  |       | 2.48  | 0.00  | 3.71  | 2.53  | 2.03  | 2.81  | 0.00   | 0.00   |        | 0.39   | 0.00   | 1.27  |
| 2002 | 0.04  | 0.08  |       | 2.59  | 0.00  | 3.99  | 2.00  | 1.16  | 4.24  | 0.42   | 0.00   |        | 0.02   | 0.00   | 1.24  |
| 2003 | 0.07  | 0.28  |       | 2.25  | 0.03  | 1.68  | 1.98  | 1.78  | 3.01  | 0.00   | 0.00   |        | 0.00   | 0.00   | 1.21  |
| 2004 | 0.00  | 0.56  |       | 1.54  | 0.01  | 1.50  | 1.39  | 2.78  | 2.32  |        | 0.00   |        | 0.00   | 0.00   | 1.33  |
| 2005 | 0.00  | 1.73  |       | 1.42  | 0.44  | 0.00  | 1.06  | 3.26  | 2.26  |        | 0.01   |        | 0.02   | 0.15   | 1.43  |
| 2006 | 0.00  | 1.85  |       | 1.48  | 0.07  | 0.30  | 3.87  | 1.97  | 2.09  |        |        |        | 0.01   | 0.00   | 1.30  |
| 2007 | 0.02  | 0.53  |       | 2.66  | 0.22  | 1.65  | 2.68  | 1.77  | 2.57  |        | 0.02   |        | 0.02   | 0.00   | 1.27  |
| 2008 | 0.02  | 0.03  |       | 1.12  | 0.07  | 4.92  | 5.09  | 1.64  | 1.94  |        | 0.01   |        | 0.02   | 0.00   | 0.98  |
| 2009 | 0.01  | 0.02  |       | 2.22  | 0.19  | 4.57  | 5.25  | 2.46  | 3.10  | 0.00   | 0.00   |        | 0.01   | 0.00   | 1.38  |
| 2010 | 0.07  | 0.19  |       | 1.18  | 0.00  |       | 7.03  | 2.35  | 3.25  | 0.02   | 0.01   |        | 0.01   | 0.00   | 1.15  |
| 2011 | 0.04  | 0.64  |       | 0.73  | 0.06  |       | 7.21  | 2.42  | 4.37  | 0.00   | 0.02   |        | 0.06   | 0.00   | 1.53  |
| 2012 | 0.30  | 0.14  |       | 0.39  | 0.01  |       | 6.03  | 2.56  | 4.56  | 0.00   |        |        | 0.01   | 0.00   | 1.40  |
| 2013 | 0.04  | 0.07  |       | 0.54  | 0.09  |       | 4.76  | 2.54  | 4.93  | 0.59   | 0.01   |        | 0.03   | 0.00   | 1.40  |
| 2014 | 0.01  | 0.22  |       | 1.45  | 0.00  |       | 6.46  | 2.27  | 5.47  | 0.00   |        |        | 0.00   | 0.00   | 1.72  |
| 2015 | 0.02  | 0.41  |       | 3.09  | 0.06  |       | 6.80  | 2.96  | 7.46  |        |        |        | 0.01   | 0.01   | 2.59  |
| 2016 | 0.00  | 0.16  |       | 3.18  | 0.01  |       | 6.25  | 2.94  | 5.64  |        |        |        | 0.13   | 0.04   | 2.75  |

Table 6. Nominal CPUE of Japanese longline in number of southern bluefin tuna per1000 hooks by month.

| Year | Jan   | Feb   | Mar   | Apr   | May  | Jun   | Jul   | Aug   | Sep   | Oct   | Nov   | Dec   | All   |
|------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1965 | 20.49 | 18.45 | 13.53 | 15.80 | 4.37 | 7.10  | 12.68 | 12.94 | 14.24 | 11.23 | 11.16 | 14.75 | 13.35 |
| 1966 | 14.50 | 11.50 | 11.08 | 8.87  | 4.68 | 7.64  | 10.18 | 5.26  | 6.26  | 8.62  | 9.65  | 8.12  | 8.53  |
| 1967 | 11.49 | 13.85 | 10.93 | 5.73  | 4.03 | 11.44 | 6.81  | 8.75  | 12.77 | 16.89 | 14.43 | 9.76  | 10.89 |
| 1968 | 7.21  | 7.38  | 10.59 | 6.44  | 7.09 | 6.38  | 9.78  | 9.46  | 8.42  | 6.88  | 10.37 | 9.79  | 8.35  |
| 1969 | 6.50  | 6.38  | 7.16  | 8.66  | 7.62 | 8.72  | 10.11 | 10.07 | 9.34  | 9.77  | 10.27 | 9.10  | 8.86  |
| 1970 | 8.86  | 9.38  | 6.62  | 6.99  | 5.53 | 6.06  | 8.42  | 8.44  | 5.45  | 3.42  | 7.73  | 6.69  | 6.91  |
| 1971 | 4.60  | 3.39  | 7.17  | 8.61  | 5.49 | 7.07  | 7.98  | 6.77  | 5.20  | 3.57  | 6.79  | 6.17  | 6.25  |
| 1972 | 5.36  | 4.43  | 6.53  | 8.43  | 8.84 | 11.46 | 11.82 | 12.26 | 8.67  | 4.20  | 4.54  | 4.87  | 8.15  |
| 1973 | 4.22  | 3.47  | 6.68  | 6.56  | 5.31 | 8.98  | 10.48 | 9.27  | 5.03  | 3.42  | 3.37  | 2.61  | 6.19  |
| 1974 | 2.24  | 3.62  | 6.01  | 6.31  | 5.65 | 7.44  | 11.13 | 9.29  | 5.62  | 4.10  | 4.86  | 4.32  | 6.31  |
| 1975 | 2.23  | 2.55  | 4.51  | 5.38  | 4.05 | 5.43  | 6.71  | 6.34  | 3.67  | 4.53  | 3.95  | 3.59  | 4.60  |
| 1976 | 3.93  | 4.14  | 5.23  | 6.17  | 5.35 | 7.25  | 7.83  | 7.38  | 4.44  | 5.18  | 4.61  | 4.11  | 5.65  |
| 1977 | 3.59  | 6.60  | 5.41  | 4.91  | 6.51 | 7.48  | 10.29 | 7.33  | 4.62  | 3.11  | 4.76  | 5.13  | 5.97  |
| 1978 | 3.68  | 3.26  | 4.17  | 7.43  | 5.98 | 6.39  | 6.63  | 4.56  | 4.04  | 3.24  | 4.24  | 3.83  | 5.12  |
| 1979 | 2.71  | 2.90  | 5.66  | 5.78  | 4.50 | 4.67  | 6.79  | 5.88  | 3.21  | 2.11  | 3.42  | 3.77  | 4.71  |
| 1980 | 2.53  | 2.43  | 2.44  | 4.04  | 4.65 | 6.03  | 7.69  | 6.23  | 3.18  | 2.72  | 3.59  | 3.37  | 4.44  |
| 1981 | 2.15  | 1.36  | 1.90  | 5.10  | 4.79 | 4.09  | 5.97  | 4.80  | 2.41  | 1.78  | 2.14  | 2.05  | 3.77  |
| 1982 | 0.96  | 0.78  | 1.30  | 2.79  | 3.23 | 3.64  | 4.16  | 3.44  | 2.95  | 2.66  | 2.39  | 2.59  | 2.99  |
| 1983 | 1.28  | 0.88  | 2.62  | 5.95  | 4.63 | 3.33  | 4.70  | 3.96  | 2.50  | 2.34  | 3.45  | 2.67  | 3.67  |
| 1984 | 1.67  | 3.51  | 2.25  | 3.15  | 2.40 | 2.60  | 3.16  | 3.64  | 2.56  | 1.83  | 2.16  | 2.25  | 2.70  |
| 1985 | 2.08  | 5.43  | 3.99  | 2.58  | 2.18 | 1.90  | 2.47  | 3.05  | 1.94  | 1.59  | 1.82  | 1.68  | 2.38  |
| 1986 | 0.37  | 0.09  | 0.95  | 1.56  | 1.60 | 1.64  | 2.26  | 2.77  | 1.94  | 1.35  | 1.76  | 1.16  | 1.72  |
| 1987 | 0.24  | 0.41  | 1.74  | 2.21  | 2.18 | 1.76  | 2.22  | 1.50  | 1.36  | 0.76  | 1.06  | 1.41  | 1.59  |
| 1988 | 0.42  | 0.19  | 1.13  | 1.78  | 1.32 | 1.54  | 1.89  | 1.91  | 1.65  | 0.86  | 1.60  | 1.43  | 1.56  |
| 1989 | 0.55  | 0.32  | 1.80  | 2.20  | 1.95 | 1.95  | 2.12  | 2.26  | 1.44  | 0.81  | 0.89  | 1.07  | 1.77  |
| 1990 | 0.03  | 0.26  | 0.32  | 2.80  | 2.65 | 1.76  | 2.29  | 1.93  | 0.21  | 0.19  | 0.36  | 0.50  | 2.01  |
| 1991 | 0.04  | 0.07  | 0.19  | 1.86  | 2.37 | 2.53  | 2.68  | 1.39  | 1.25  | 0.27  | 0.43  | 0.43  | 1.81  |
| 1992 | 0.01  | 0.00  | 0.15  | 1.50  | 2.04 | 2.01  | 3.97  | 1.60  | 1.35  | 0.81  | 0.54  | 0.10  | 1.84  |
| 1993 | 0.05  | 0.11  | 0.09  | 1.91  | 3.95 | 5.68  | 2.33  | 0.79  | 0.45  | 0.05  | 0.04  | 0.09  | 2.16  |
| 1994 | 0.08  | 0.05  | 0.13  | 0.09  | 2.39 | 3.88  | 0.82  | 0.87  | 2.06  | 0.40  | 0.04  | 0.00  | 1.28  |
| 1995 | 0.07  | 0.05  | 0.11  | 0.13  | 2.11 | 2.14  | 0.45  | 0.54  | 1.28  | 0.73  | 0.33  | 0.22  | 0.85  |
| 1996 | 0.09  | 0.00  | 0.00  | 0.00  | 1.44 | 1.55  | 1.53  | 0.24  | 1.26  | 1.04  | 1.10  | 0.40  | 0.89  |
| 1997 | 0.00  | 0.01  | 0.00  | 0.18  | 1.74 | 1.81  | 1.78  | 0.06  | 0.69  | 0.76  | 0.52  | 0.59  | 0.95  |
| 1998 | 0.00  | 0.00  | 0.00  | 0.23  | 1.31 | 1.64  | 1.85  | 0.68  | 1.15  | 0.72  | 0.96  | 0.29  | 0.97  |
| 1999 | 0.02  | 0.01  | 0.00  | 0.46  | 1.96 | 1.70  | 1.83  | 0.56  | 0.94  | 0.57  | 0.95  | 0.00  | 1.05  |
| 2000 | 0.00  | 0.00  | 0.00  | 0.47  | 1.76 | 2.01  | 2.57  | 0.05  | 1.61  | 1.20  | 0.98  | 0.99  | 1.30  |
| 2001 | 0.02  | 0.00  | 0.00  | 0.59  | 2.23 | 2.19  | 2.61  | 0.26  | 1.15  | 1.13  | 0.80  | 0.00  | 1.27  |
| 2002 | 0.00  | 0.00  | 0.02  | 0.53  | 3.01 | 3.43  | 1.92  | 0.13  | 0.64  | 0.35  | 0.23  | 0.03  | 1.24  |
| 2003 | 0.03  | 0.00  | 0.00  | 0.38  | 2.46 | 2.35  | 1.71  | 0.03  | 0.73  | 0.96  | 1.10  | 0.63  | 1.21  |
| 2004 | 0.08  | 0.01  | 0.00  | 0.24  | 1.87 | 1.88  | 2.32  | 0.68  | 0.44  | 0.74  | 2.61  | 1.94  | 1.33  |
| 2005 | 1.14  | 0.65  | 0.00  | 0.26  | 1.71 | 1.81  | 2.06  | 1.34  | 0.60  | 1.09  | 1.82  | 3.80  | 1.43  |
| 2006 | 1.21  | 0.76  | 0.03  | 0.00  | 1.16 | 1.14  | 1.57  | 2.70  | 1.88  | 1.25  | 0.61  | 0.78  | 1.30  |
| 2007 | 0.31  | 0.01  | 0.41  | 1.06  | 1.67 | 1.47  | 1.10  | 2.13  | 1.70  | 1.18  | 1.48  | 0.29  | 1.27  |
| 2008 | 0.02  | 0.05  | 0.41  | 1.60  | 1.88 | 1.20  | 1.19  | 1.22  | 1.04  | 0.48  | 0.78  | 0.32  | 0.98  |
| 2009 | 0.01  | 0.00  | 0.00  | 2.11  | 2.22 | 1.32  | 2.00  | 1.52  | 1.51  | 1.15  | 1.56  | 1.16  | 1.38  |
| 2010 | 0.24  | 0.13  | 0.83  | 3.11  | 2.15 | 1.11  | 0.84  | 1.26  | 0.21  | 0.15  | 0.99  | 0.01  | 1.15  |
| 2011 | 0.00  | 0.00  | 0.16  | 3.65  | 2.05 | 2.36  | 2.02  | 1.17  | 1.33  | 0.55  | 0.68  | 0.35  | 1.53  |
| 2012 | 0.02  | 0.01  | 0.80  | 3.33  | 1.60 | 1.80  | 1.47  | 1.41  | 0.72  | 0.05  | 0.64  | 0.02  | 1.40  |
| 2013 | 0.00  | 0.00  | 0.25  | 2.26  | 2.47 | 1.88  | 1.01  | 1.45  | 0.59  | 0.54  | 0.80  | 0.00  | 1.40  |
| 2014 | 0.00  | 0.00  | 0.37  | 3.25  | 2.48 | 1.88  | 1.38  | 3.19  | 1.30  | 0.02  | 0.34  | 0.17  | 1.72  |
| 2015 | 0.00  | 0.00  | 0.21  | 3.90  | 4.34 | 3.26  | 1.70  | 3.04  | 1.84  | 0.54  | 0.66  | 0.19  | 2.59  |
| 2016 | 0.00  | 0.00  | 0.78  | 3.42  | 3.96 | 2.39  | 1.95  | 3.62  | 5.07  | 3.51  | 0.00  |       | 2.75  |

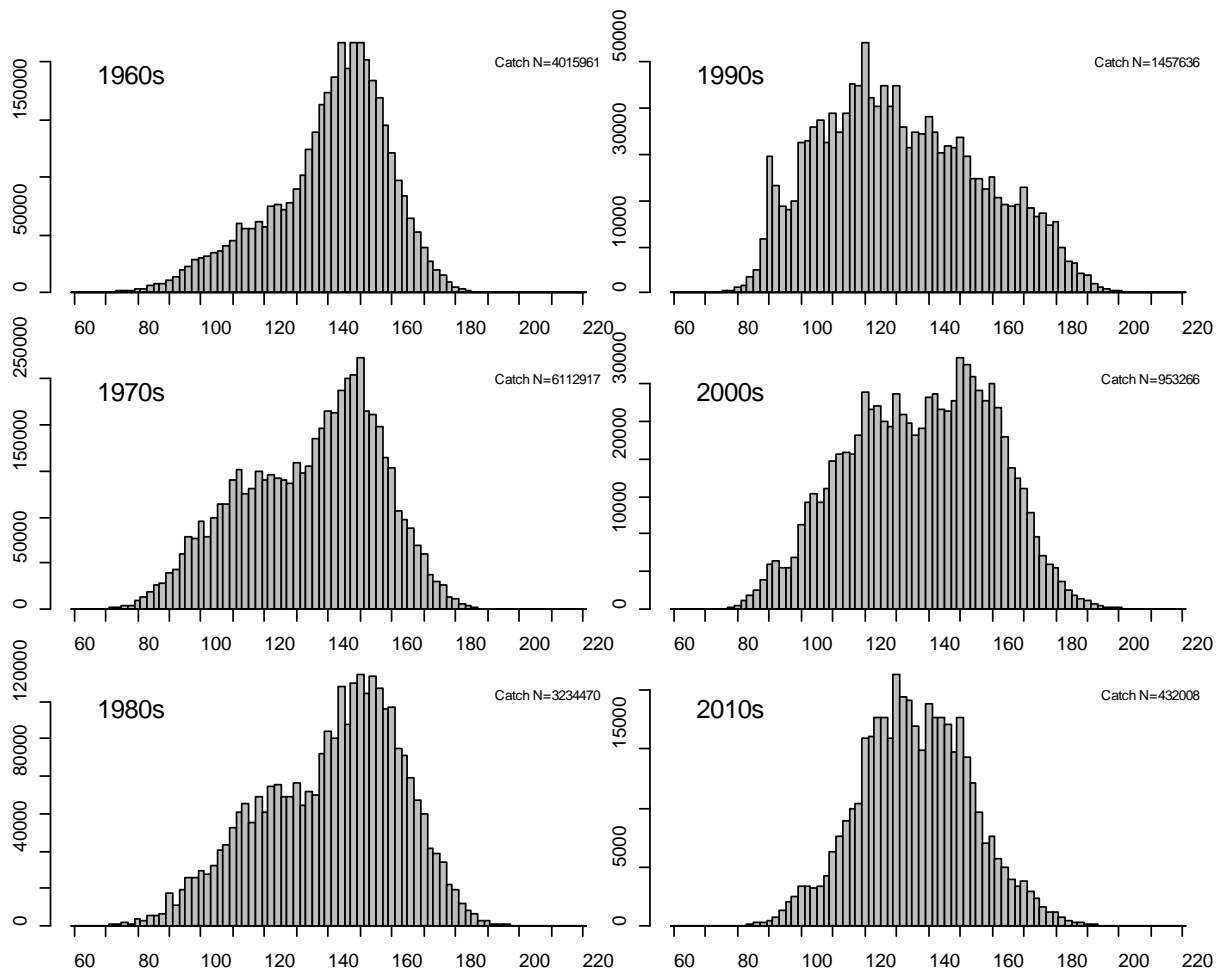


Fig. 1. Length frequency of southern bluefin tuna caught by Japanese longline by decade.

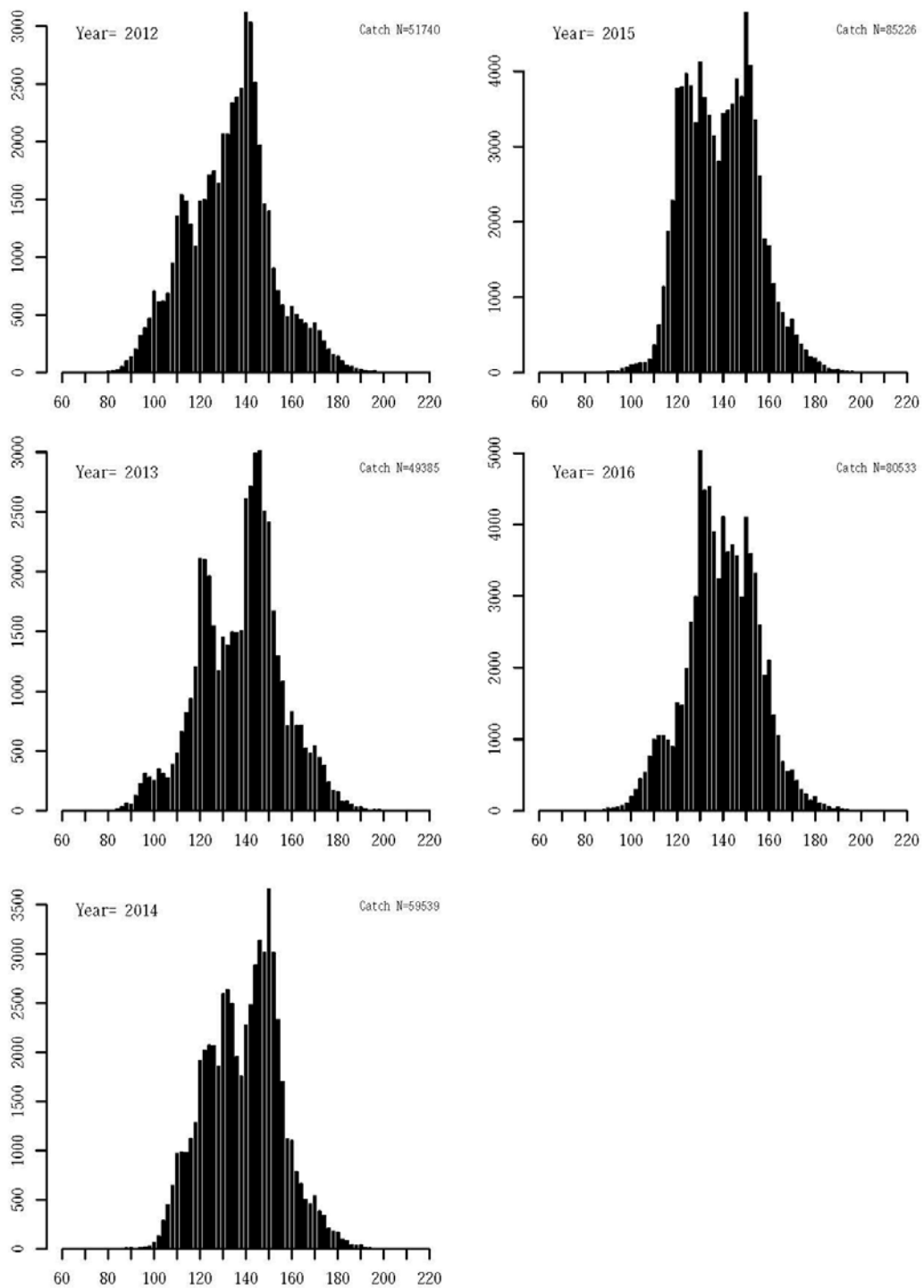


Fig. 2. Length frequency of southern bluefin tuna caught by Japanese longline in each of last five years.



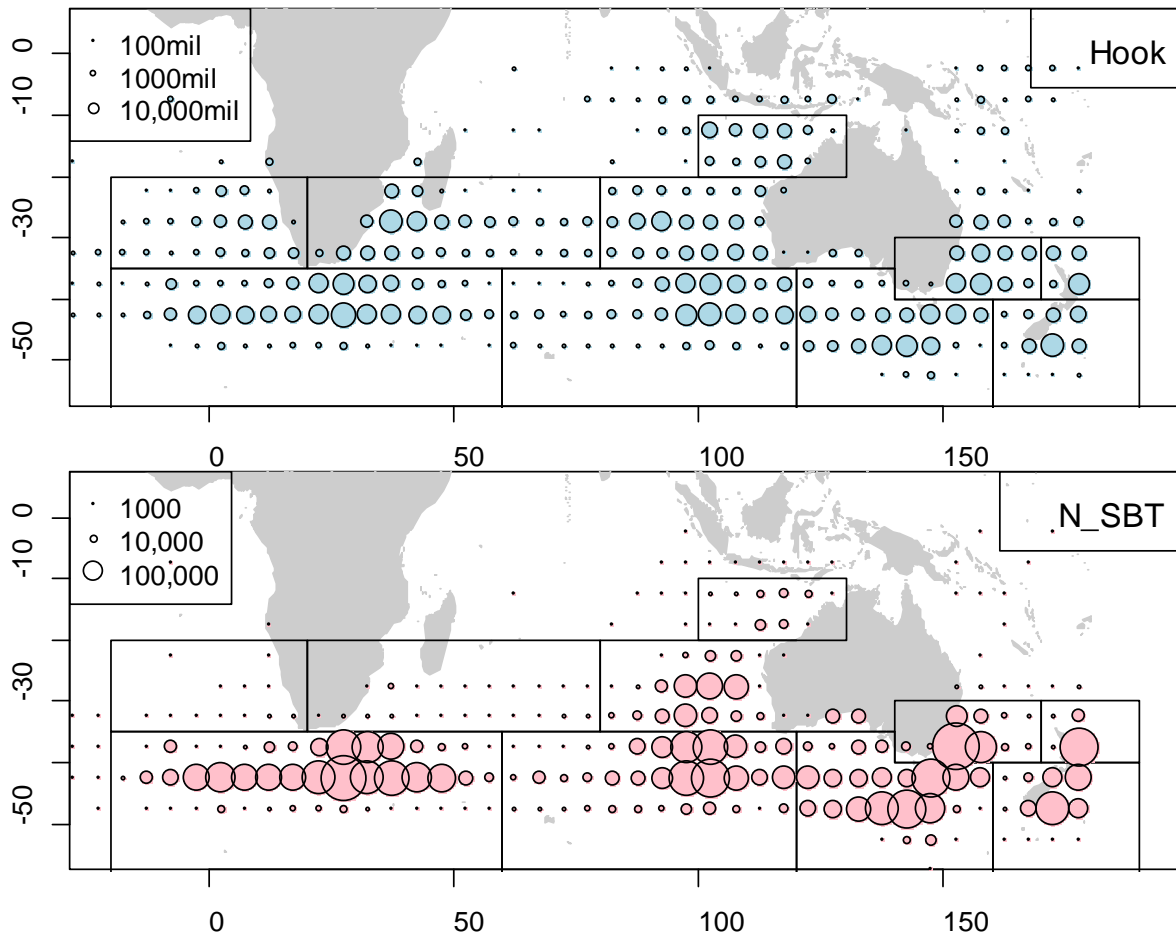


Fig. 3. Distribution of the numbers of hooks used (upper panel) and southern bluefin tuna caught (lower panel) by Japanese longline in all years since 1965.

Lines drawn are boundary of CCSBT statistical area.

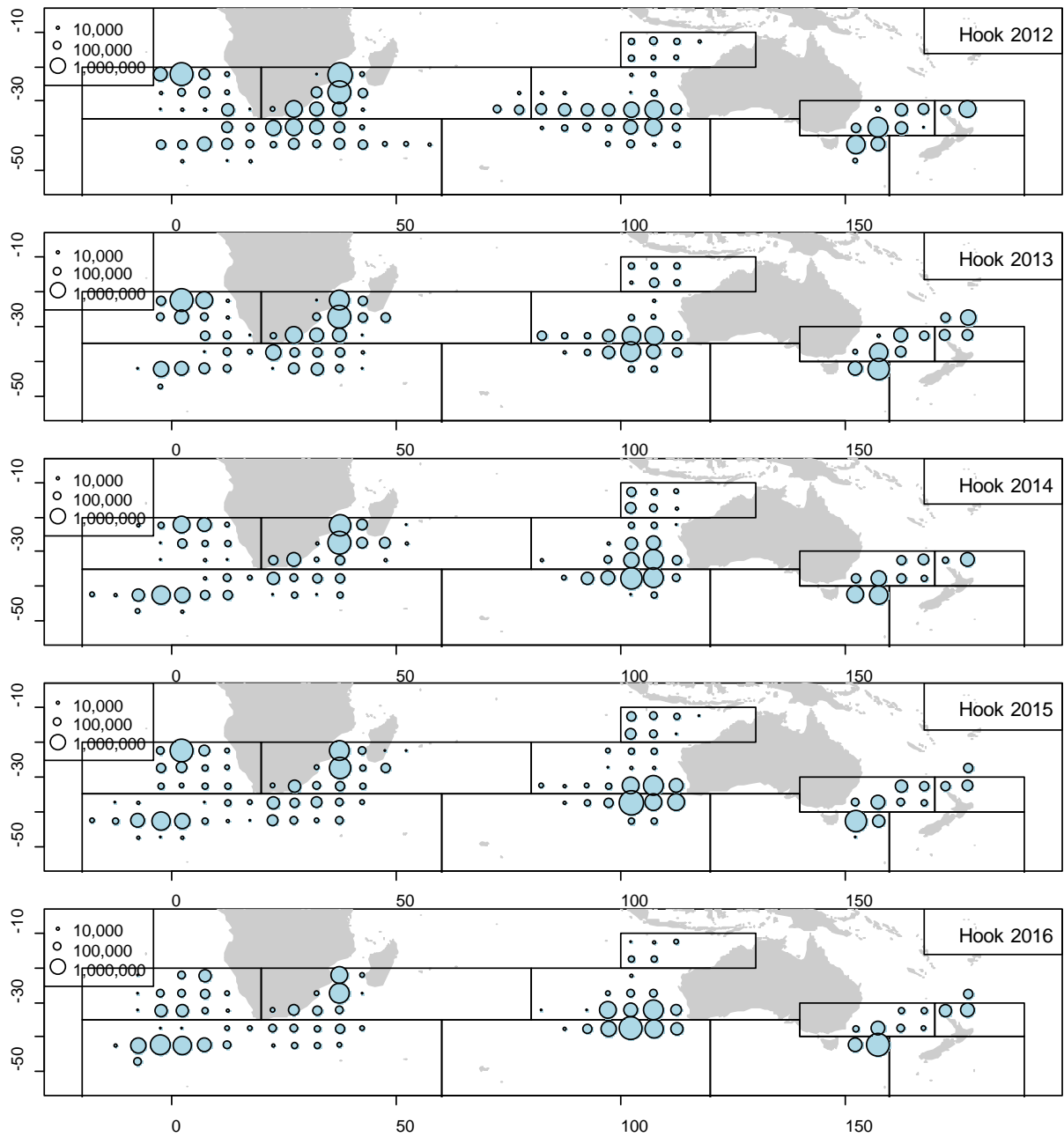


Fig. 4. Distribution of the number of hooks used for southern bluefin tuna by Japanese longline in each of last five years.

Lines drawn are boundary of CCSBT statistical area.

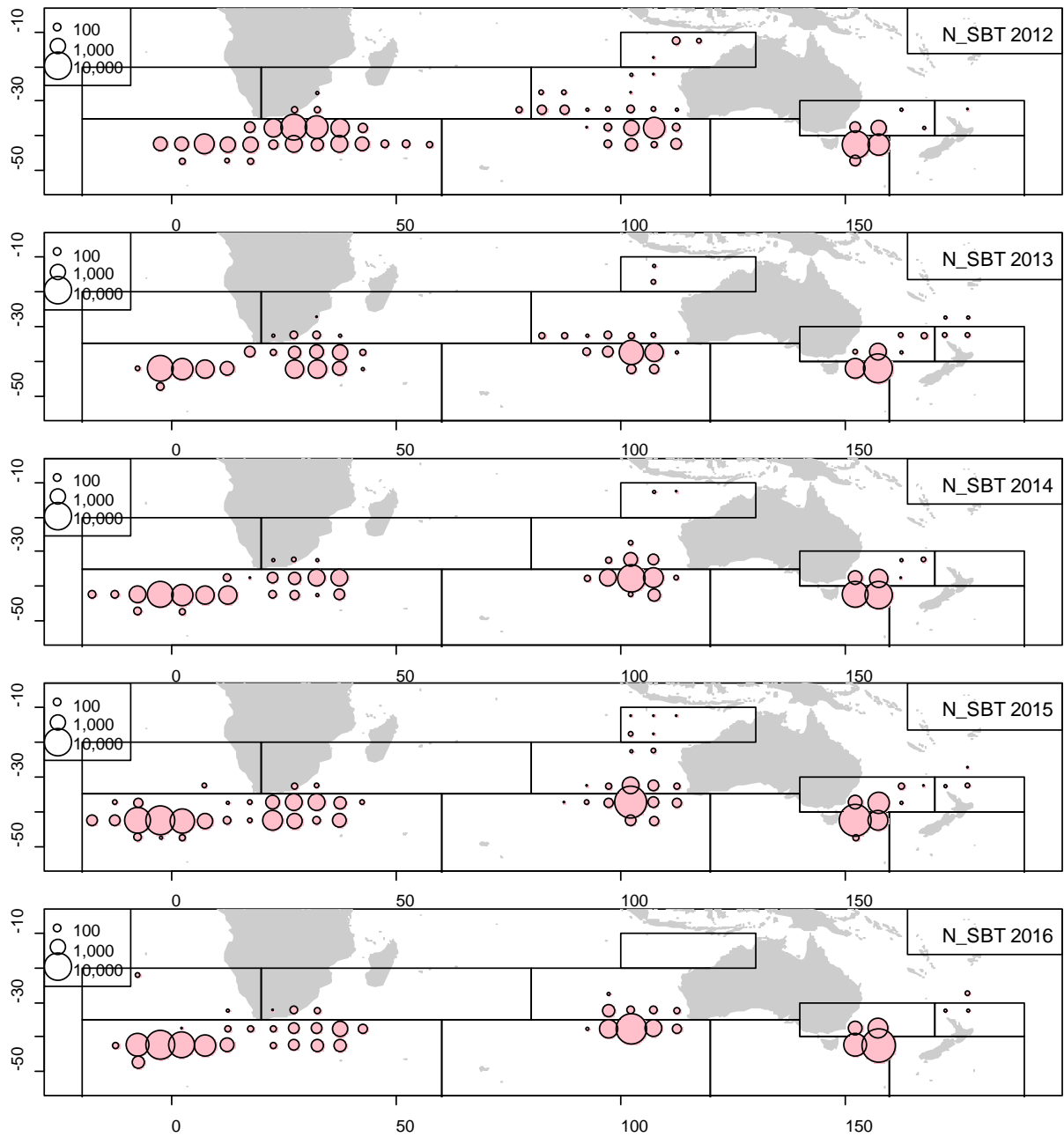


Fig. 5. Distribution of the number of southern bluefin tuna caught by Japanese longline in each of last five years.

Lines drawn are boundary of CCSBT statistical area.