

Splendid Alfonsino Species Summary

NPFC Bottom Fisheries Small Working Group

2021-06-30

Splendid Alfonsino (*Beryx splendens*)

Common names: (Chinese); (English); Splendid Alfonsino (Japanese); (Korean); (Russian)

Biological Information

Global distribution ranges from tropical to temperate oceans. Historical catch records in the Emperor Seamount suggest the distribution from Nintoku (45 °N) to Hancock (30 °N). Settlement occurs following a certain period of the pelagic life stage. Adults show a vertical distribution from 200 to 800 m with diel vertical migration, feeding on crustaceans, cephalopods, and fish during the night. Limited information is available for recruitment and reproduction processes in the Emperor Seamounts, whereas the population in the Japanese coast shows 4–5 years to sexually mature and spawning occurs during summer.

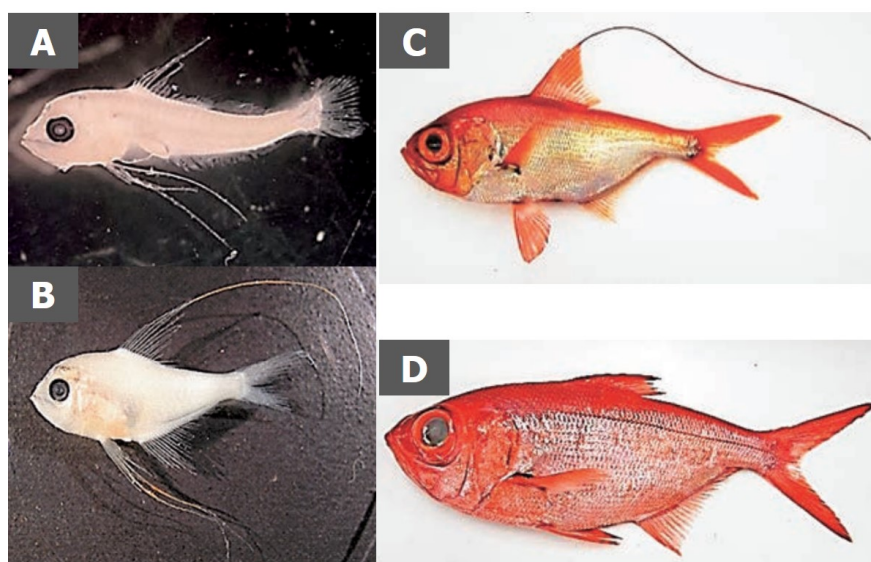


Figure 1: **Figure 1: Photographs of *Beryx splendens*.**
A) postlarva, B) juvenile, C) young, D) adult (from Watari et al. 2016)</br>

Fishery

Since the discovery of large populations of North Pacific Armorhead (NPA) in the Emperor Seamount in the late 1960s, SA has been exploited as an alternative resource to NPA due to the large temporal fluctuation of the NPA population. The main fishing methods are bottom trawls and gillnets.

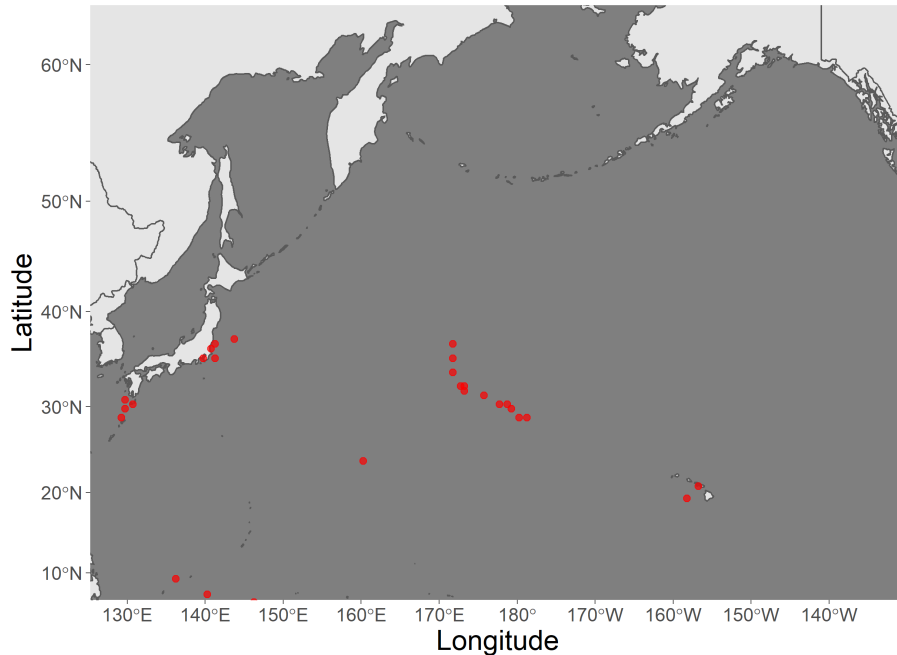


Figure 2: **Figure 2: Known distribution of *Beryx splendens*.**
Points indicate observation data from original sources (AquaMaps 2019, October)</br>

Historical catch record (Figure 3) shows the highest catch proportion by Japan, followed by Korea and Russia. Russia terminated their fishery nearly a decade ago. Fishing pressure somewhat reflects the recruitment condition of NPA. In 2010 and 2012, when high recruitment of NPA occurred, the annual catch decreased below 1,000 tons, whereas it increased up to 4,000 tons ever since then.

Size composition analysis from the catch data by Japanese trawlers suggests the substantial decrease in size of fish in catches over the past decade, raising the concern about recruitment overfishing.

Assessment

There are no biomass estimates available for SA in NPFC waters.

An age- or length-structured stock assessment may be feasible given the life history SA (citation for more information). Surplus production models developed by Japan in 2008 showed that the average fishing mortality is 20–28 % higher than the MSY level. This analysis, however, remains unreliable as the estimated CPUE is biased due to target shifts between NPA and SA and the estimated intrinsic population growth rate parameter was too high for long-lived deep-sea fish.

Data limited approaches, such as YPR or SPR analysis that do not require detailed resource parameters or fishing data, should be explored in the future.

Management

Active Management Measures

The following NPFMC conservation and management measures pertain to this species:

- CMM 2019-05 For Bottom Fisheries and Protection of VMEs in the NW Pacific Ocean

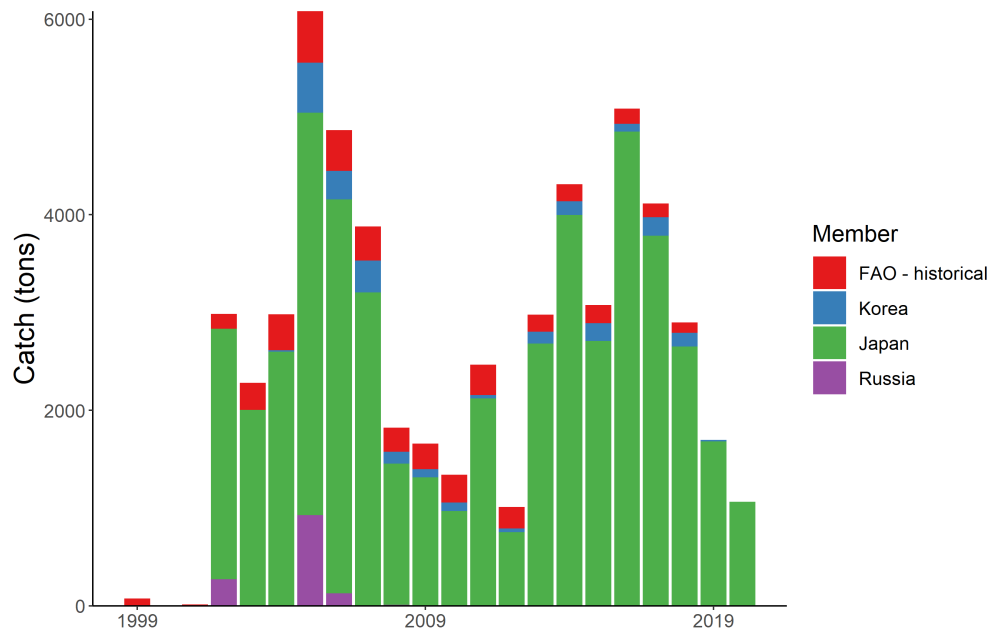


Figure 3: **Figure 3: Catch trends of splendid alfonsino over the past two decades.** The annual amounts of catch for alfonsino by each Member are shown by the bar plot.

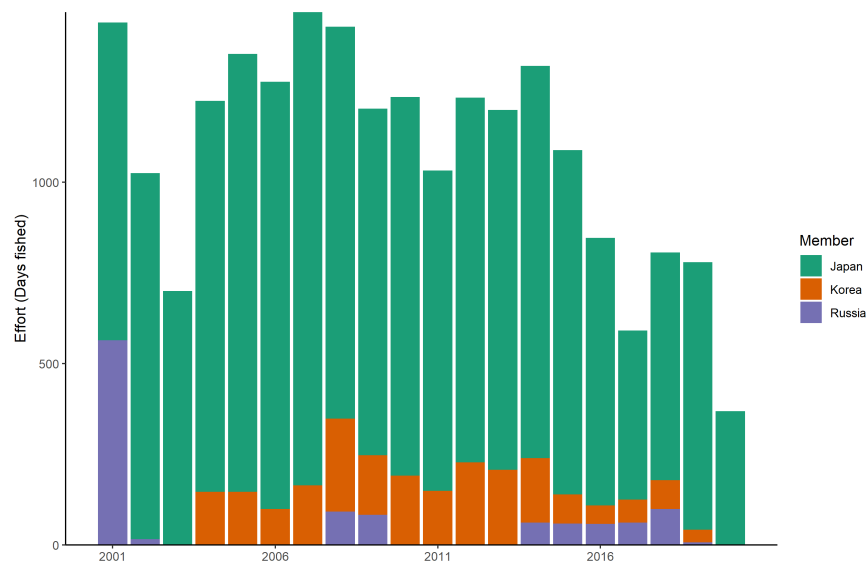


Figure 4: **Figure 4. Historical fishing effort for Splendid Alfonsino.**

- CMM 2019-06 For Bottom Fisheries and Protection of VMEs in the NE Pacific Ocean

Available from <https://www.npfc.int/active-conservation-and-management-measures>

Currently, there is no accepted harvest control for this species.

In 2016, the interim management measures were implemented, which includes limiting the fishing effort to the 2007's catch level, prohibiting fisheries from November to December (which corresponds to the spawning season for NPA) and not allowing fisheries in C-H Seamount and the southeastern part of Koko Seamount (for the protection of VMEs).

In 2019, an adaptive management plan was additionally adopted, which includes the regulation of the mesh size (trawl: > 10 cm, gillnet: 12 cm) to protect juvenile fish. Still, this measure is insufficient as the substantial catch of young fish has been reported by trawlers even after being implemented.

Data Summary

References

AquaMaps 2019, October (add citation for map here)

FAO. (2016). Global review of Alfonsino (*Beryx* spp.) their fisheries, biology, and management. In *Food and Agriculture Organization of the United Nations* (Vol. 1084, Issue 1084). <http://www.fao.org/3/a-i5336e.pdf>

Sawada, K., Nishida, K., Yonezaki, S., Kiyota, M., & Review, M. (2018). *Review of biology and fisheries of splendid alfonsino Beryx splendens , especially in the Emperor seamounts area by April 2018 This paper may be cited in the following manner: NPFC-2018-SSC BF01-WP03 Review of biology and fisheries of splendid alfonsino.*

Watari et al. 2016 (add citation information here)