Review of chub mackerel fishery in China and research activities

China
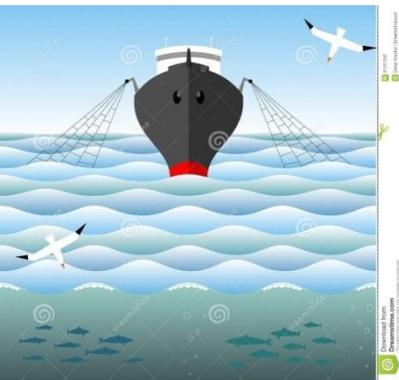
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1. Introduction

Chub mackerel (*Scomber japonicus*) widely distributes in the Pacific Ocean.

Specially, the North Pacific Ocean and East China Sea are both important fishing ground areas for this population.

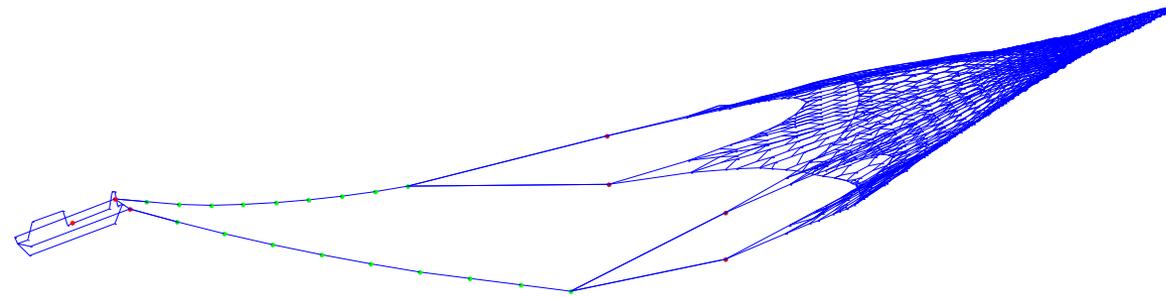In East Asia, Chub, Korean and Chinese people like to eat this fish.

light-purse seine

Now, Two types of fishing nets operated in this fishery including the light-purse seine nets(>95%) and pelagic trawl nets(<5%).
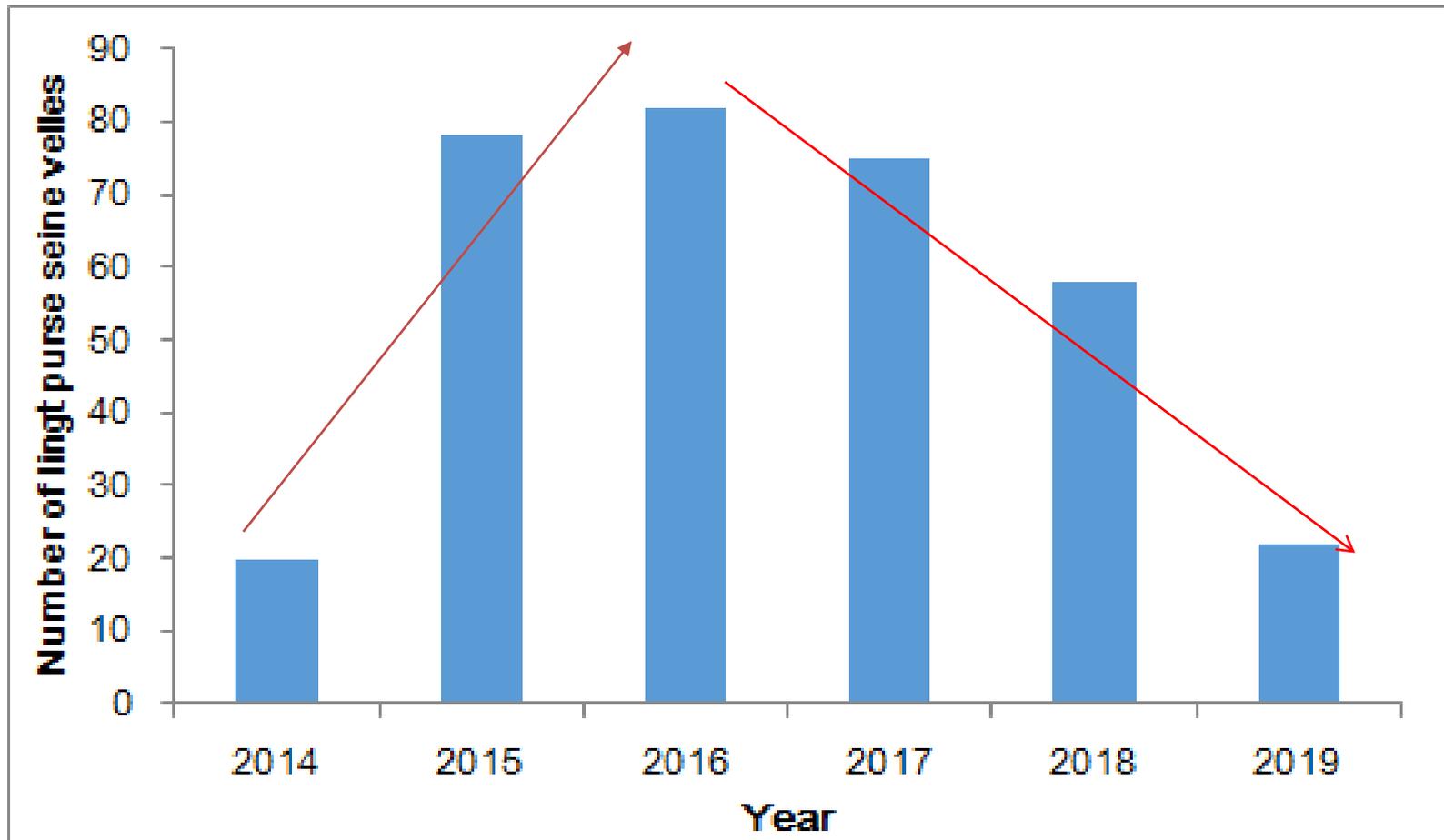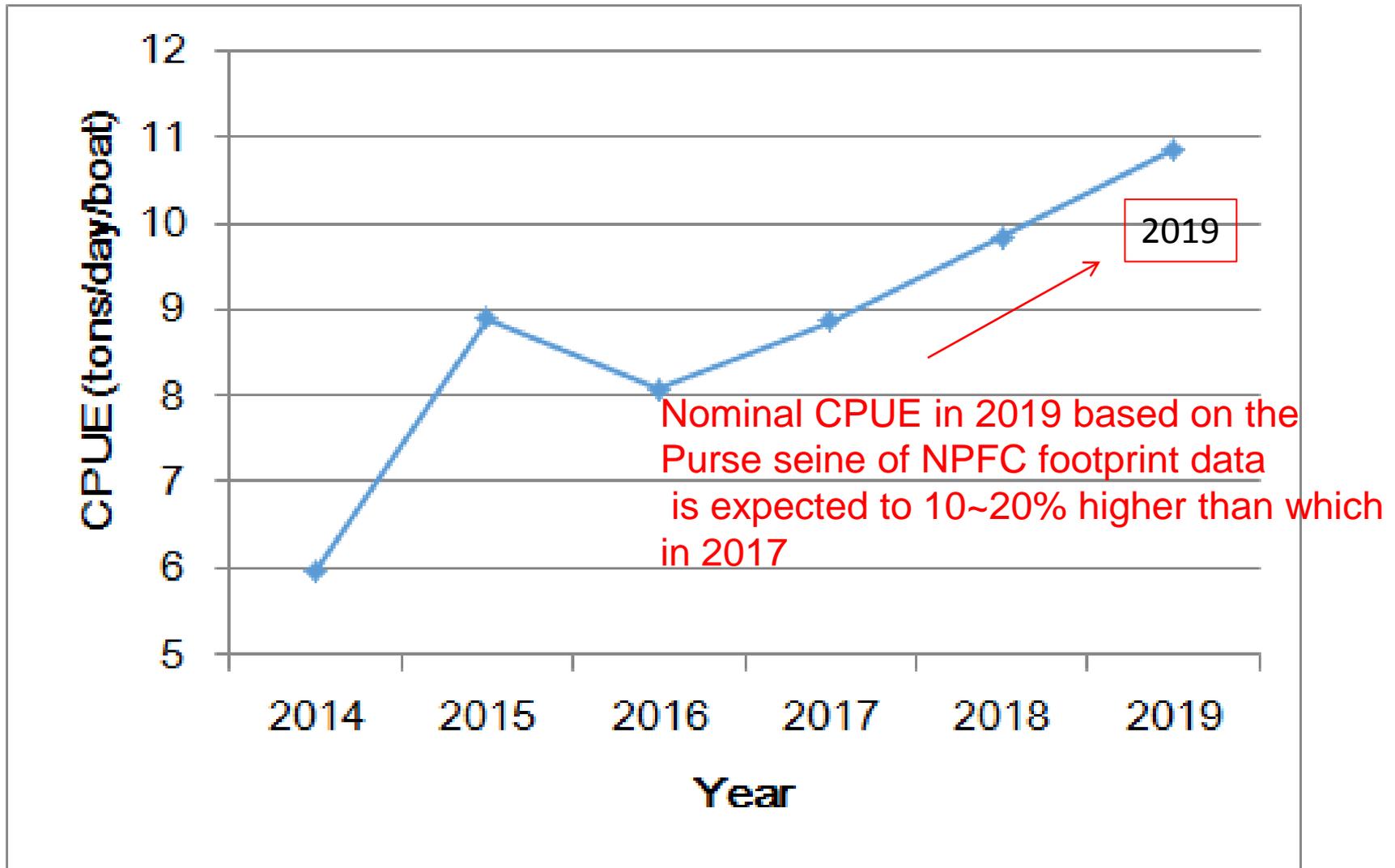
trawl nets   **Pelagic trawling**

From one to three trawl vessels every year were operated in NPFC areas. In 2019, Three vessels seasonally catch the chub mackerel fishery in the NPFC areas.

2. Description of chub mackerel fishery in China in North Pacific ocean

Fishing effort

Nominal CPUE in 2019 based on the Purse seine of NPFC footprint data is expected to 10~20% higher than which in 2017
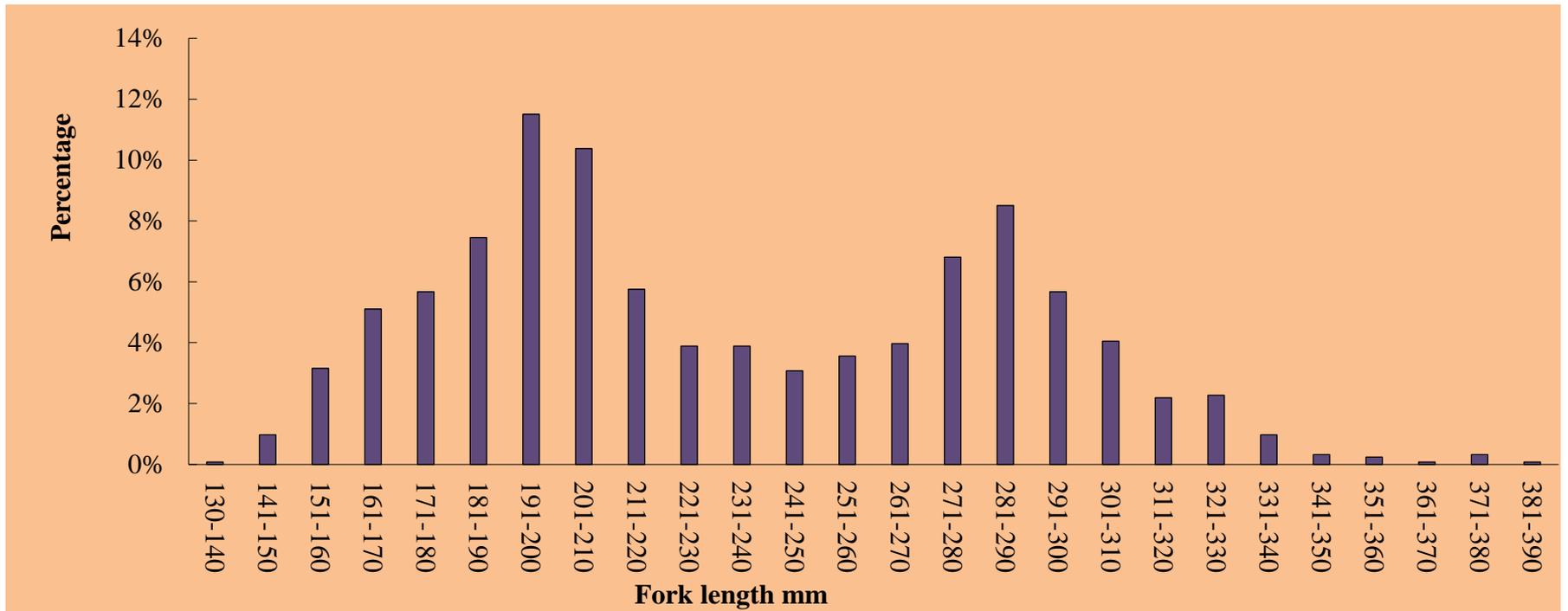
To some extent, this nominal CPUE maybe proves that the resources of mackerel have recovered in recent years.
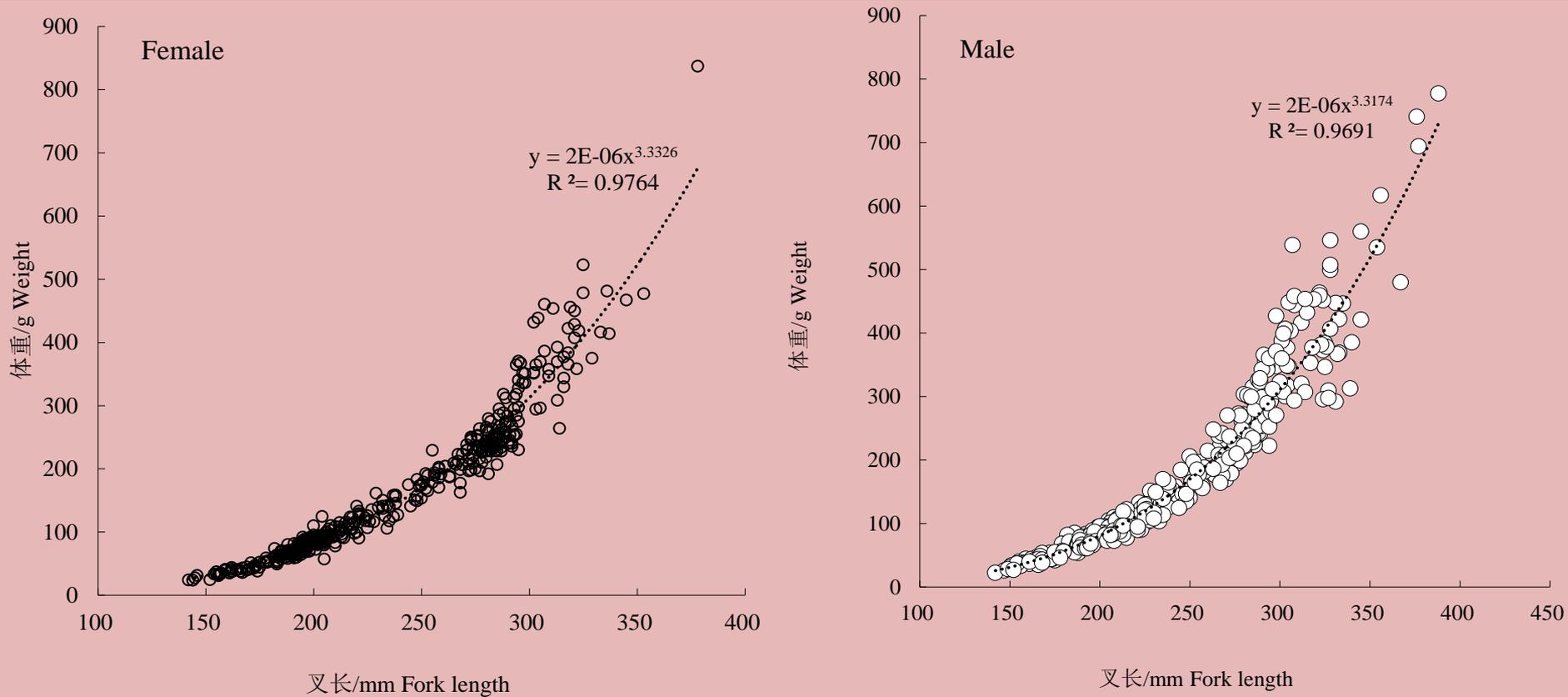
3. Fisheries data collection and research activities

- 1)Population biology

We collected 2045 samples in 2016-2019.

Fork length range from 140mm to 400mm, dominant length size is 190~220 mm and 270~310mm

- ## 2)Relation between weight and fork length

- Length and weight of mackerel in the north Pacific Ocean are in power function relation, as shown in the figure. The relation between the length and weight of mackerel is obtained by regression fitting. Female:W_{L1}=2E-06$L^{3.3326}$（n=418,R2=0.9764）; Male :W_{L2}= = 2E-06$L^{3.3174}$（n=437,R2=0.9691）。
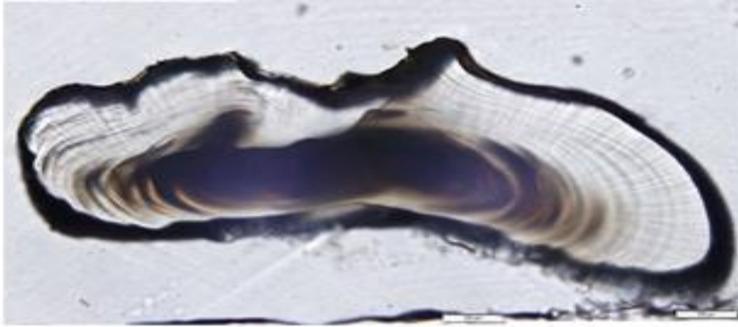
- 3)Feeding level
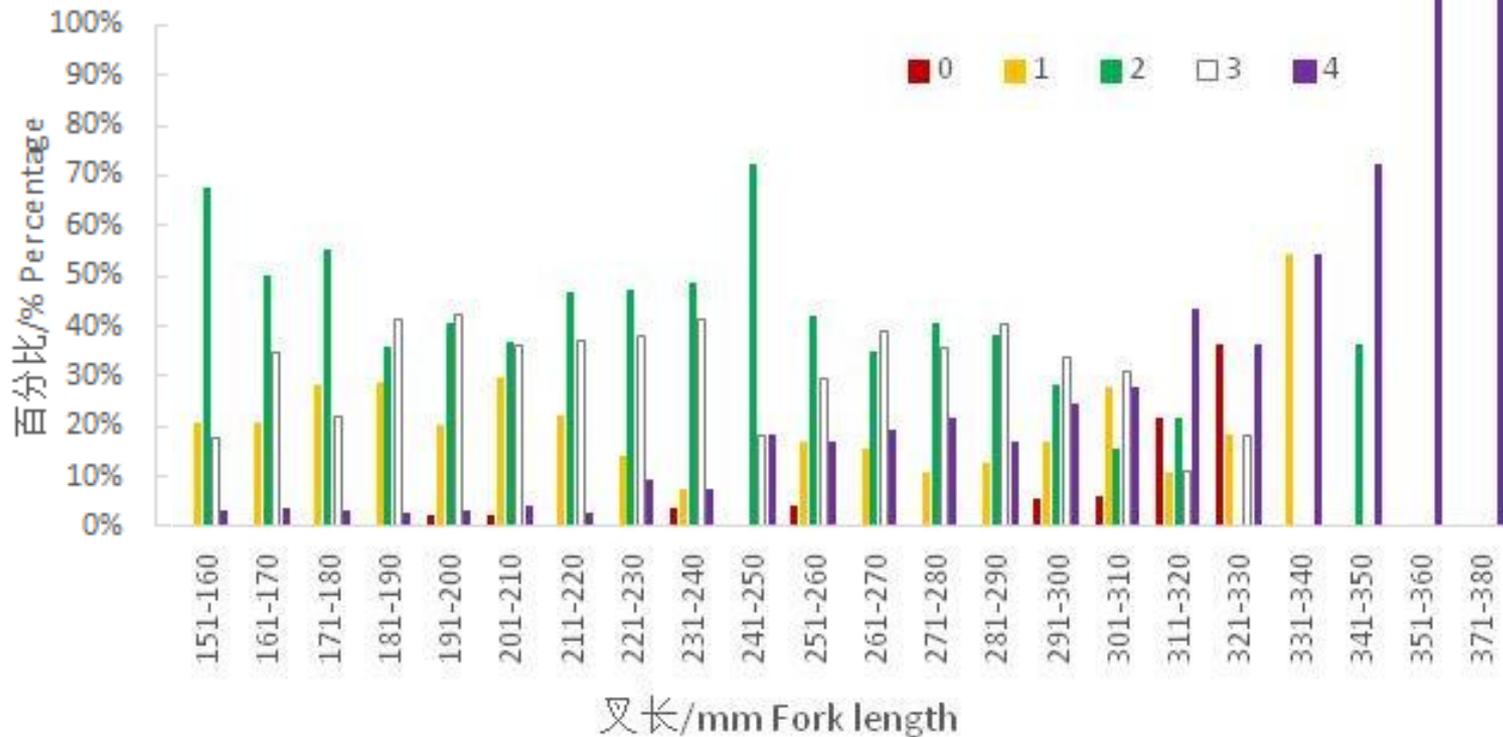
Larger individuals' (fork length >300mm) feeding level is higher than that in the small fishes

- 4)Age identification

191mm, 0+, 12th,2017

234mm, 1+, 12th,2017
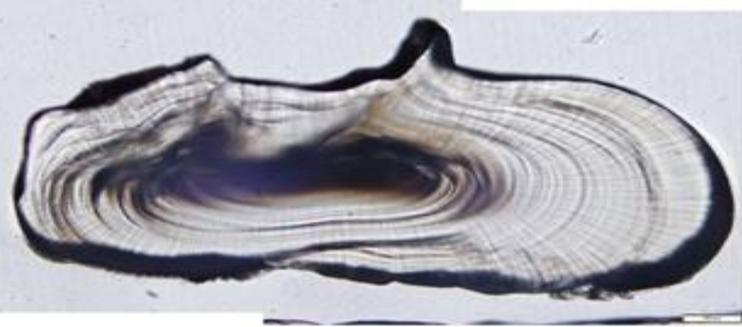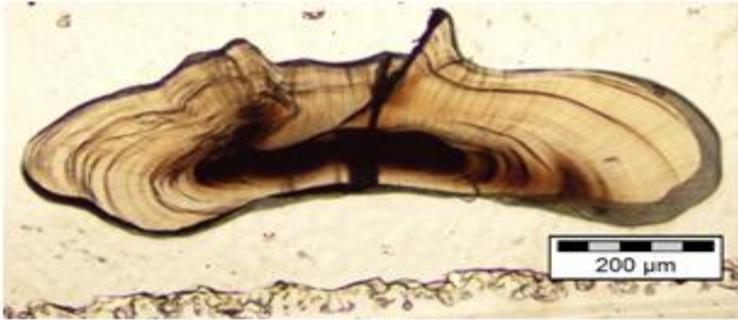
244mm, 1+, 12th,2017

235mm, 1+, 12th,2017
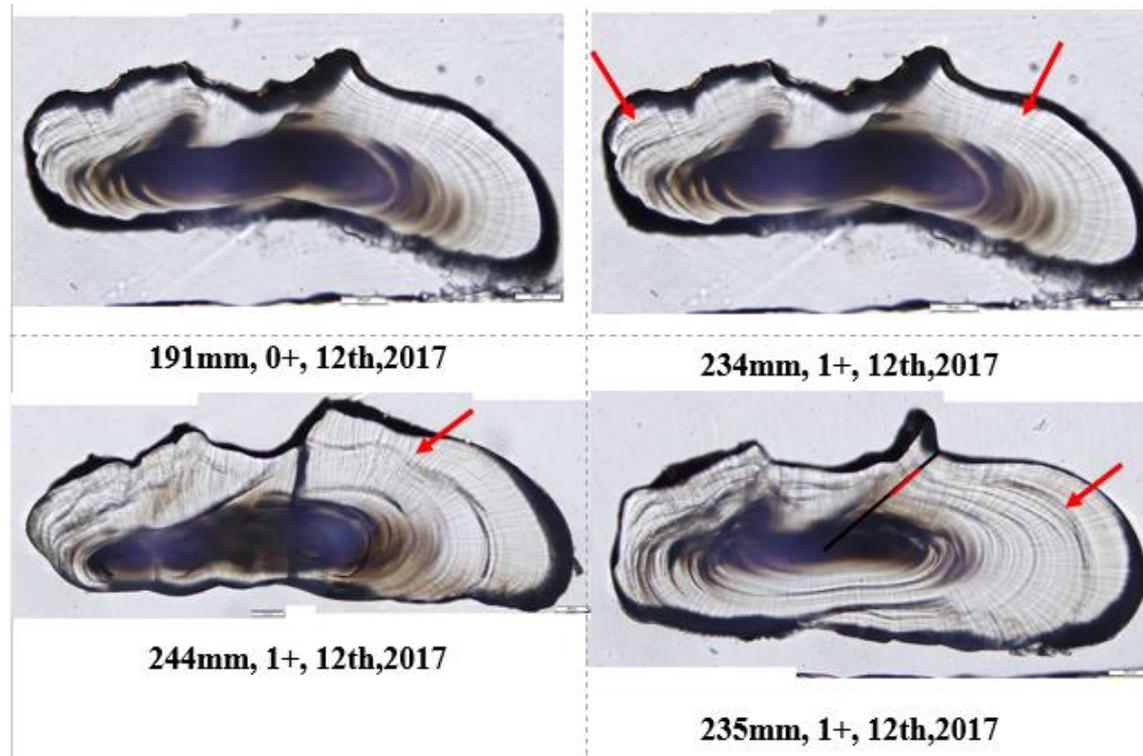
- Otoliths and age identification

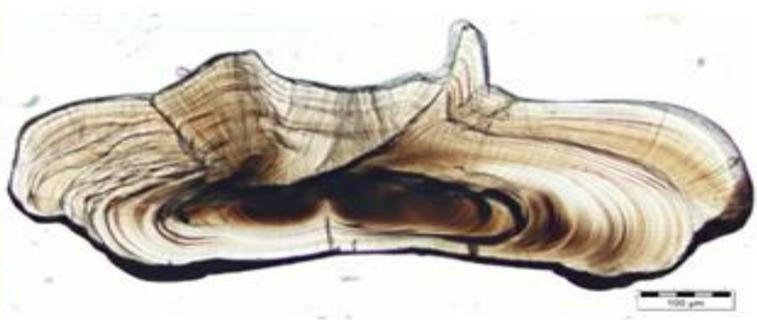- In December, 2017 and April- December, 2018, we collected 288 samples to conduct the age identification

FL=191mm, Age=0+ · · · · · · · · · · · · · · · FL=235mm, Age=1+

FL=278mm, Age=2+ · · · · · · · · · · · · · · · FL=309mm, Age=2+

FL=321mm, Age=3 · · · · · · · · · · · · · · · FL=326, Age=4+
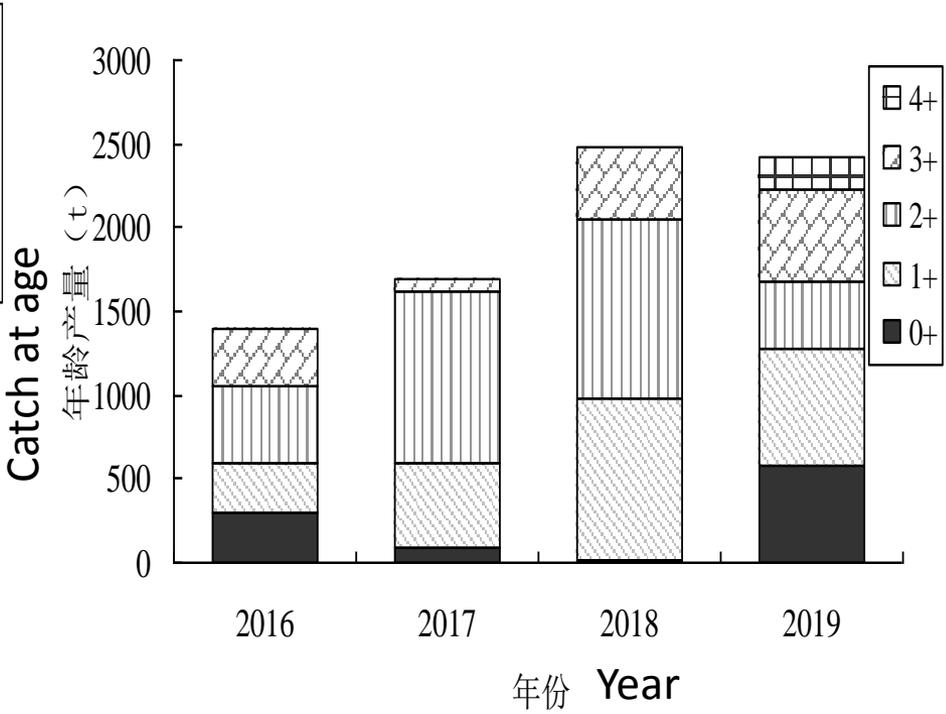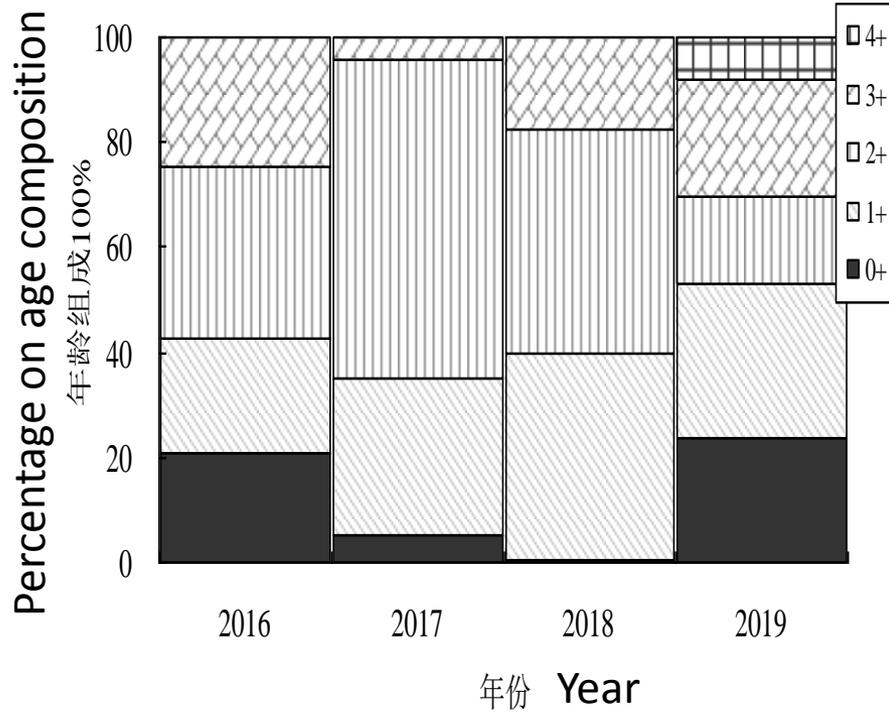
In 2019, the distribution of individual fork length of 2+ years was 220-300mm, and the group size of 240-260mm was dominant. The distribution of individual fork length of 3+ years was 280-340mm, and the dominant group was 300-320mm. The distribution of individual fork length of 4+ years was 300-340mm. No samples were collected from individuals 5+ years of age.

- Age composition of Chub mackerel in the high seas of the north Pacific ocean was analyzed. In 2019, 0^+ accounted for 24%, 1^+ for 29%, 2^+ for 17%, 3^+ for 22% and 4+ for 8 % of Chub mackerel caught in the north Pacific Seine. Compared with the results on the 2016-2018, the proportion of 0^+ is relatively increased, which may be caused by sampling error. The proportion of more than 3^+ individuals increased significantly.

5)Research activities and training

◆Collection and analysis of fishing logbooks every year

◆Research Specialist Staff went to fishing vessels or in the ports to collected the samples data

6)Research activities and training

Technical Group of Mackerel Fish every year training fisheries knowledge for fishermen and enterprises.

4. Future research of Chub mackerel fishery

➢ Strengthening the Collection of Fishery Biological Data

➢ In-depth study on mackerel otolith in the high seas

➢ Data collection for assessment of mackerel resources

5. Overall Conclusions

✓ Dominant length size of chub mackerel is 190~320 mm. The age structure dominant from 1^+ to 3^+ in the High Seas.

✓ China's fishing scale of chub mackerel fishery was stable (in 2018) or decreasing (in 2019)

✓ Resources of chub mackerel is gradual stable which showed in the nominal CPUE.

- Thank you very much!