



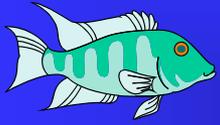
# The Status, Challenges and Prospect of Mariculture Industry in China

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# Outline

- Status of mariculture development in China
- Characteristics
- Challenges & problems & strategy
- Some consideration



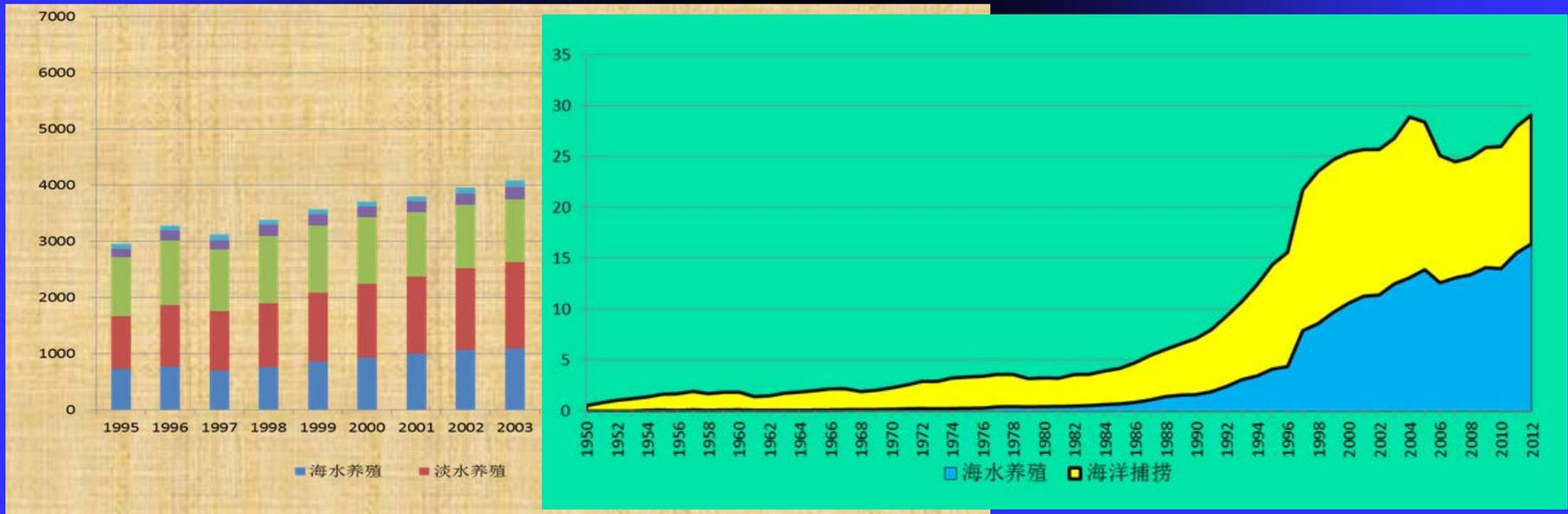
# Fishery plays an important role in economic development in China

- ✓ Total aquatic production reached **59.077 million** tons, which account for one third of the world total
- ✓ Aquaculture in total reached **42,88 million** tons, account for more than 70% of the world total
- ✓ The Total volume of export and import reached **3.80 million** tons, with a value of **18.98 billion** yuan, ranks the first among agricultural products



# Status of mariculture development

- ✓ Among the total production , Marine capture **12.67 million** tons, Marine aquaculture **16.43 million** tons, freshwater capture **2.29 million** tons, freshwater aquaculture **26.44 million** tons, pelagic fishery **1.22 million** tons



# Status of mariculture development

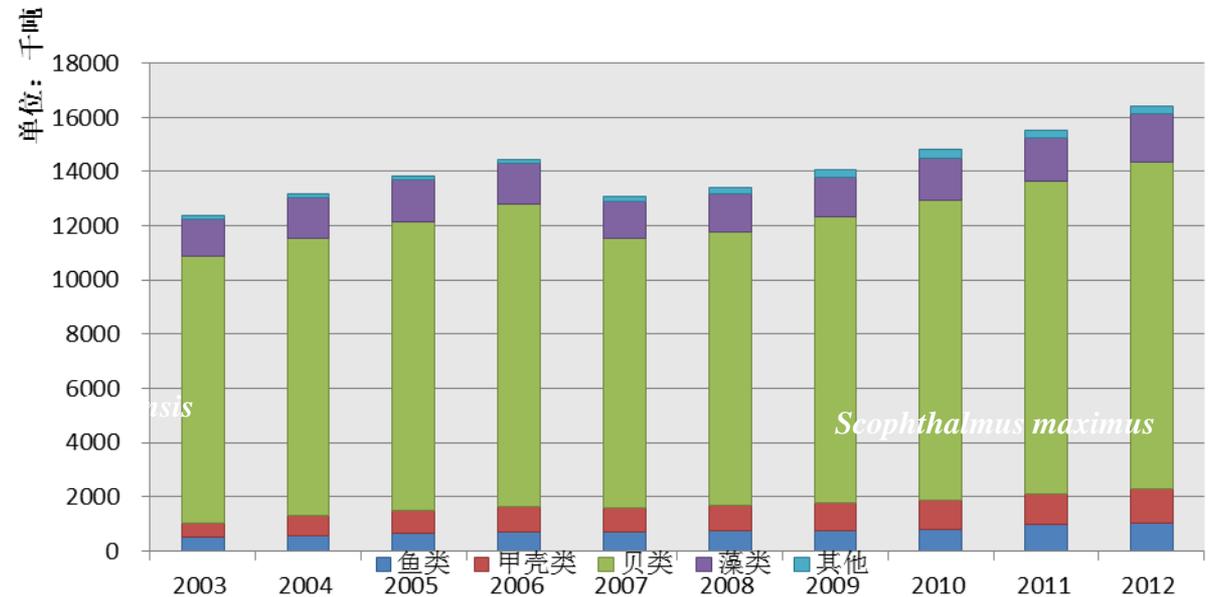
- ✓ Algae, crustacean, shellfish and fish are the four main cultured species, with shellfish taking the larger share. Mariculture has become a fast growing pillar industry in agriculture



*Laminaria japonica*



*Fenneropenaeus chinensis*



# Characteristics

## ■ A great diversity of farmed species



- 鱼类 Fish >50
- 贝类 Shellfish >30
- 甲壳类 Crustacean >10
- 藻类 Seaweeds >5
- 其它 Others >5
- 总计 Total >100



# Characteristics

## ■ A great diversity of farming modes

A variety of mariculture modes are developed and/or innovated according to local circumstances, such as:

pond culture

intertidal zone culture

land-based indoor and/or

outdoor tank culture

net-cage culture

off shore raft culture

... ..

# Pond culture



# Raft culture of seaweeds and shellfish



# Indoor fish farming



# Abalone farming in indoor tanks



# Sea cucumber farming



# **Problems, Challenges & strategy in mariculture**

**Environmental challenges**

**Disease prevalence**

**Lack of genetically improved new variety**

**....**

# Problems & challenges

## ■ Environmental challenges

green algae bloom

jellyfish bloom

outbreak of seastars

red tide



# Bays and wetlands were developed for mariculture purposes

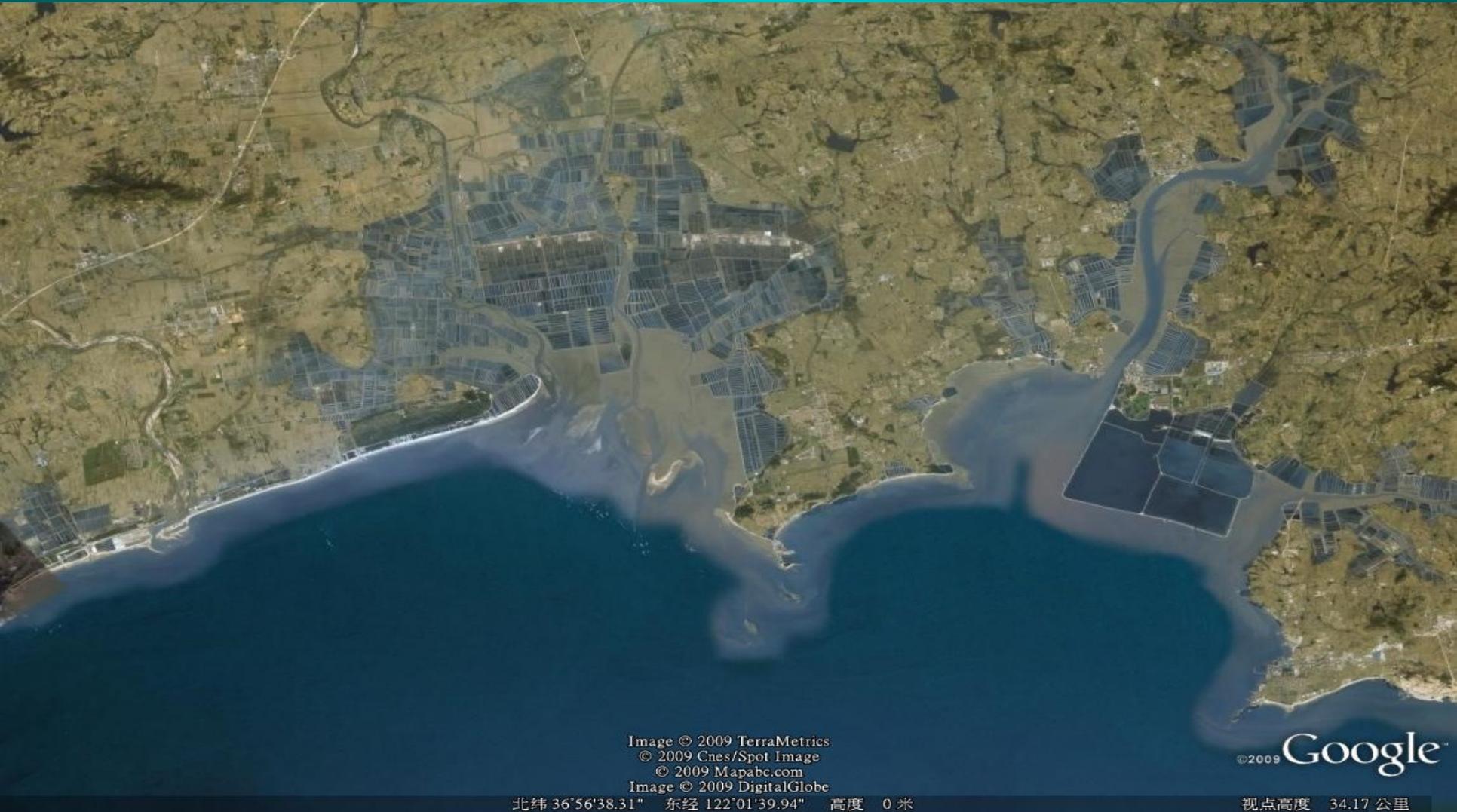


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北纬 36°56'38.31" 东经 122°01'39.94" 高度 0 米

视点高度 34.17 公里

# Problems & challenges

- **Diseases prevalence**

Based on related investigation, annual economic loss resulted from disease problems is over 10 billion yuan(RMB) in aquaculture in recent years.

- **verified pathogen including:**

virus, bacteria, fungi, parasites, ... ..

# Problems & challenges

## Diseases outbreak



Statistical data shown that the economic loss was over 300 million Yuan RMB for the disease outbreak of scallop *Chlamys farreri* in 1998.



# Problems & challenges

- **Lack of genetically improved new variety**

Aquaculture is largely based on the use of unimproved/wild species and strains. According to a related statistics, the total number of aquatic new varieties in China approved by National Certification Committee for Aquatic Varieties during 1996-2012:

<i>Category</i>	<i>Species</i>	<i>%</i>
<i>Selective bred</i>	<i>46</i>	<i>39.66</i>
<i>Hybrids</i>	<i>41</i>	<i>35.34</i>
<i>Introduced</i>	<i>29</i>	<i>25.00</i>
<i>Total</i>	<i>116</i>	<i>100</i>

How to



**Build a sustainable  
developing  
mariculture industry**

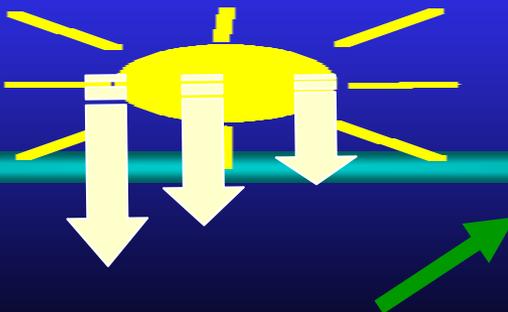
# **sustainability : the only way to be pursued for mariculture development**

- **Basic theory research**
- **Technological innovation**
- **Management**



# Integrated Multi-Trophic Aquaculture--IMTA

feeding



Phytoplankton



Filtering shellfish

Dissolved nutrients



Seaweed culture

Hydrodynamic



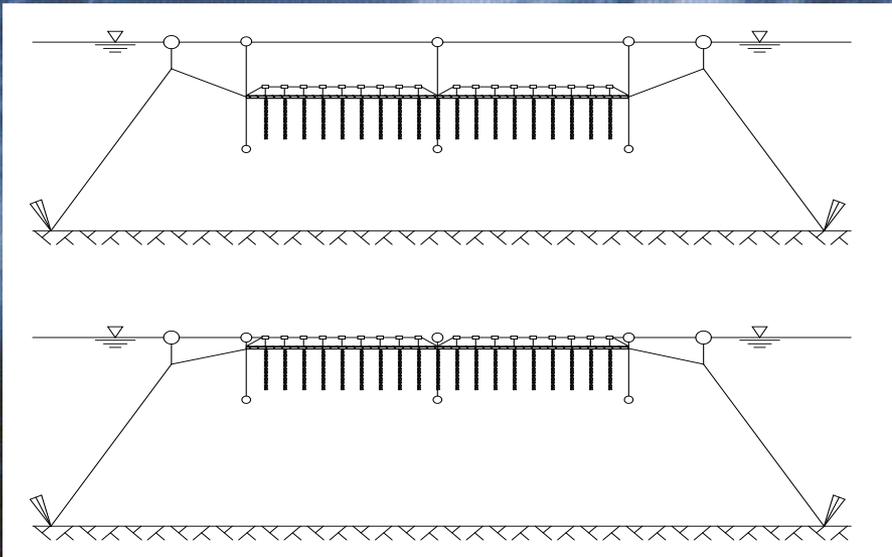
Cultivation of abalone

IMTA in Sungo Bay, Yellow Sea of China

# Environment friendly mariculture



Anti-wave cage



Longline offshore culture

Move to offshore waters to alleviate the impact of mariculture activity on the inshore environment.

# Environment friendly mariculture

## Artificial reefs



Ship shaped reef



Roof shaped reef



# Environment friendly mariculture



Artificial reefs are constructed for improving the habitats, and the enhancement of valuable economic species are performed

# Selective breeding



Selective breeding is a good way to improve the genetic traits and anti-disease ability

# Restocking the sea

Stock enhancement is conducted in China in recent years in large scale for Rebuild the natural population



# Management on Mariculture industry

- ✓ Management of the release of hatchery reared juveniles for stock enhancement;
- ✓ Revolution of the legislation and policy on the mariculture certification, classification on the mariculture area, etc.;
- ✓ Seafood safety and quality control system etc.

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# Some consideration

- A sustainable developed aquaculture means that it ensures not only the quality and output, also may develop in a way of sustainability
- As one of the important marine economic sectors, mariculture will play an even bigger role in sea foods production in the future;
- Technological innovation is necessary, and IMTA will be a choice for sustainability;
- International cooperation is vital for the sustainable development of mariculture industry worldwide.

A sunset scene over a body of water. The sun is low on the horizon, casting a bright orange glow across the sky and reflecting on the water. The text "Thank you for your attention!" is overlaid in a 3D, orange, serif font, slanted upwards from left to right. The background is a solid blue color at the top and bottom.

Thank you for your attention!