

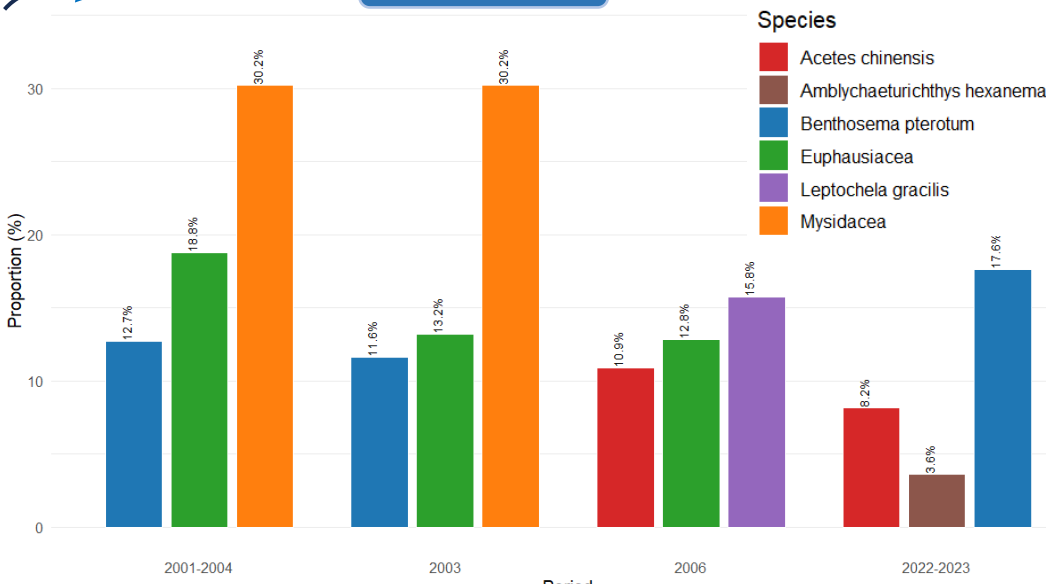
Intorduction

- Many economical important marine species declined due to climate change and human activities. The yellow croaker (*Larimichthys polyactis*) is a critically important fishery resource in Asian waters.
- Whether the yellow croaker has rapidly adapted its dietary preferences to these shifts, thereby sustaining its relatively stable population are remains unstudied.
- Understanding how this species adapts to dynamic marine ecosystems is of significant interest to both ecological research and fisheries management.

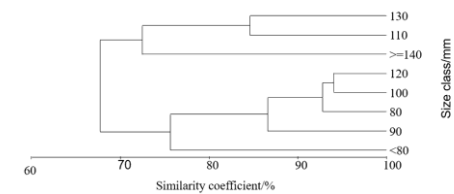
Methods

- Stomach content analysis: 487 samples from 2022-2023**
- Cluster analysis**
- Canonical Correspondence Analysis (CCA)**

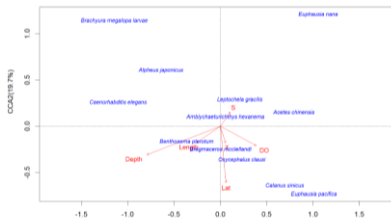
Results



The proportion of the main bait of yellow croaker in different periods in the East China Sea



Cluster analysis of small yellow croaker diet composition in each size class



CCA ordination diagrams of composition of yellow croaker and explanatory

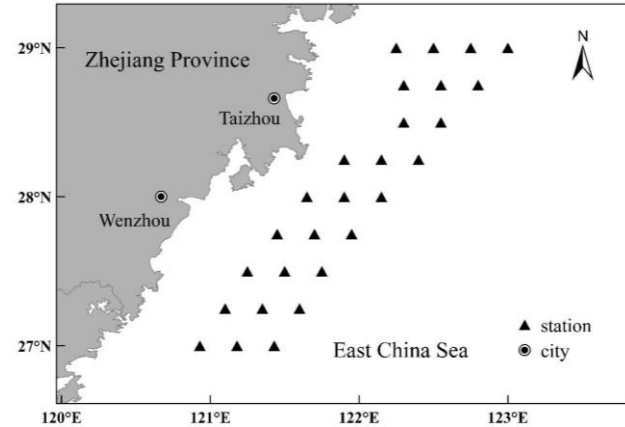
- The dietary shift of yellow croaker indicated that it can **rapidly adapt to shifts in prey community structure**, optimizing their energy acquisition to sustain population stability;
- CCA revealed that depth demonstrated the highest correlations with the prey composition of yellow croaker. In deeper waters, the species showed a preference for higher consumption of *B. pterotum*.

Conclusion

- The dominant prey of yellow croaker has shifted from mysida and krill to *B. pterotum* which reflects its **adaptive capacity** to adjust feeding strategies in response to environmental shifts in southern Zhejiang waters.
- Beyond changes in maturity and growth rate, the **shift in feeding habits** has also contributed to the specie's adaptation to changing environment.
- Such adaptability underscores its **ecological resilience** and provides critical insights for future fisheries management.

Data sources

Study area



Survey stations in the southern coastal waters of Zhejiang

Data

- Fishery independent survey; Bottom trawl;
- Historical dietary information of yellow croaker from 2000 to 2021;
- Historical marine survey record from 2022 to 2023

Dietary Shift

mysida and krill (historical)

Benthosema pterotum (2022-2023)

Yellow croaker (*Larimichthys polyactis*)

- a sustained decline in crustacean prey (mysida and krill) and **an expansion of small fish** (primarily *Benthosema pterotum*);
- By 2022–2023, *B. pterotum* surged to 17.6 %, surpassing all crustaceans for **the first time as the primary prey**;
- Fishing Policy: mesh size regulation** (≥ 5 cm) protected *B. pterotum* (max length 3.5 cm), promoting its rapid population expansion.
- Climate change**: rising sea temperatures have driven *B. pterotum* **shifted northward**, increasing distributional overlap with yellow croaker in southern Zhejiang coastal waters; **enhanced prey survival** and reproduction, increased *B. pterotum* biomass availability as prey.

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