

ISC/19/ALBWG-02/03

Updated North Pacific albacore catch by Japanese fisheries

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Abstract

This document describes updated North Pacific albacore catch by the Japanese fisheries including longline, pole-and-line, drift net, purse sein, troll, set net and other miscellaneous fisheries. Data were also summarized in same fisheries definition as 2017 stock assessment.

Introduction

North Pacific albacore catch by the Japanese fisheries are mainly caught by the longline and pole-and-line fisheries. The Japanese longline fisheries target medium and larger size of fish (> 70cm in fork length) mainly in winter around 30N in the western north Pacific Ocean. These fisheries also target more larger size that are believed to be spawning fish in the area between 10N and 25N. On the other hands, Japanese pole-and-line fisheries target younger age class from spring to fall in the western north Pacific Ocean, where is characterized as the Kuroshio extension and Kuroshio-Oyashio transition areas. Other fisheries targeting albacore is drifting gill net, purse seine and troll fisheries.

In this document, Japanese North Pacific albacore catch data for the 2020 stock assessment were updated by the same fleet definitions (Table 1 and Fig. 1) and procedure as in 2017 stock assessment (Ijima et al., 2016).

Data and methods

Data source and method for the assessment are same as the previously reported (Matsumoto et al., 2011; Ijima et al., 2016), we re-described and modified for recording purpose.

Longline fishery

There are four data source with different fishing types, which are offshore and distant water, coastal longline before and after 1994 and small-scale coastal longline.

- a). Offshore and Distant water: All vessels submitted logbook. These data was aggregated by year, quarter and area and summarized both catch number and weight.
- b). Coastal longline after 1994: Logbook is available. This data set was aggregated by year, quarter and area and summarized both in catch number and weight.
- c). Coastal longline before 1994: There are no logbook because of no obligation to submit such information. It is necessary to take some procedures to create data set as follows.
 1. *Average area-quarter allocation rate was calculated by catch weight from logbook created in c).*
 2. *Catch allocation rate were multiplied the ISC table 1.*
- d). Small-scale coastal longline: There are no logbook because there is no obligation to submit. This fleet operates in the Japanese EEZ (25-45N, 120-145E). Following procedures was taken. There is only total catch by this fleet.
 1. Annual area-quarterly catch allocation rate was calculated by logbook from a).
 2. Catch allocation rate was multiplied the data from small-scale coastal longline.

To keep consistency from the previous assessment, catch number for the offshore and distant-water longline should be used and same procedures should applied for the coastal longline which does not have reported logbook data.

Pole-and-line fishery

Japanese pole-and-line fishery was categorized distant water, offshore and coastal. In 2014 and 2017 assessment, NPALB catch from this fishery was calculated into quarterly basis in each year by ISC table 1 and logbook. The following procedures are taken to produce catch data for the assessment.

- a). Pole-and-line after 1972: Weight based logbook data is available for distant water and offshore fisheries and all vessels submitted logbook. There is no obligation to submit logbook for the coastal PL fisheries. Year-quarter catch ratio was calculated from logbook data, and then this was multiplied annual catch data from the ISC Table 1.
- b). Pole-and-line before 1971: Number based logbook data is available for distant water and offshore fisheries. Not all the vessels submitted logbook. Year-quarterly catch ratio was calculated by the method reported by Matsumoto and Uosaki (2011). The ratio was multiplied annual catch data from the ISC Table 1.

Miscellaneous fishery

There are several miscellaneous fisheries in Japan, drift net, purse seine, troll, set net and others. Most of the catch is from drift net and purse seine fisheries. In 2014 and 2017 stock assessment, catch amounts by the Japanese miscellaneous fisheries were added to the JPN PL in quarter 1 and 2.

Summary

The data set were all generated by the same procedure as the previous assessment in 2017. Total catches of albacore in the North Pacific Ocean by Japanese fisheries between 2016 and 2018 were 34,986, 39,764 and 33,950 (mt), respectively (**Fig. 1**). It should be noted that the latest year (2018) is still preliminary because Japanese yearbook and logbook is also still provisional. However, NPALB catches likely have been decreasing since 1999.

References

- Ijima, H., Ochi, D. and Satoh, K. (2016) Japanese catch statistics of North Pacific albacore tuna (*Thunnus alalunga*) for Stock synthesis 3. ISC/16/ALBWG-02/02-rev1.
- Matsumoto, T. and Uosaki, K. (2011) Review of developing Japanese albacore fishery data to apply to stock synthesis model. ISC/11/ALBWG/08. 1 – 43.

Table 1. Fisheries definitions in 2017 stock assessment of North Pacific albacore tuna.

ID	Country	Area	Gear	Quarter	Catch Unit
F1	Japan	1 & 3	Longline	1	tonnes
F2	Japan	1 & 3	Longline	2	tonnes
F3	Japan	1 & 3	Longline	3	tonnes
F4	Japan	1 & 3	Longline	4	tonnes
F5	Japan	1 & 3	Longline	1	number
F6	Japan	1 & 3	Longline	2	number
F7	Japan	1 & 3	Longline	3	number
F8	Japan	1 & 3	Longline	4	number
F9	Japan	2	Longline	1	tonnes
F10	Japan	2	Longline	2, 3 & 4	tonnes
F11	Japan	2	Longline	1	number
F12	Japan	2	Longline	2, 3 & 4	number
F13	Japan	4	Longline	All	tonnes
F14	Japan	4	Longline	All	number
F15	Japan	5	Longline	All	number
F16	Japan	3	Pole-and-Line	1 & 2	tonnes
F17	Japan	3	Pole-and-Line	3 & 4	tonnes
F18	Japan	2	Pole-and-Line	All	tonnes
F19	US	3 & 5	Longline	All	tonnes
F20	US	2 & 4	Longline	All	tonnes
F21	Taiwan	3 & 5	Longline	All	tonnes
F22	Taiwan	2 & 4	Longline	All	tonnes
F23	Korea	All	Longline	All	tonnes
F24	China	3 & 5	Longline	All	tonnes
F25	China	2 & 4	Longline	All	tonnes
F26	Vanuatu	All	Longline	All	tonnes
F27	US, Canada	3 & 5	PL and Troll	All	tonnes
F28	Japan, Korea, Taiwan	All	Driftnet	All	tonnes
F29	Japan, Taiwan	All	Miscellaneous	All	tonnes

Table 2. Data summary of Japanese albacore catch. Note that abbreviations of DW and OS are distant water and offshore, respectively.

Fisheries	Data source	Period	Unit	Resolution
All fisheries	Yearbook	1966 – 2018	kg	Annually
Longline (DW and OS)	Logbook	1966 – 2018	number	Year, Month, Day and 5°×5°
Longline (DW and OS)	Logbook	1970 – 2018	mt	Year, Month, Day and 5°×5°
Longline (Coastal)	Logbook	1994 – 2018	number	Year, Month, Day and 5°×5°
Longline (Coastal)	Logbook	1994 – 2018	mt	Year, Month, Day and 5°×5°
Pole-and-line (DW and OS)	Logbook	1972 – 2018	mt	Year, Month, Day and 5°×5°
Drift Net	Logbook	1977 – 1993	number	Year, Month, Day and 5°×5°
Purse sein	Logbook	1995 – 2018	100kg	Year, Month, Day and 5°×5°

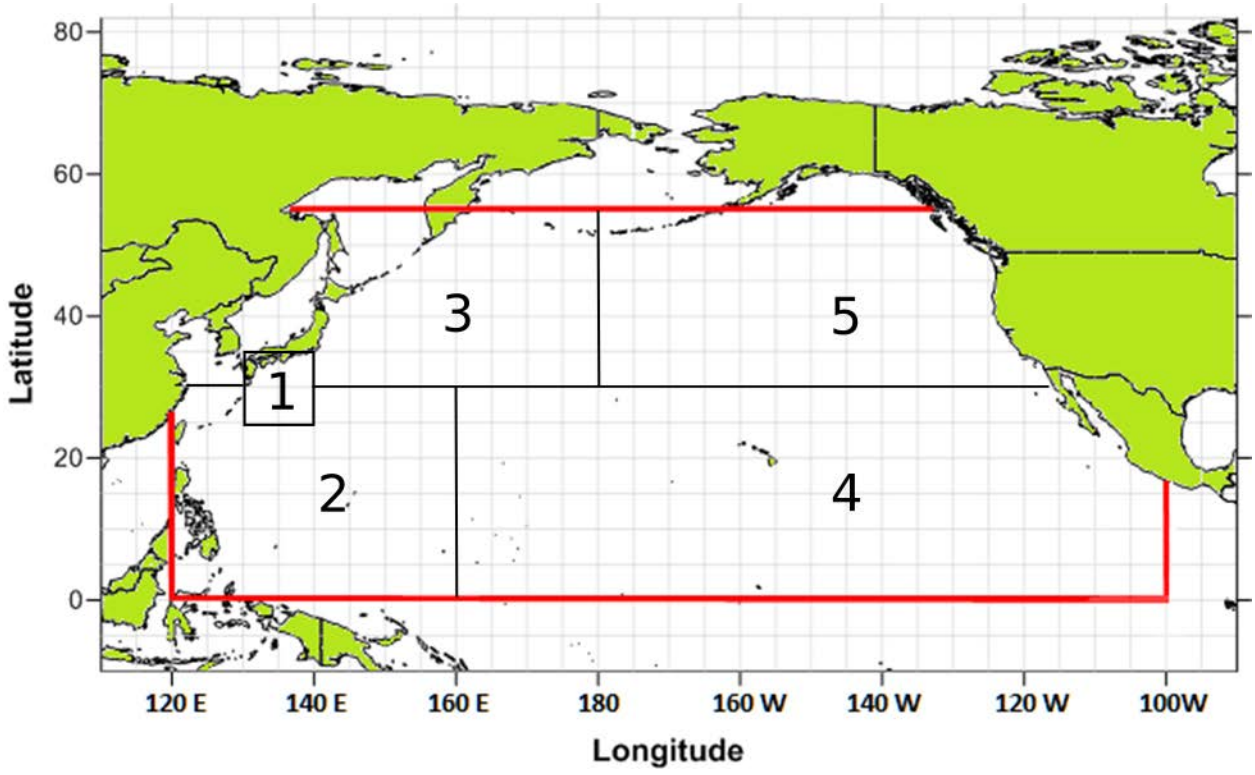


Figure 1. Map of fisheries definitions used in 2017 stock assessment.

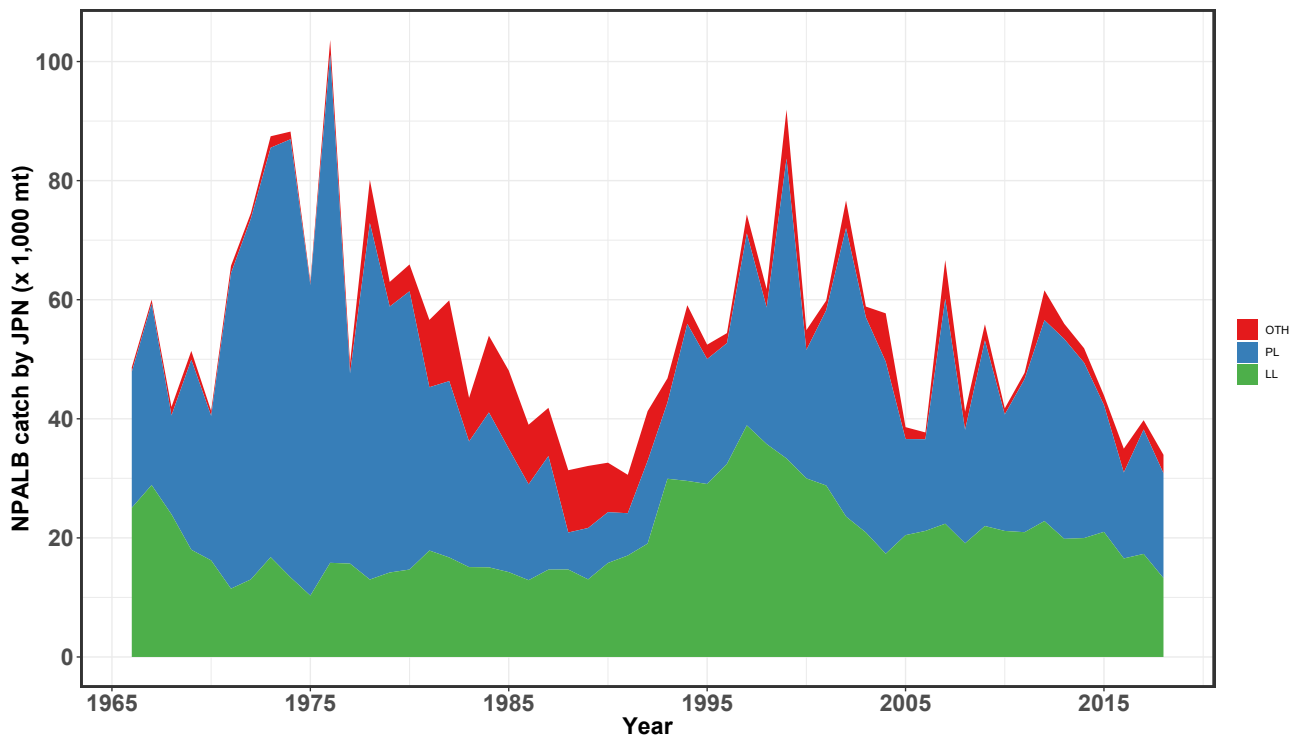


Figure 2. Historical albacore catch by Japanese fisheries in the North Pacific Ocean (See ISC Catch Table; http://isc.fra.go.jp/pdf/ISC19/ISC19_PLENARY_Report_FINAL.pdf)

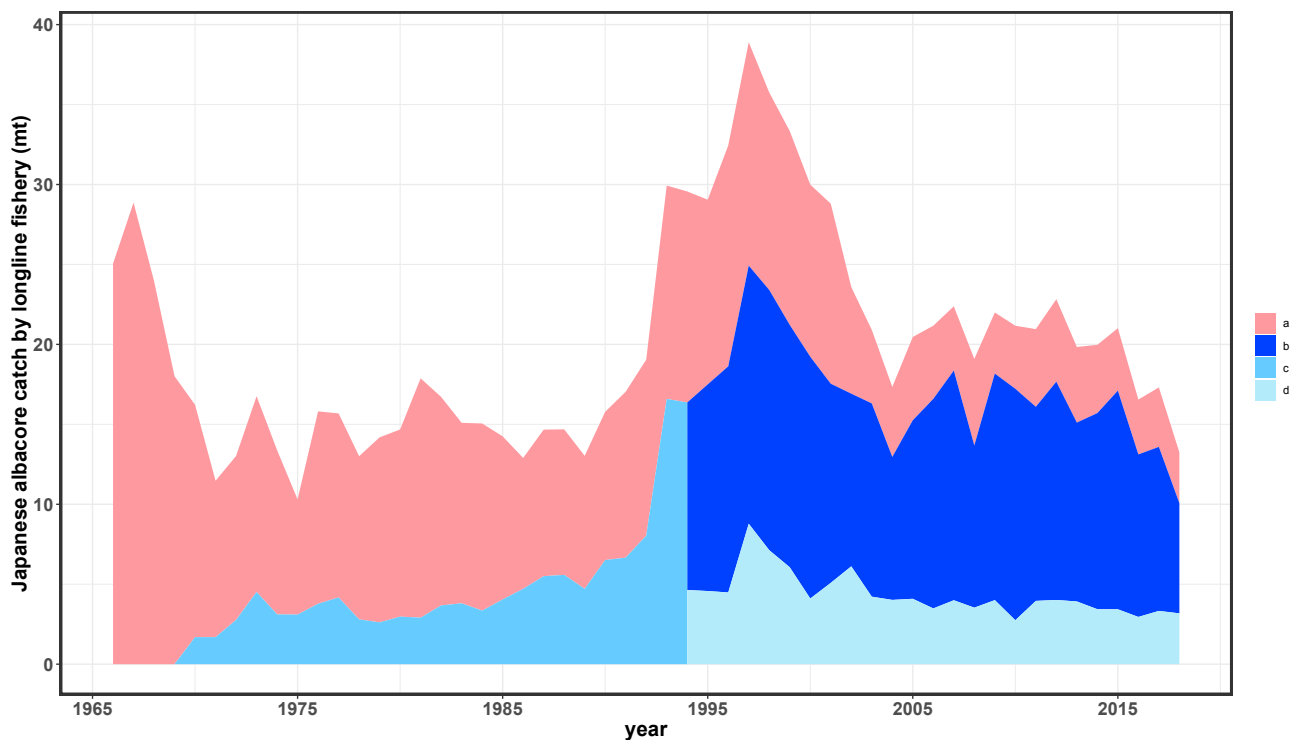


Figure 3. North Pacific albacore catch by the Japanese longline fishery. a) Offshore and Distant water longline. b) Coastal longline after 1994. c) Coastal longline fishery before 1993. d) Small-scale coastal longline.

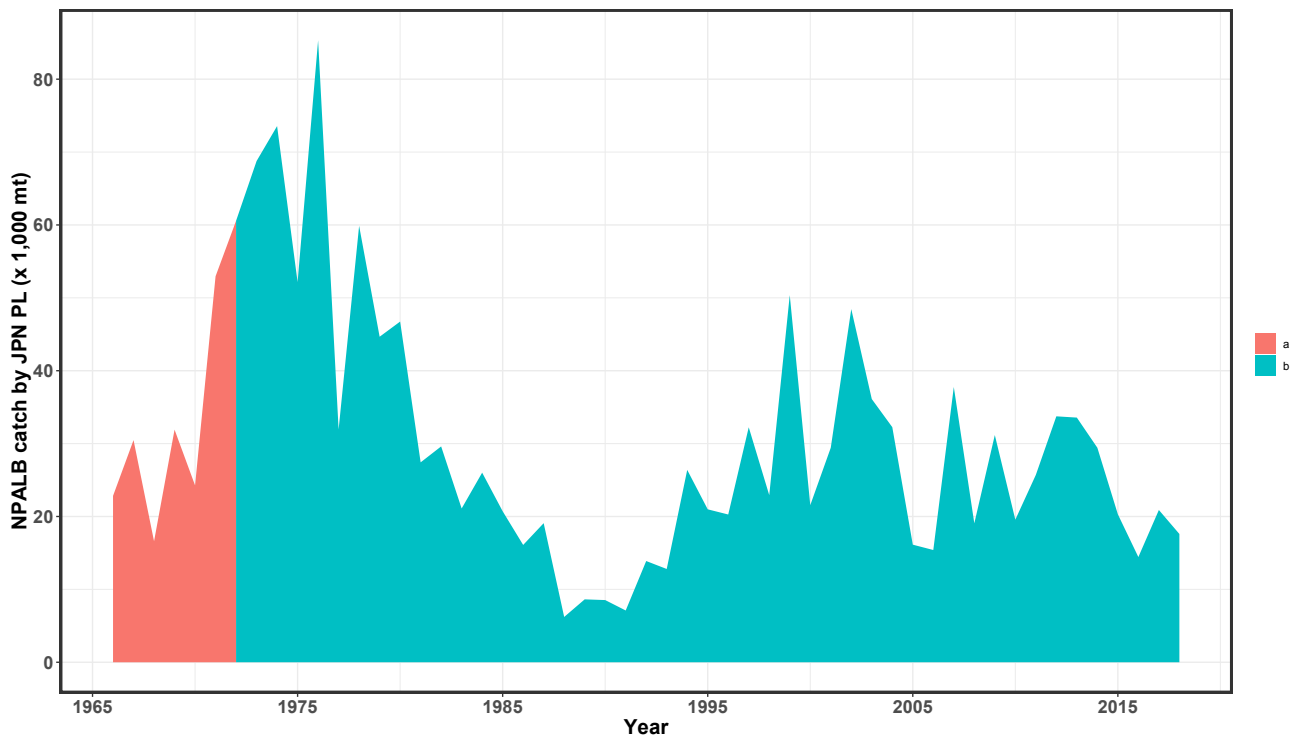


Figure 4. North Pacific albacore catch by the Japanese pole and line fishery. a) Number base logbook data is available. b) Weight base logbook data is available.

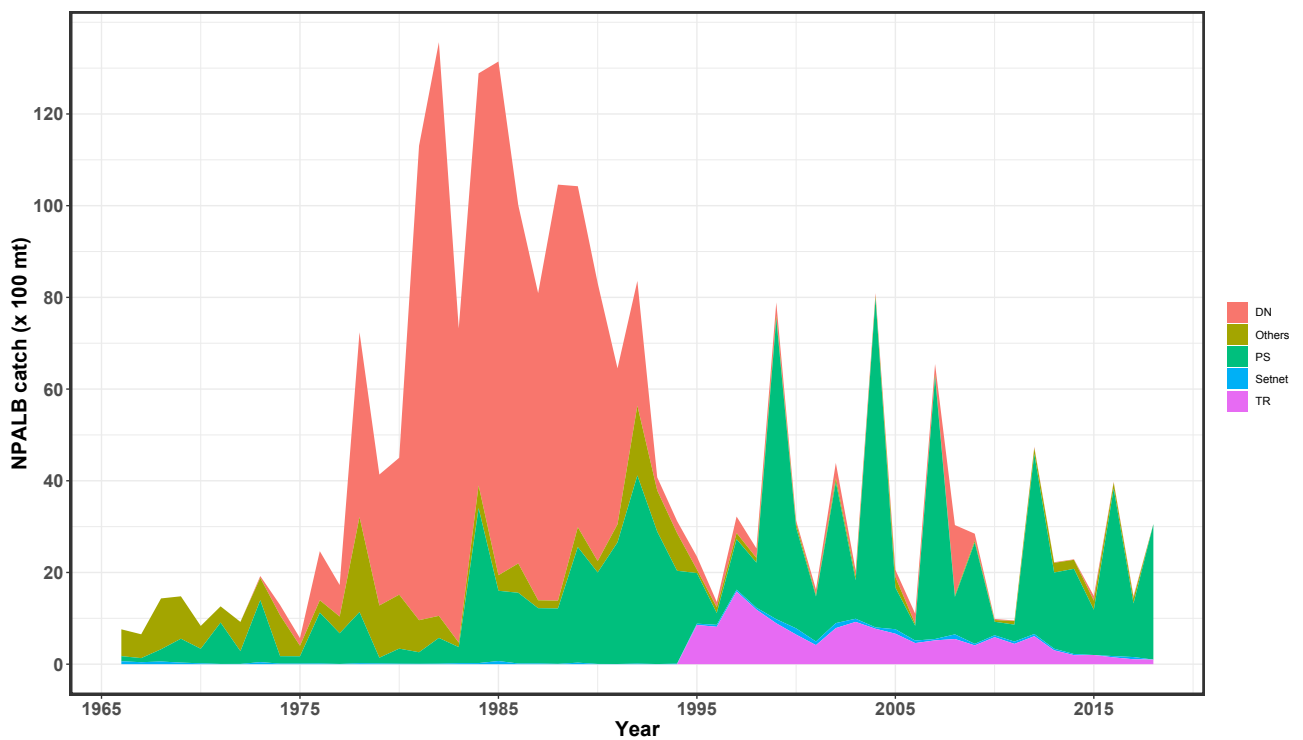


Figure 5. North Pacific albacore catch by the Japanese miscellaneous fishery