Study on individual biology and resource development status of Acetes chinensis in Bohai Bay

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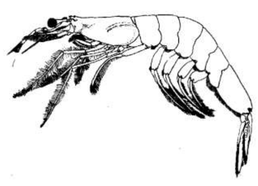
Background

- The decrease in the population of Acetes chinensis may lead to the outbreak of phytoplankton such as algae, and the outbreak of population may have a **great impact on the composition of offshore fishery resources**.
- In this study, based on **ELEFAN** and **yield per-recruit model**, the development status of Acetes chinensis resources in Bohai Bay was studied.
- However, **the age data** are required for the **general yield per-recruit model**, and the age data of Acetes chinensis are difficult to obtain.
- The unit recruitment model based on **body length structure** can **well estimate** the unit recruitment of Acetes chinensis.



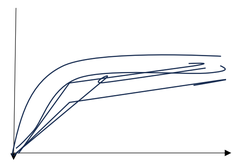
Obtain biological data

Weight and length

ELEFAN → **K** L_∞ t0

yield per-recruit model with body length as structure

YPR



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In this study, the evaluation of resource status was realized by R software and **yield per-recrui** model.

Method&Results

Data source Sea area

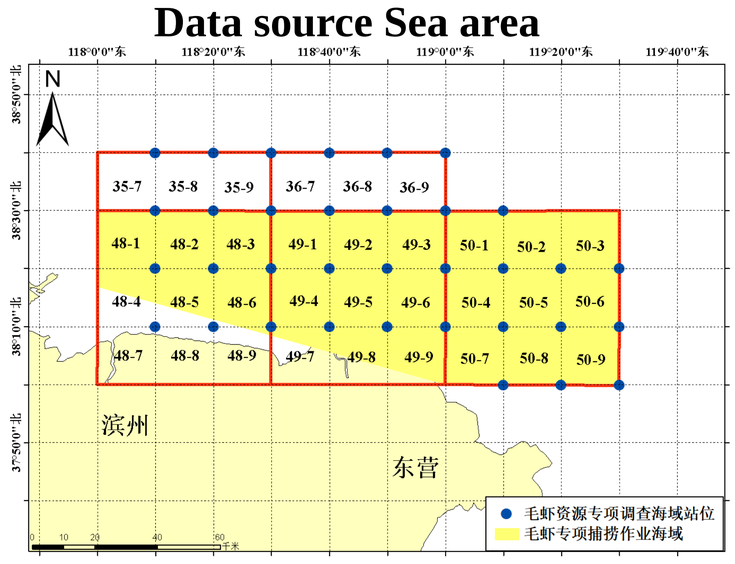


Fig. 1. Survey area display, a total of 34 survey stations, 4 sea areas

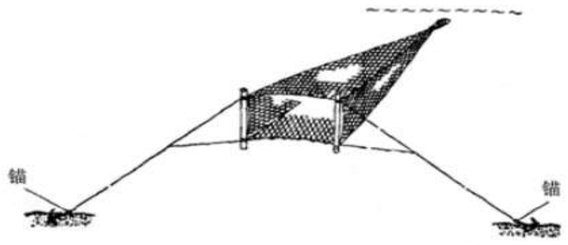
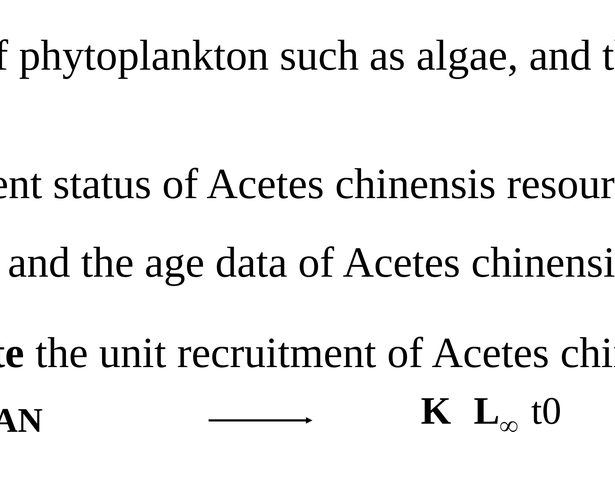


Fig.2.Sample acquisition of Acetes chinensis was obtained by double anchor vertical bar trawling.



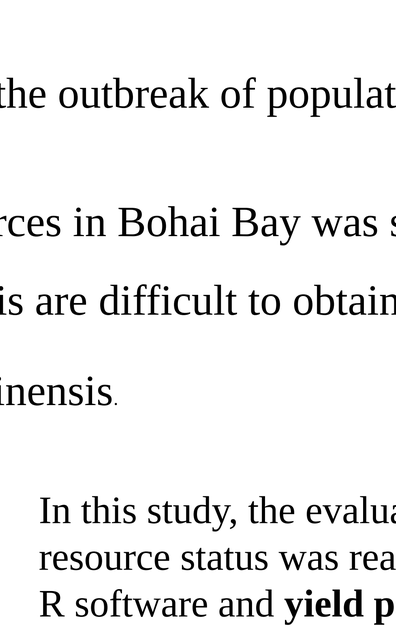


Fig. 3 Fitting growth curve of Acetes chinensis in Bohai Bay

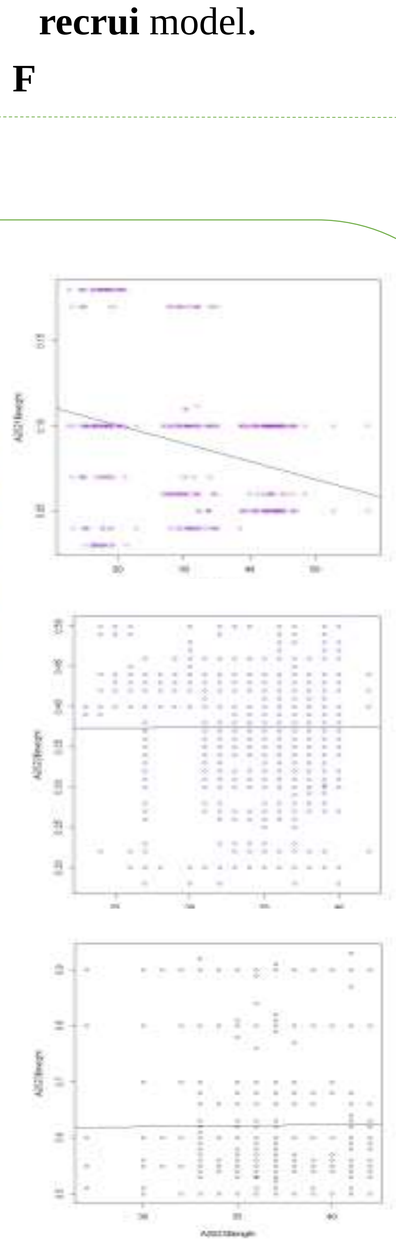
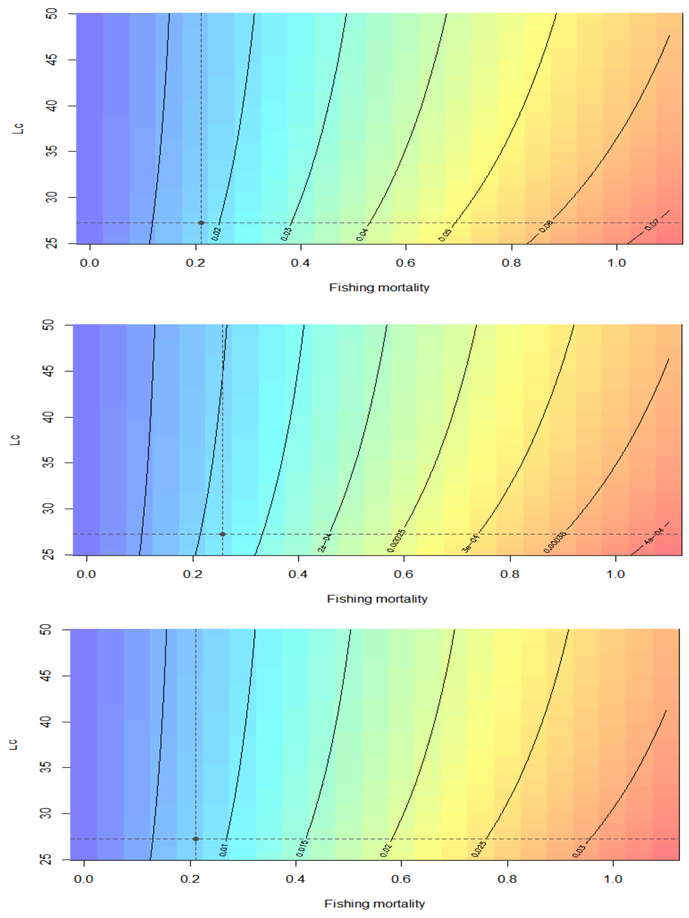


Fig. 4-6 Growth curve of Acetes.chinensis population in Bohai Bay from 2021 to 2023



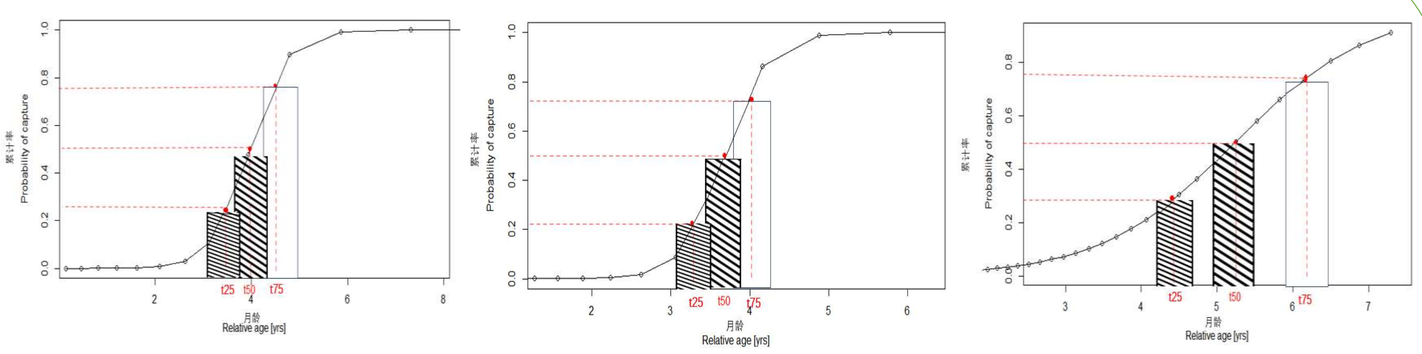


Fig. 7-9 Logsitic fitting curve of capture probability of Acetes Chinese in Bohai Bay

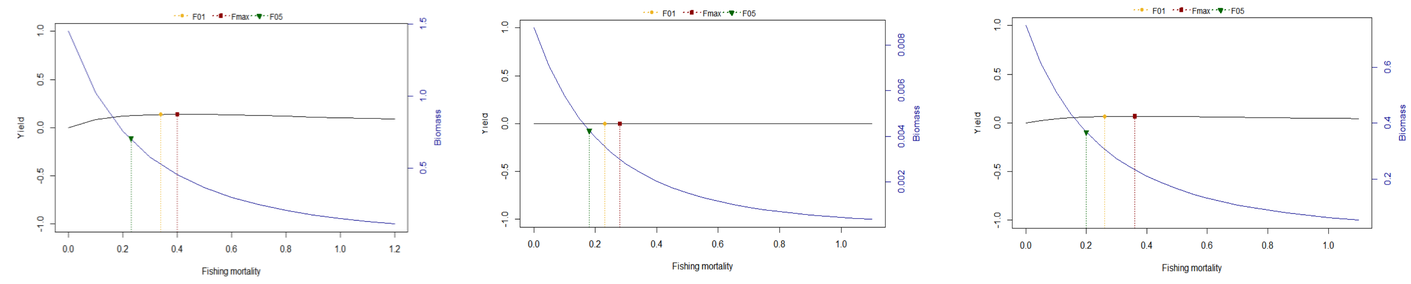


Fig. 10-12 Curves of yield per-recruit and biomass of Acetes chinensis population in Bohai Bay

Conulsion

Resources of Acetes chinensis in the Bohai Bay have not yet been overexploited, and the catchable length of Acetes chinensis in the Bohai Bay is too low. The yield per-recruit increased with the increase of fishing pressure, reached the peak when reaching the maximum fishing pressure, and then decreased with the increase of fishing pressure.