

Ecological characteristics of phytoplankton community in the East China Sea

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- 1、 Research methods -

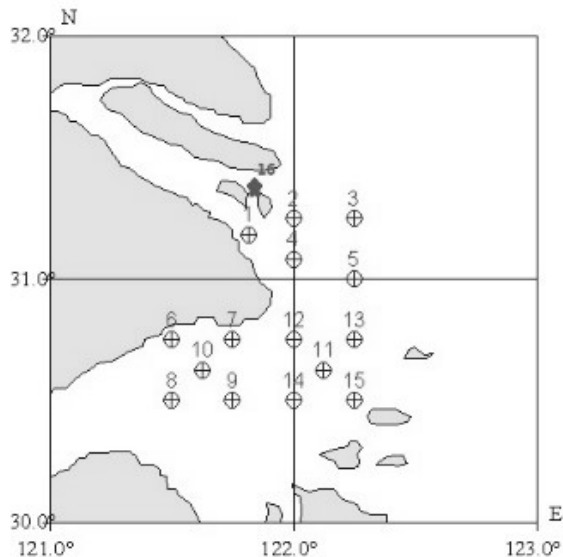


Fig.1 Survey stations

Yangtze Estuary Fishery West(I) : 1-5
Hangzhou Bay pomfret spawning
grounds(II) : 6-10
Zhoushan Fishery West(III) : 11-15



Fig.2 Survey methods

According to *specifications for
oceanographic survey*

Data analysis

1. Phytoplankton advantage

$$(Y) : Y = \frac{n_i}{N} \cdot f_i$$

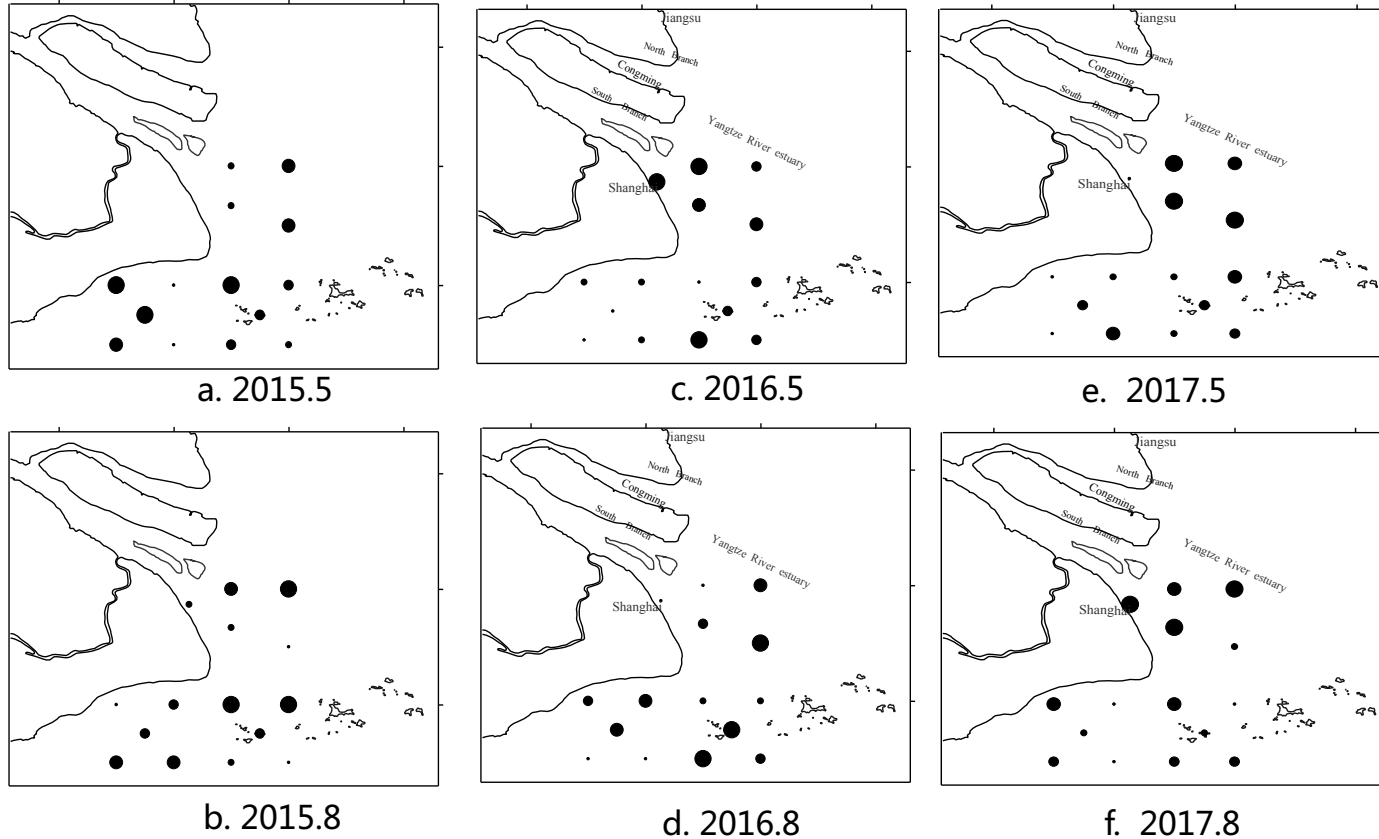
$Y \geq 0.01$ are the advantage
species

2. Biodiversity

3. Multiple analysis

- 2、 Result -

2.1 Phytoplankton abundance distribution and diversity



Diversity

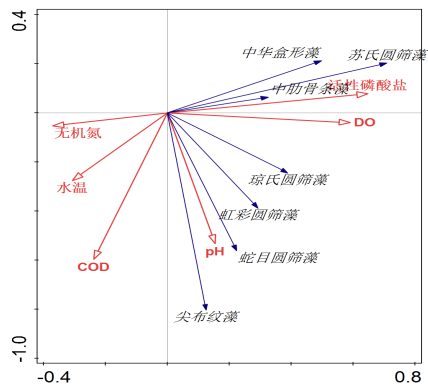
A total of 78
phytoplankton
were collected.

Phytoplankton
diversity index:
 $\text{II} > \text{III}$ and I in
2015;
 $\text{I} > \text{III} > \text{II}$ in
2016 and 2017

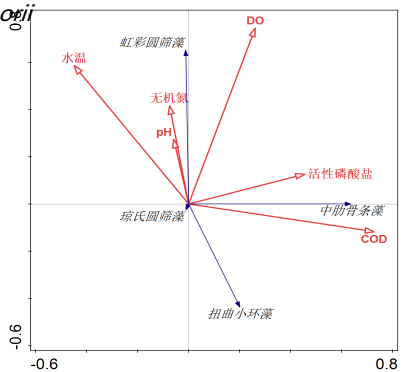
Fig.3 2015-2017 the abundance of phytoplankton in the investigate sea
(unit : $\text{cell}\cdot\text{m}^{-3}$)

2.2 Redundancy analysis

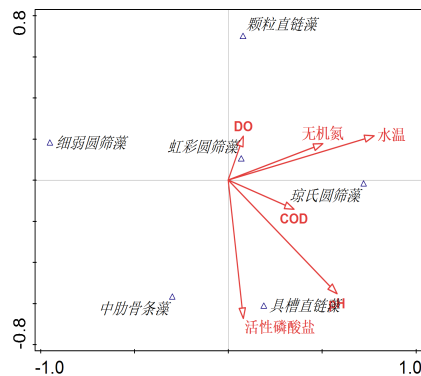
- Result -



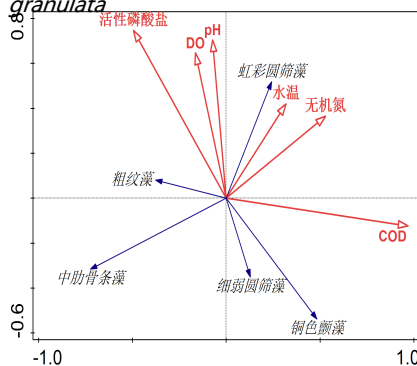
a. 2015.5, Advantage species : *Skeletonema costatum*、*Cocconeis oculus-iridis*、*Cocconeis jonesianus*、*Cocconeis thojii*



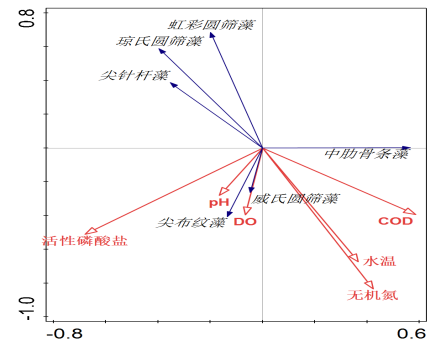
b. 2015.8, Advantage species : *Skeletonema costatum*



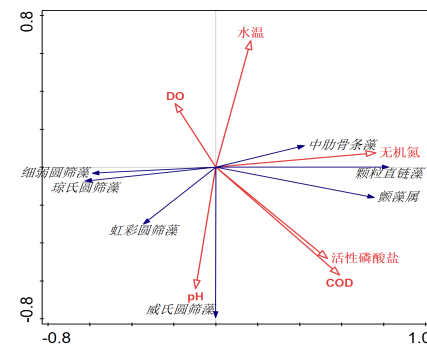
c. 2016.5, Advantage species : *Skeletonema costatum*、*Cocconeis jonesianus*、*Cocconeis oculus-iridis*、*Melosira granulata*



d. 2016.8, Advantage species : *Skeletonema costatum*



e. 2017.5, Advantage species : *Skeletonema costatum*、*Synedra acus*、*Cocconeis oculus-iridis*、*Cocconeis wailesii*



f. 2017.8, Advantage species : *Skeletonema costatum*、*Oscillatoria*、*Cocconeis oculus-iridis*

Fig.4 Redundancy analysis of main phytoplankton species' s abundance and environmental factors

3. Conclusion

3.1 The results show that the dominant species of phytoplankton in spring are mainly composed of *Coccinodiscus oculus-iridis*, *Coccinodiscus jonesianus* and *Skeletonema costatum*, and the dominant species in summer are *Skeletonema costatum*.

3.2 According to the investigation, the number of phytoplankton in the coastal waters of the East China Sea is significantly higher than that in the continental shelf of the East China Sea.

3.3 The redundancy analysis results show that from the spring of 2015 to 2017, the environmental factors that have a great impact on phytoplankton in the investigated sea area are active phosphate, water temperature and pH; From the summer of 2015 to 2017, the environmental factors that have a great impact on phytoplankton in the investigated sea area are dissolved oxygen, chemical oxygen demand, active phosphate and inorganic nitrogen.