

ISC/24/ALBWG-01/02

The impact of Covid-19 on Japanese longline fisheries

Naoto Matsubara, Yoshinori Aoki, Makoto Nishimoto, Yuichi Tsuda and Hirotaka Ijima

Highly Migratory Resources Division, Fisheries Resources Institute,
Japan Fisheries Research and Education Agency (FRA)

2-12-4, Fukuura, Kanazawa-ku, Yokohama,
Kanagawa 236-8648, JAPAN

Email: matsubara_naoto84@fra.go.jp



Summary

This document is summarized on the impact of Covid-19 on Japanese longline (JPLL) fishery. The JPLL CPUE submitted in the previous stock assessment showed a sharp decline in 2020, followed by a sharp increase in 2021, and at a meeting in La Jolla, Albacore Working Group (WG) suggested Covid-19 impact on this change. To verify whether these sudden changes were due to Covid-19, interview research was conducted and further the change of effort from logbook data from 2019-2022 was confirmed.

The results of the interviews showed that seven out of ten fishing master responded that they were not changed by Covid-19. Two of the remaining three fishing master responded that fish prices had increased, and one fishing master responded that its fishing grounds were off Japan in 2020. The results from the number of data set of logbook showed that the number of data in 2020 was almost similar as in 2019, while the number of data in 2021 tended to be slightly less than in 2020. Efforts showed the slight decreasing trend as a whole, but no significant changes were observed. The efforts also showed a tendency to be concentrated and distributed around the nearshore area of Japan in 2020, and over certain level for effort were confirmed to be distributed around Area 2 in 2021. There was also the trend for albacore catch and CPUE to decrease significantly 2 in 2020, and increase sharply in 2021 around Area 2. At this point, no clear evidence was found from interviews or effort trends to suggest that Covid-19 had an impact on the artifact of changes in fishing operations.

Introduction

At the last WG meeting in La Jolla, USA, JPLL CPUE, the input data for the stock assessment, showed the trend of large decline in 2020 and a sharp increase in 2021. WG suggested that these trends could be due to the impact of Covid-19 on data collection and the artifact of changes in fishing operations.

Covid-19 has had a variety of impacts in terms of fisheries, suggesting a significant decrease in effort globally and a significant decrease in effort in coastal fisheries in Japan (He et al., 2021). Therefore, there are possibility that in JPLL fishery, the number of data measurements, fishing effort and fishing location may have changed as the result of human activity being restricted by Covid-19.

In this document, in order to assess the impact of Covid-19 on JPLL fishery, first Interviews were conducted with Japanese longline vessels to obtain basic information, such as vessel tonnage and fishing objectives, as well as any changes in fishing operation such as the mode of operation, fishing grounds and fish prices before and after Covid-19. After that, changes in the number of datasets in logbook and updated CPUE trends were verified to Covid-19 impact on data collection. To further confirm for the artifact of changes in fishing operations, changes in effort and operating position over time were verified based on the fishing effort

data.

Data and methods

Interview research

Interview research was conducted on Jul 10-13 in 2023 at Katsuura Port of Wakayama Prefecture. The interviews targeted longline vessels of 19 t or less that were in residence during the period of interview, and the fishing master were interviewed during the landing of their catch or when they were anchored for replenishment for water and foods after the landing was completed. The interviews were composed by basic information and question about Covid-19. As the basic information, we interviewed on vessel size and prefecture registry, annual schedule, operating position, targeting, bait type and fishing conditions in recent years, and as the impact of Covid-19, whether there had been any changes such as operating location, operating methods, fish prices and landing locations before and after Covid-19. Noted that we obtained the permission from each fishing master to interview, although we did not get the permission to describe detailed data, so this document only describes the answer of the changes before and after Covid-19, with no indication of who responded.

Logbook data

In order to check the changes of Japanese longline operations before and after Covid-19, longline logbook data from 1992-2022 were used. First we identified the number of latest logbook data, then we checked for changes the number of operation days and number of hooks as the effort and hpb (hooks per basket) as the factor of fishing operation. Finally, spatial changes in effort, catch, and CPUE before and after Covid-19 were confirmed.

Results and Discussion

We interviewed targeting 10 of 16 costal longline vessels anchored in the Port of Katsuura. There were some differences in targeting and fishing grounds among 10 vessels, but all vessels had the same tonnage, 19 t. The results of the interviews showed that seven out of ten fishing master responded that they were not changed by Covid-19. Two of the remaining three fishing master responded that fish prices had increased, and one fishing master responded that its fishing grounds were changed to offshore in Japan.

The number of latest logbook data on fishing effort was shown in Fig. 1. The number of data has been slightly decreasing since 1994. The number of data also decreased slightly in 2019-2020, before and after Covid-19, and these scale of changes are almost the same as the changes from 1994; the number of data decreases significantly from 2020-2022, especially in 2021 and 2022, which are historically low data years, but due to the rate of data input.

The annual changes of effort were shown in Fig. 2. There was a gradually decreased trend of effort as a whole. The hpb, which affects the depth of longline installation, has changed

little since 2011, and there were also no change from 2019-2022 before and after Covid-19. Also, the effort in quarter 2 at Area2 showed a slight decrease from 2019 to 2020 and no significant change from 2020 to 2021.

Effort, catch, and CPUE indicated spatial changes after 2019 (Figs. 3 and 4): from 2019 to 2020, effort, especially catch and CPUE were concentrated in Japanese coastal area, while decreased around Area2. In 2021, catch and CPUE were higher around Area 2, confirming that the change from 2020 was significant (Figs. 3 and 4). The spatial annual changes in hpb showed no significant change. These results suggest that changes in the distribution of albacore had a greater impact on CPUE than the distribution of effort.

In summary, from these preliminary results, no clear evidence of Covid-19 impact could be found at this stage, as most of the interviewed vessels indicated no Covid-19 impact and no significant annual changes of effort from logbook were observed before and after Covid-19. As the future plan, if further study of impact of Covid-19 is needed, interview research targeting offshore and distant water longline fisheries which account for the major longline catches, is effective.

References

- Nishimoto, M., Ijima, H., and Tsuda, Y. (2024). Additional Japanese longline logbook data analysis for adult albacore tuna CPUE. ISC/24/ALBWG-01/XX
- He, B., Yan, F., Yu, H., Su, F., Lyne, V., Cui, Y., and Wu, W. (2021). Global fisheries responses to culture, policy and COVID-19 from 2017 to 2020. *Remote Sensing*, 13, 4507.

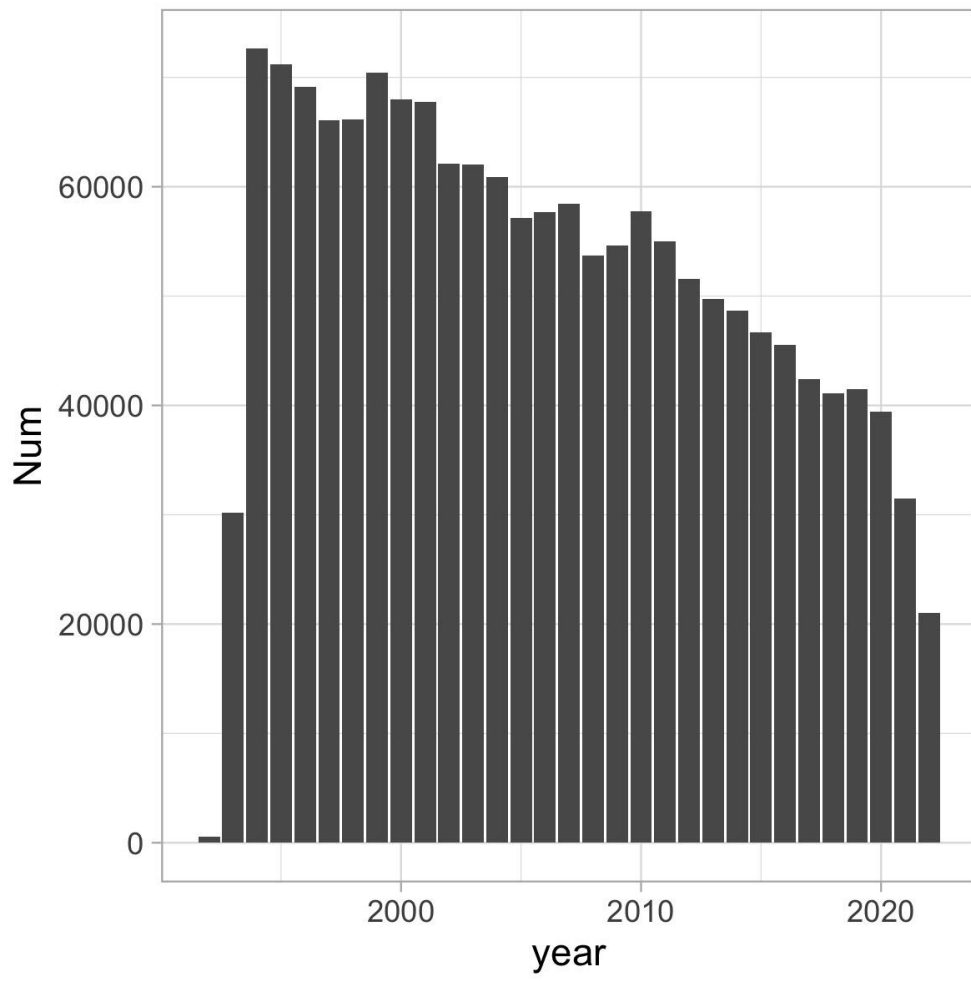


Figure 1. Annual change of the number of dataset from logbook

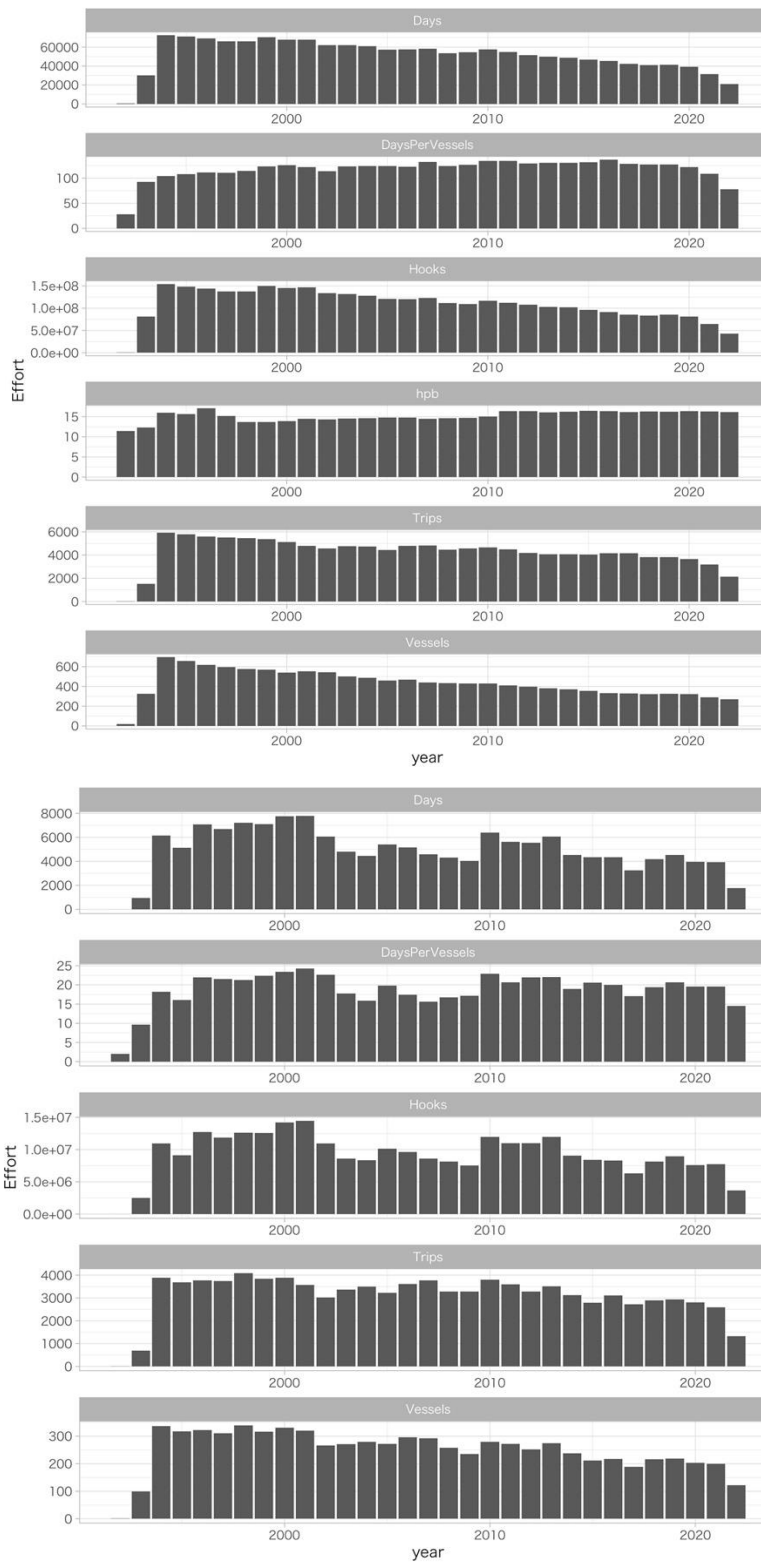


Figure 2.

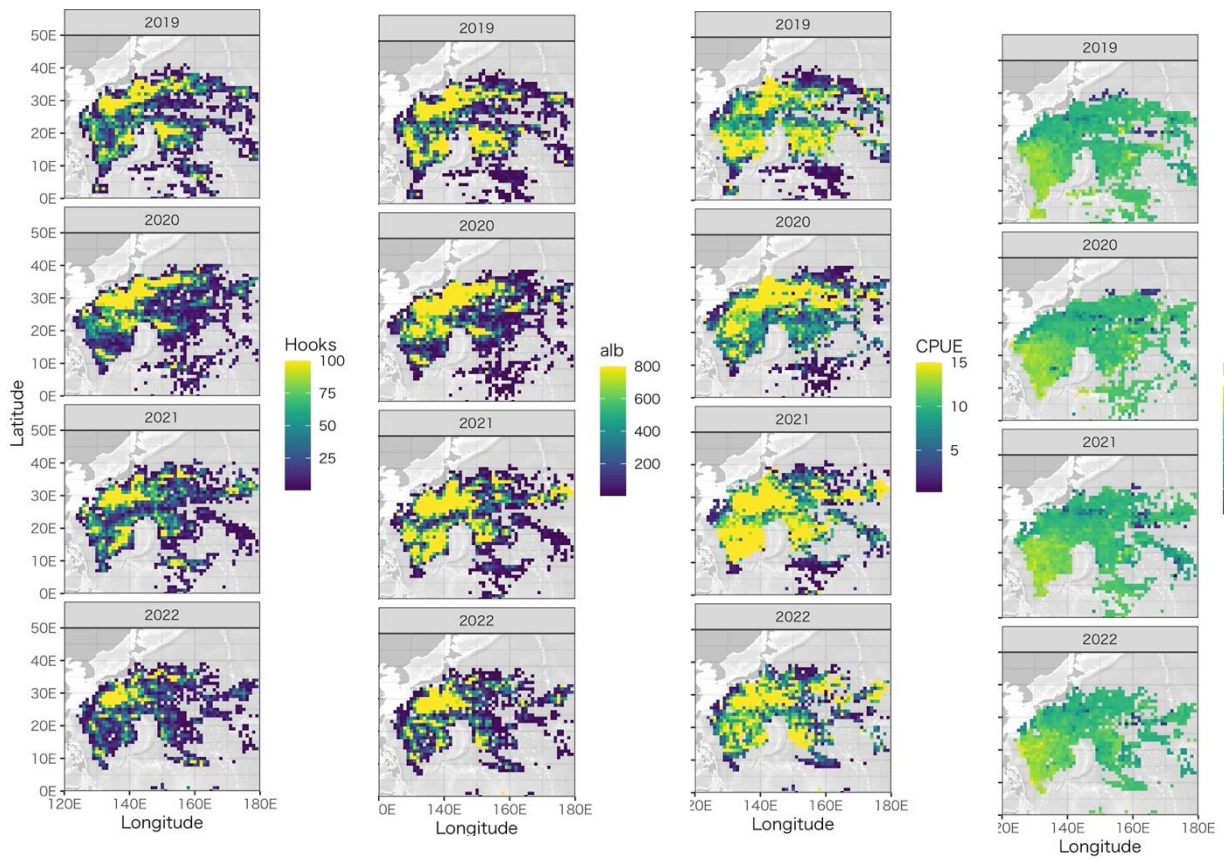


Figure 3.

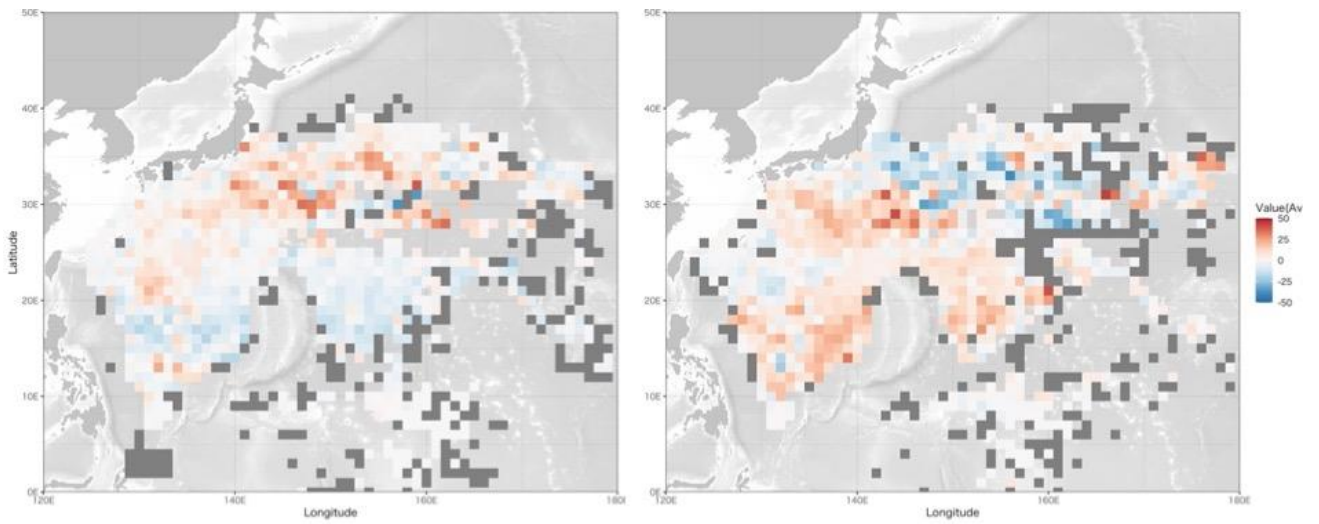


Figure 4. 2019-2020,2020-2021