

Aquaculture aspects and future demand for seafood in China

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Under saturated development of the fishery resources in the world, why FAO has still confidence in the fishery development?

- ◆ 《Responsible Fishery Action Regulation》
- ◆ World aquaculture development
- ◆ Practices in China

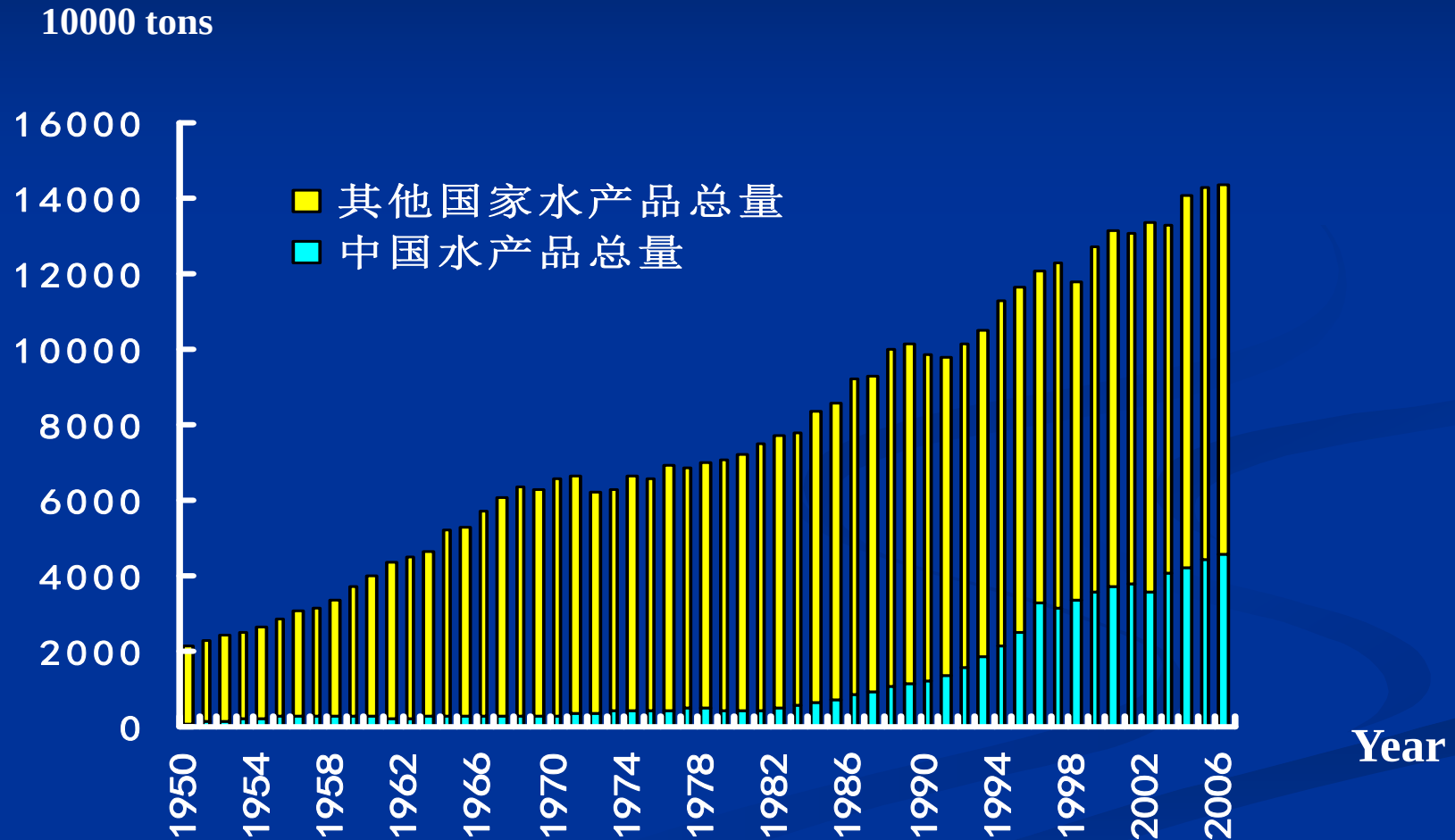
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1. China aquaculture situation

- ◆ **1.1 Situation**
- ◆ **1.2 Basic points**
- ◆ **1.3 Main issues**

Seafood production in China and World



Resource: FAO Statistics (1950-2008)

China seafood production (1950-2008)



Resource: China fishery yearbook (1950-2008年)

2008 Production

2008 China national aquaculture
production **48960000** Tons

Sea water aquaculture:

13400000 tons

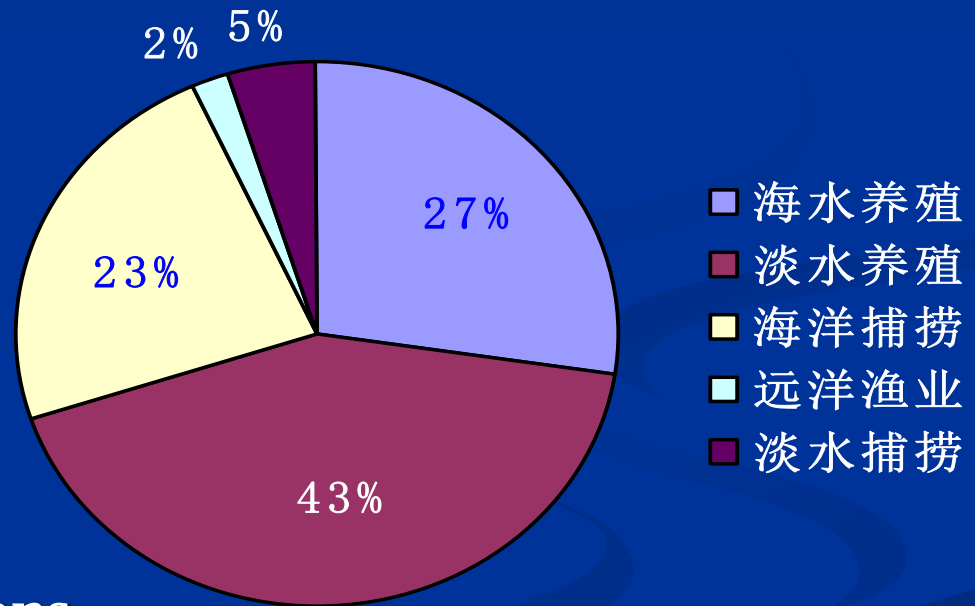
Freshwater aquaculture :

20730000 ton

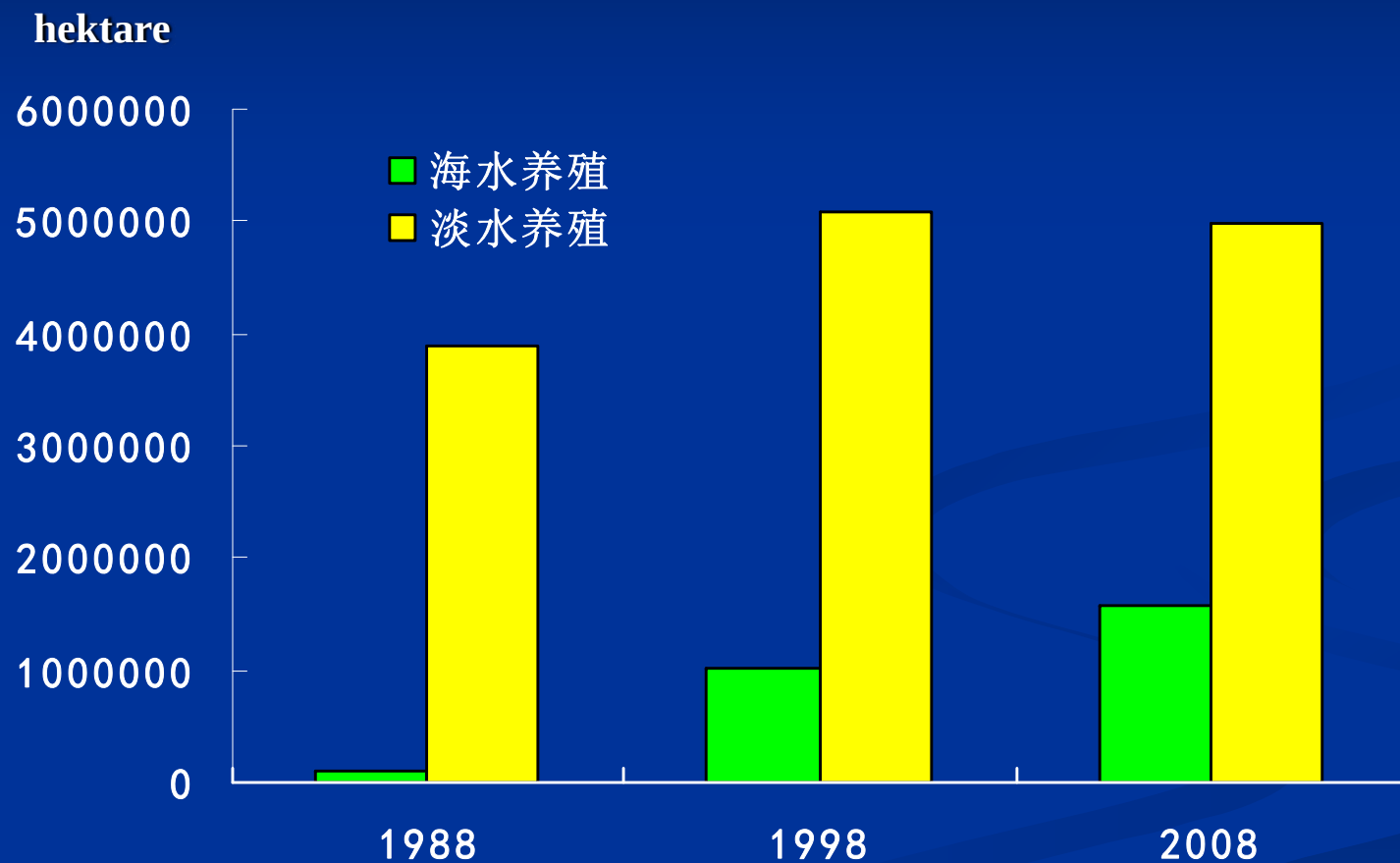
Marine fishing: **11500000** tons

Ocen fishing: **1080000** tons

Freshwater fishing: **2250000** tons



China aquaculture area



Resource: China fishery yearbook (1988, 1998, 2008)

Vessel number

2008 Vessels:1039400

Motor vessels: 630600

8284100 tons

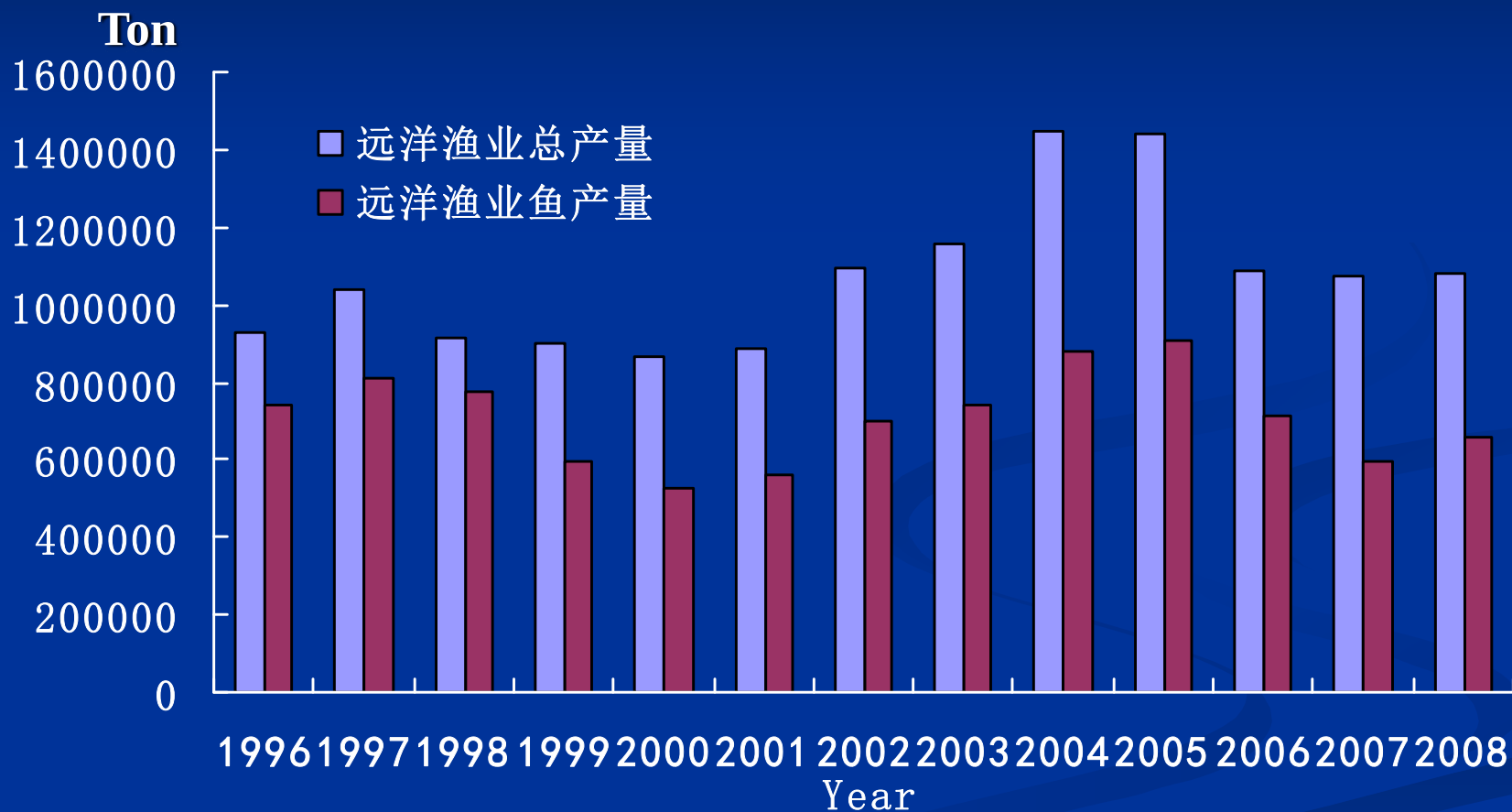
19507300 KW

Ocean vessels 1462

784403 KW



China ocean fishery situation



Resource: China fishery statistic yearbook (1996-2008)

Seafood international trade (1950-2008)



Resource: FAO statistics (1976-2008)

2008 international trade value

2008 Foreign trade 6848000 tons

16.02 billion us#

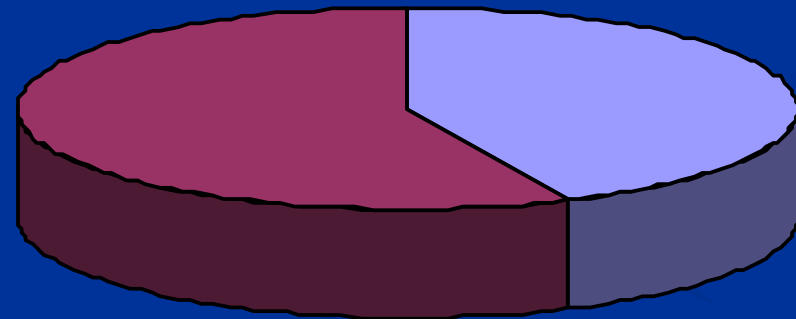
Export:2965000 tons

10.61 billion us#

Import 3884000 tons

5.4 billion us#

Surplus:5.21billion us#

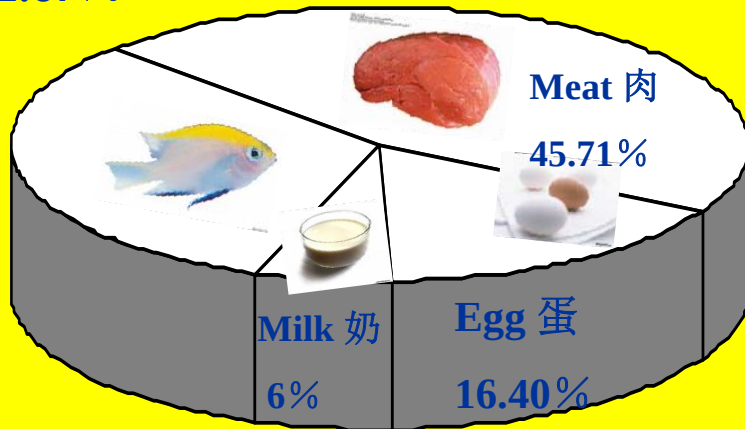


■ 出口（万吨）

■ 进口（万吨）

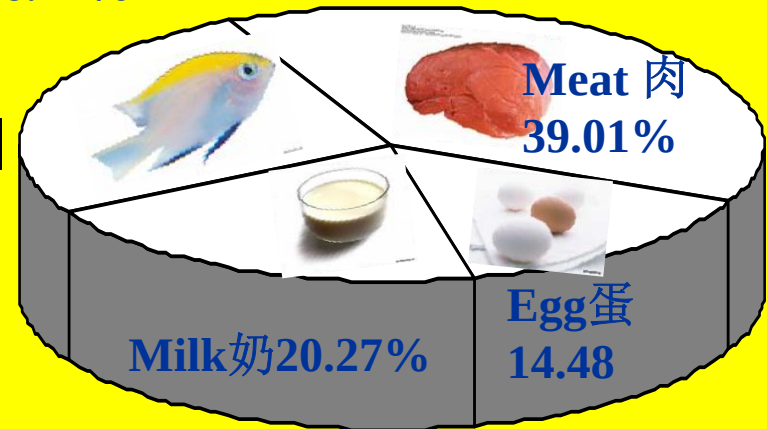
Proportion of seafood in animal protein

Fish 鱼
31.67%



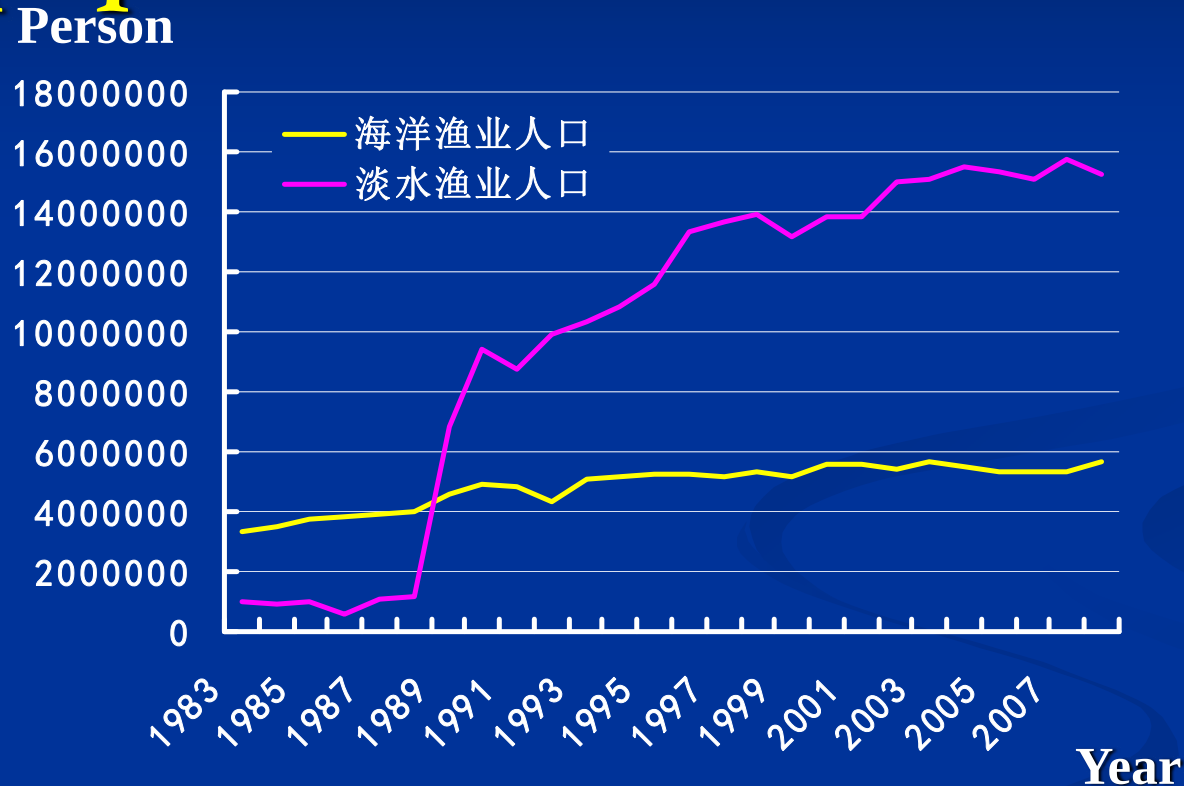
2000年, 3706ton

Fish 鱼
26.24%



2000年, 4896ton

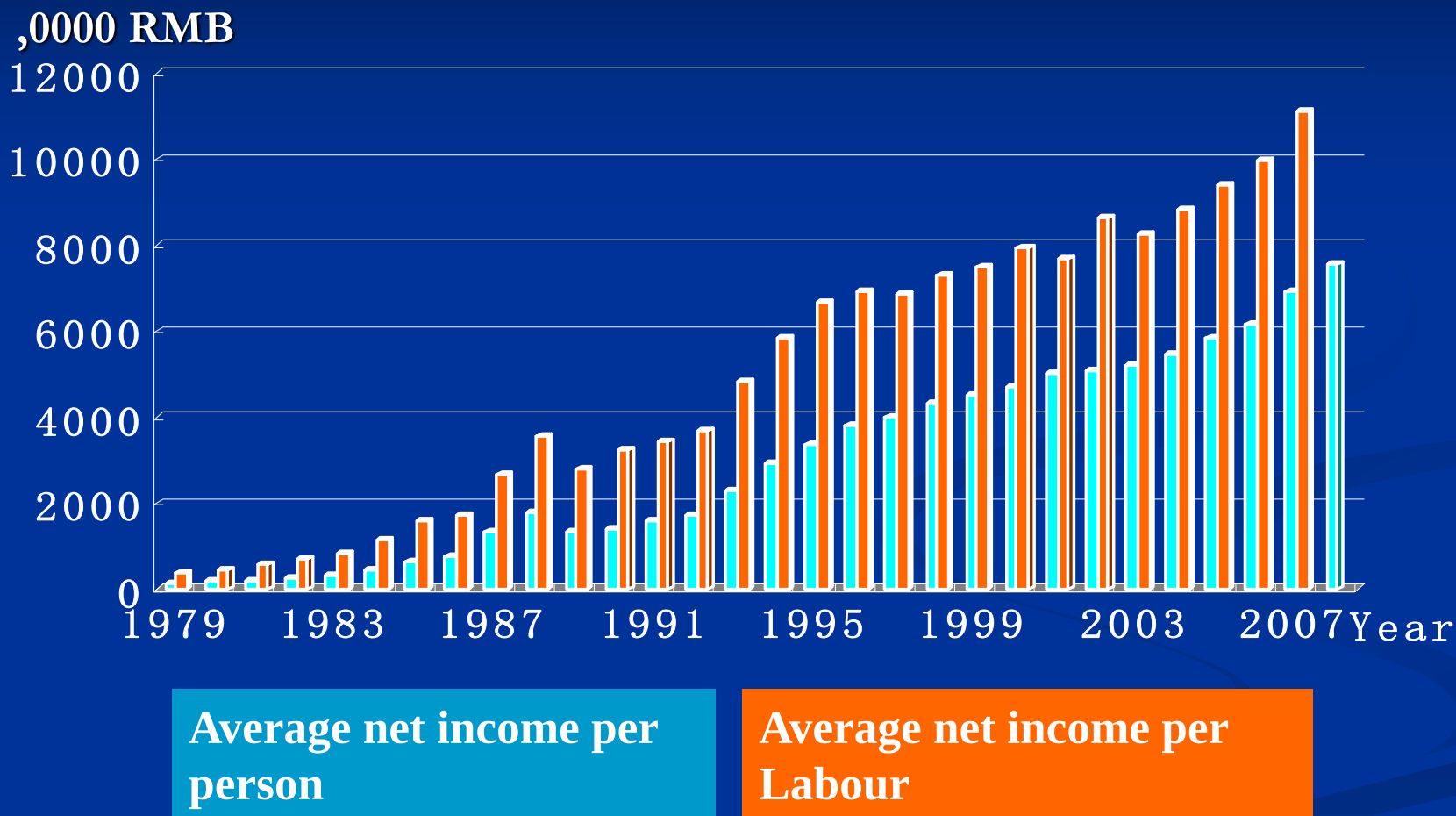
China fishery population



Fishery population: 20961300

Resource: China fishery yearbook (1983-2008)

Fishmen's income (1950-2008)



Resource: China fishery yearbook (1979-2008)



With the conversion from fishing to aquaculture, production manner has been improved, and yield has been increased, living standard of fishmen and social civilization has been promoted.

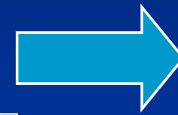
Nature ecosystem

Sun energy,

nutrition salt



plankton



trash fish



high-value fish

Complex aquaculture of scallop and kept



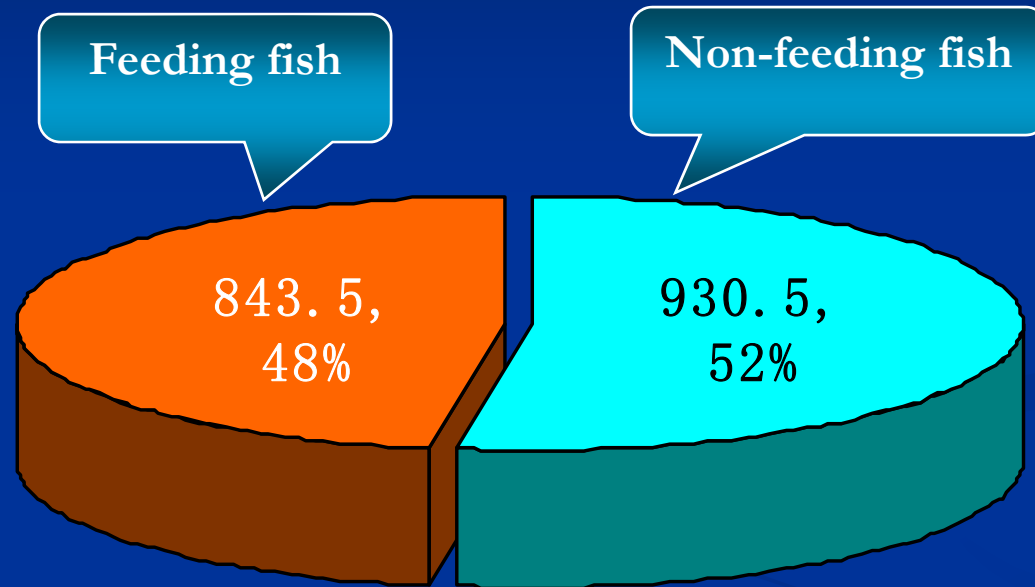
New ecosystem: aquaculture system

Sun energy,
nutrition salt → plankton →



fish

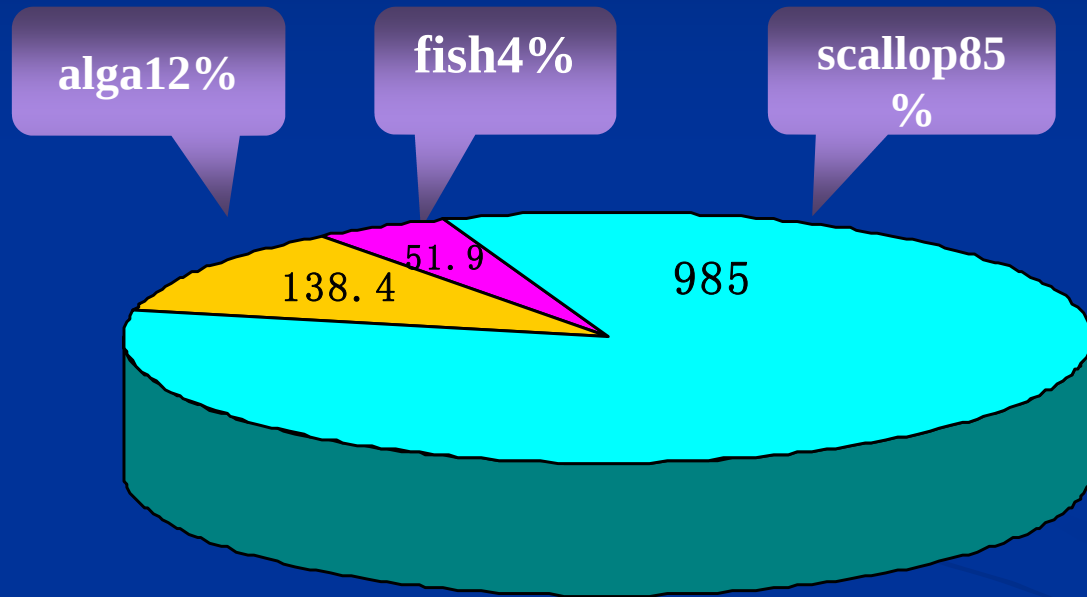
China freshwater aquaculture production



freshwater aquaculture production: 17740000 tons
(China fishery yearbook, 2003)

中国海水养殖产量构成

Chinese aquaculture production structure



seawater aquaculture production: 11740000 tons
(China fishery yearbook, 2003)

1.2 China aquaculture basic characteristics

- 1.2.1 aquaculture production persistent increasing and its price stably decreasing;
- 1.2.2 many plankton and phytophagous animals ;
- 1.2.3 large aquaculture area and many aquaculture means;
- 1.2.4 advanced aquaculture technology, long history and three-dimensional ecological aquaculture;
- 1.2.5 support from government: conservation policy, fish pond standard rehabilitation , tax free, subsidy etc.

1.3 Main issues of China aquaculture

1. Environment pollution  
2. Reduction of resources: space, water, feed etc.  
3. Sea food safety: water, pesticide etc. 
4. Limited scientific technology (utilization of cold water and lake)



Pollutions increasing

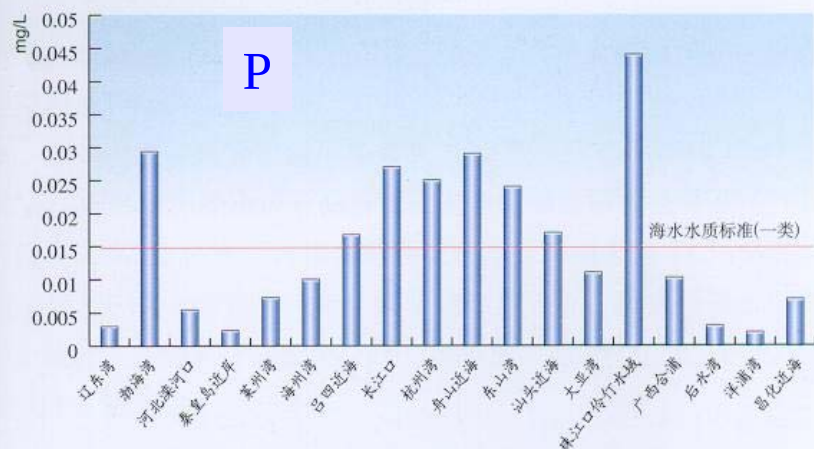


图3 海洋天然重要渔业水域活性磷酸盐含量比较

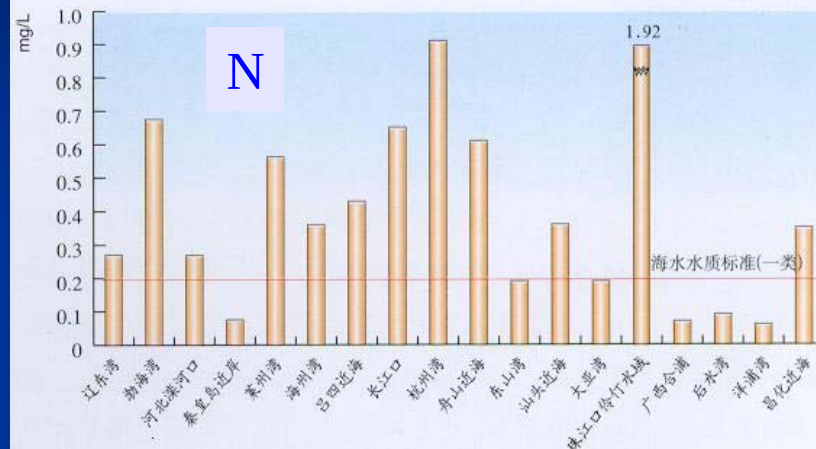


图2 海洋天然重要渔业水域无机氮含量比较

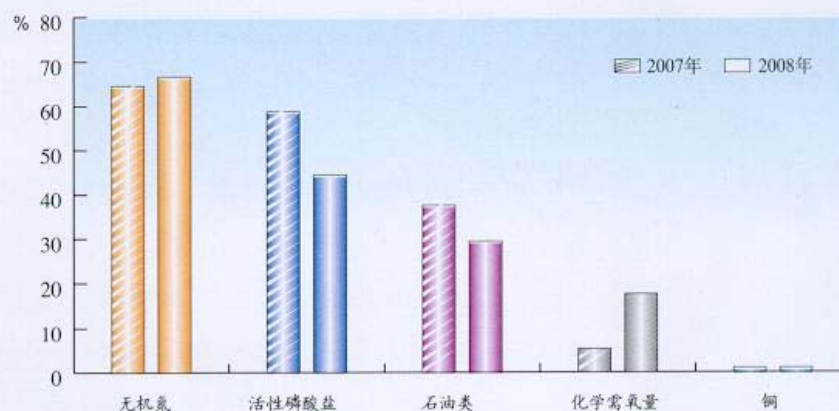
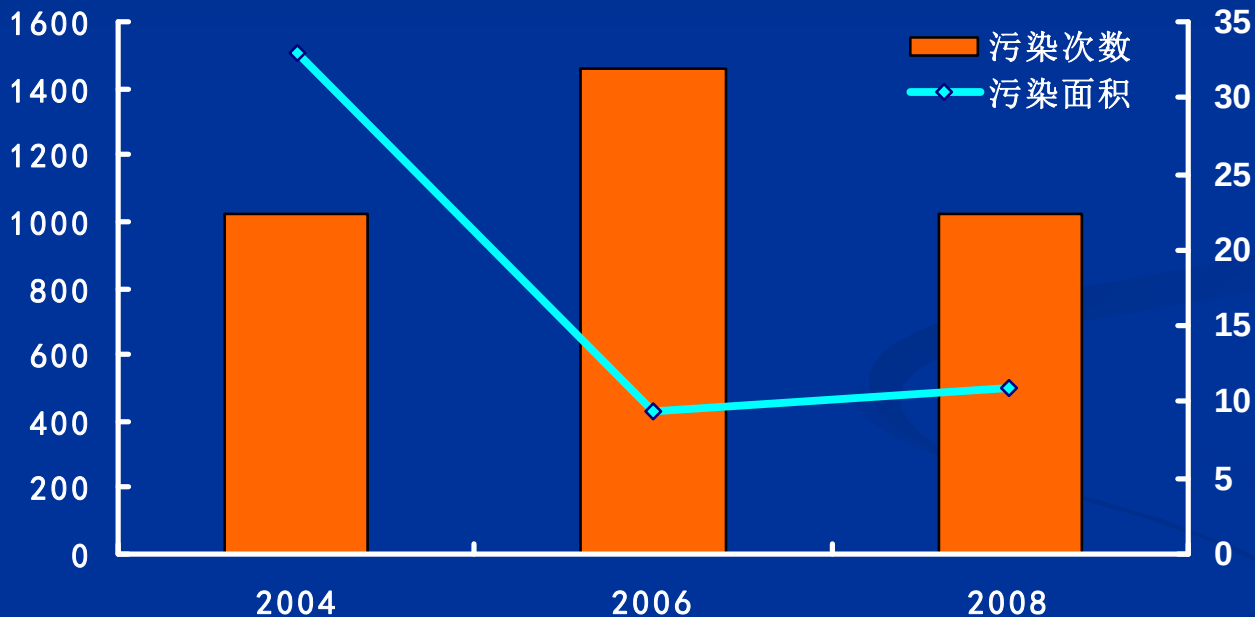


图1 海洋天然重要渔业水域主要污染物超标比例

China fishery pollution accidents

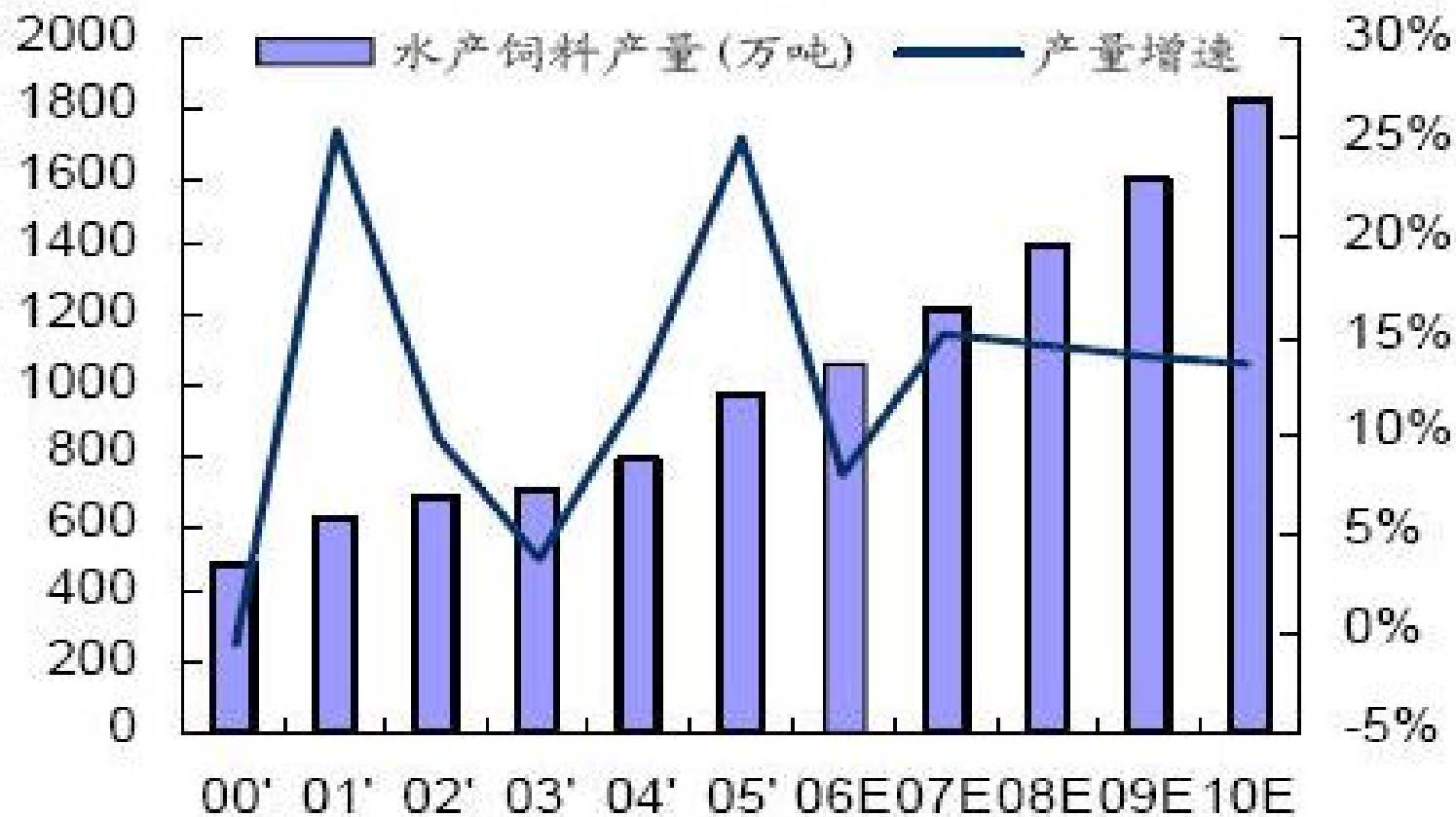
No. of accidents
per year

000, hectare



Resource: China fishery environment gazette (2004, 2006, 2008)

2000-2010 China aquaculture feed production



数据来源：全国饲料工业统计资料，国泰君安研究所



Sea food safety

- ◆ Domestic: turbot accident:

pesticide index exceed, no body buy, 10000 tons production wasted, lost 1 billion Yuan, 3 years being recovered

- ◆ International:



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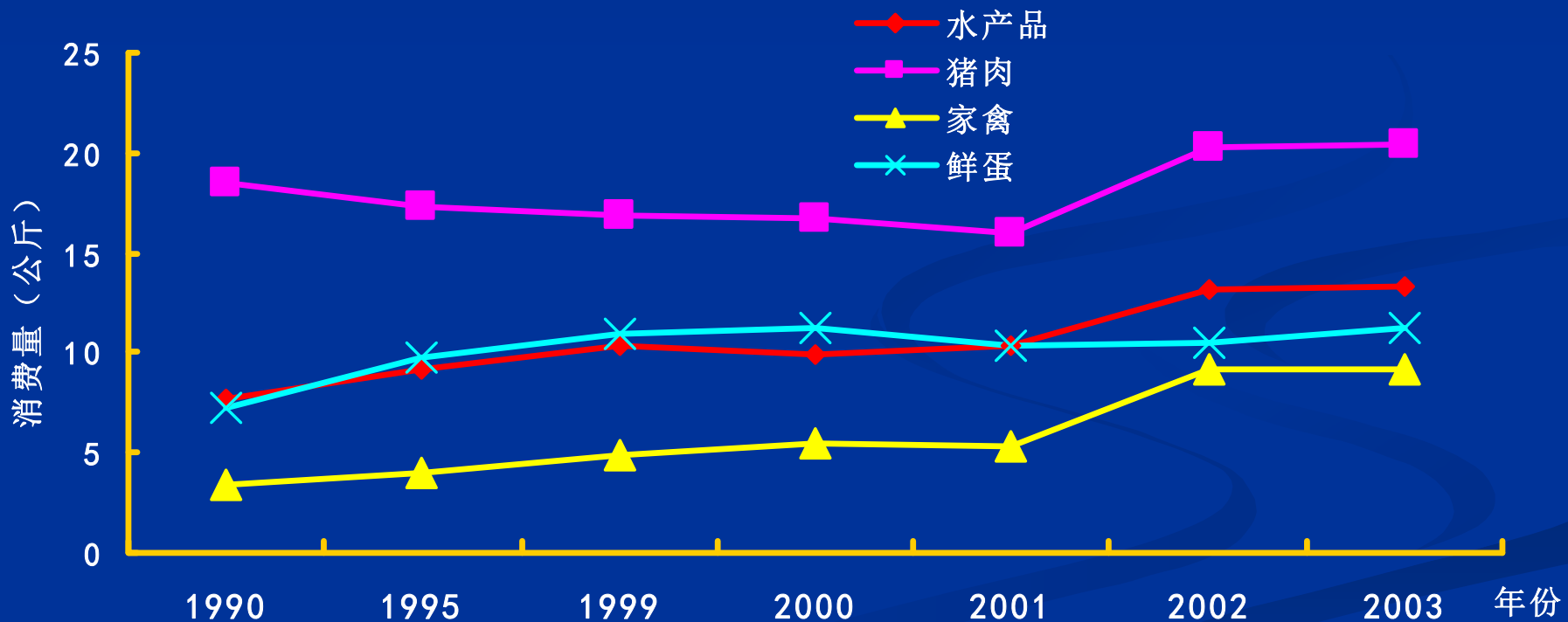
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2 China sea food future demand

- ◆ 2.1 China sea food consumption survey
- ◆ 2.2 China sea food demand
- ◆ 2.2 Approaches of increasing China sea food

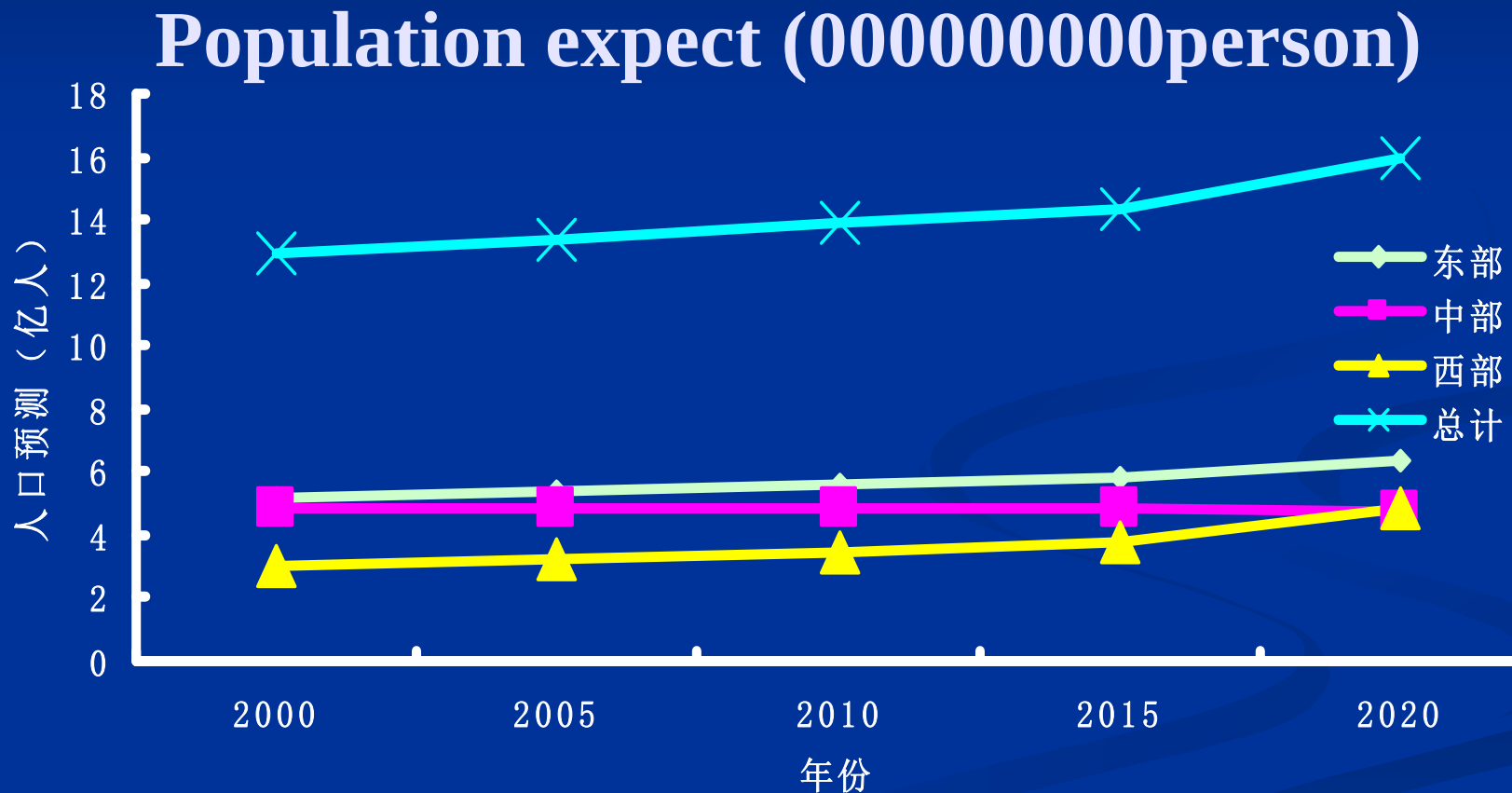
2.1 Current consumption survey

1990-2003 average sea food consumption per person per year (kg)



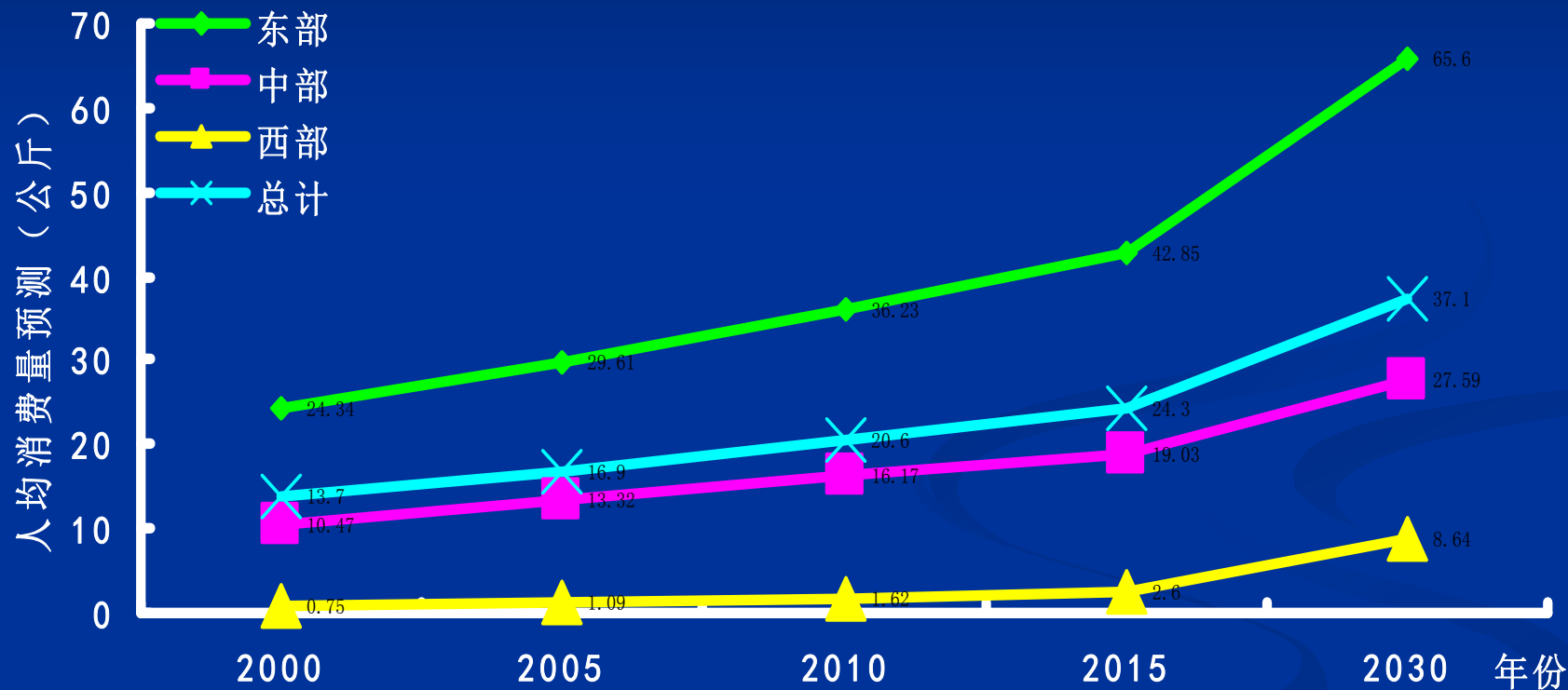
Resource: China agriculture statistics yearbook
(1990-2003)

2.2 Sea food demand



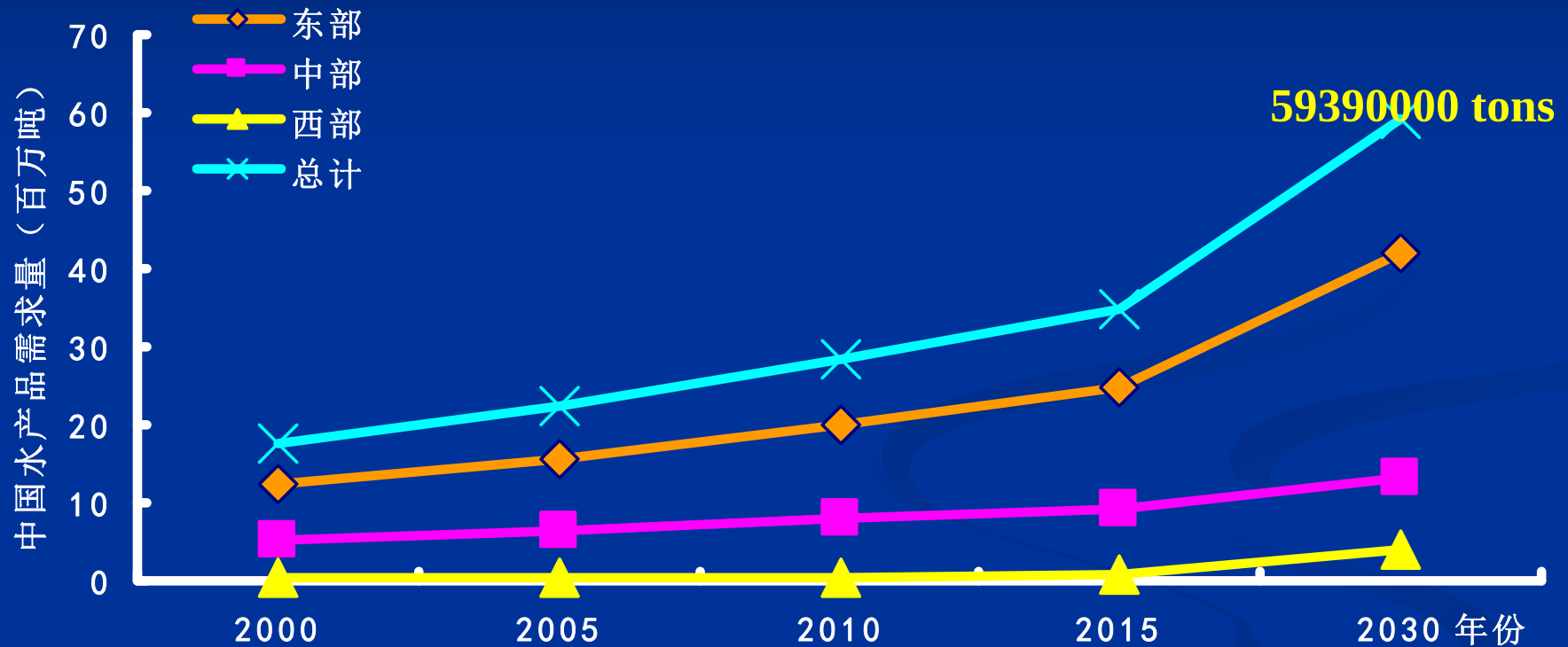
Resource: Shanghai Fishery University project , 2000

Consumption per person (kg)



Resource: Shanghai Fishery University project , 2000

Sea food demand (million tons)

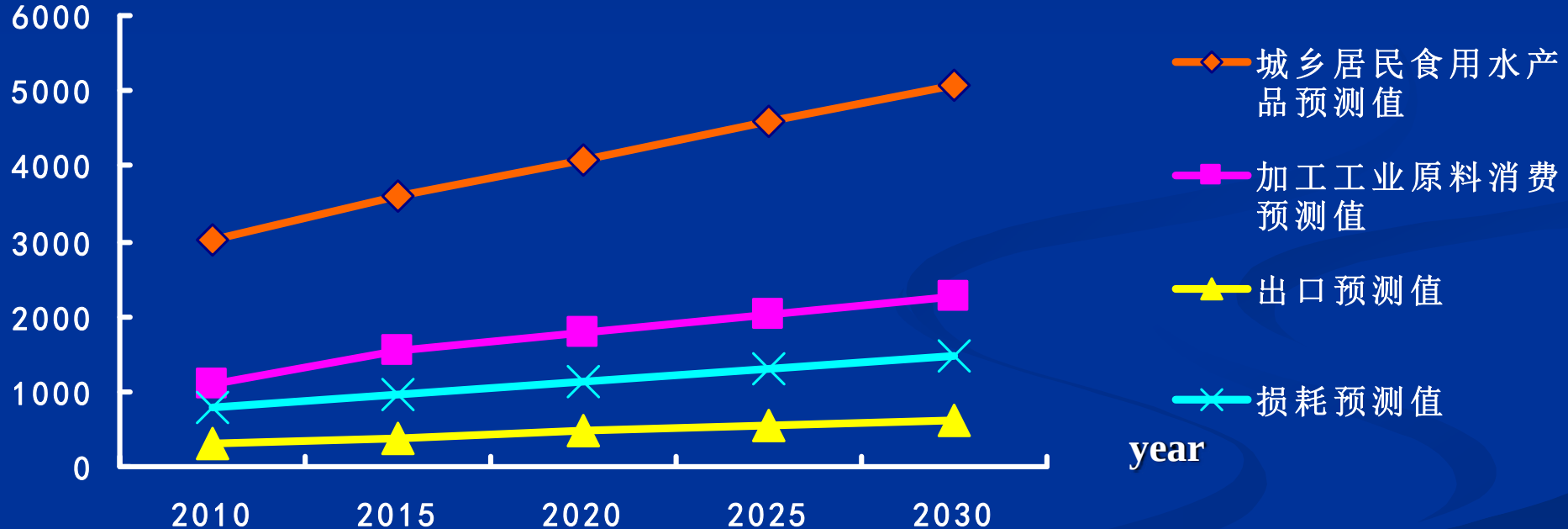


Resource: Shanghai Fishery University project , 2000

Demand prognostication

(Zhu Xinkai equation)

,0000 tons



Result of prognostication

- ◆ **Population: 2030: 1.46 billion**
- ◆ **Consumption per person:
2030: 37.1kg/year/person**
- ◆ **Demand: 2030: 59390000 tons**
- ◆ **Production: 2030: 56860000 tons**

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3.1 China aquaculture policy review

Three phases:

- ◆ 1955-1985, fishing in nature resources;
- ◆ 1985-2000, aquaculture being more popular and new fishery development policy being established;
- ◆ 2000-2009, paying attention to sustainable development, resource and environment protection; “resource conservation + quality & benefit” modern fishery being put forward.

3.2 Current aquaculture policy

1. Persist in conservation policy, promote healthy aquaculture, ensure sustainable development of fishery;
2. Improve management, ensure sea food safety;
3. Enhance resources conservation, increase enhancement and delivery activities, ensure sustainable utilization of resources;
4. Strengthen scientific studies, elevate ability of resources utilization and aquaculture technology.

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4 Conclusion

1. China aquaculture could be sustainable developed, but its development rate will be decreased.
2. Prognosticate: increasing rate of production will be lower than consumption within 20 years.
3. Main issues that effecting aquaculture development will be environment pollution, reduction of resources, and sea food safety.



It will be optimistic, as long as the aquatic resources are developed in a sustainable way.

Thank you !