



Fishery Resource Proliferation and Management of Sea Farm in the North of Yellow Sea

Dalian Zhangzidao Fishery Group Co., Ltd



Outline



I . Introduction of Zhangzidao Fishery

II . The Construction of Sea Farm Basing on
Marine Ecology Consideration

III. Product Processing and Marketing



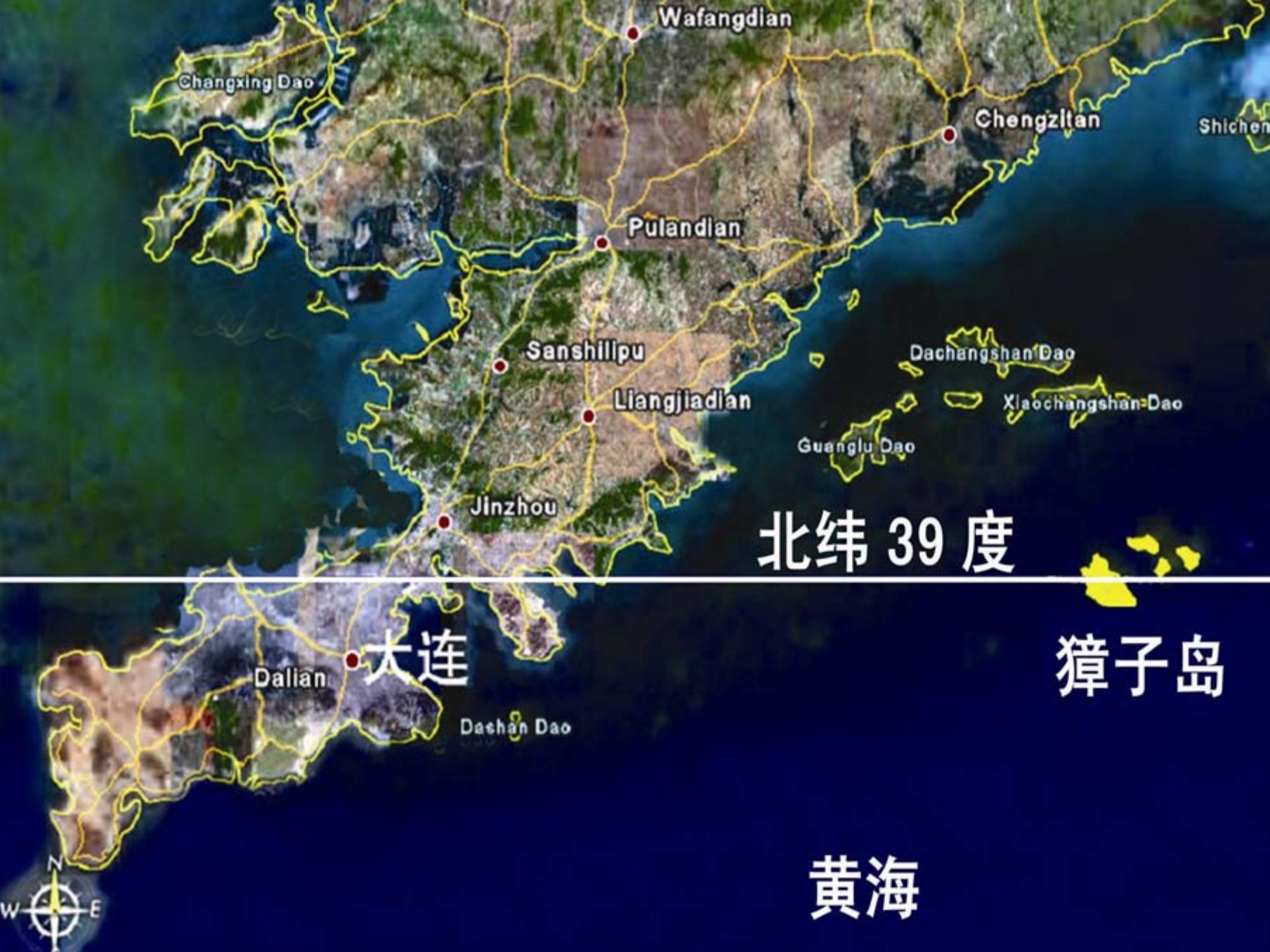
Introduction of Zhangzidao Fishery

心有帆 海无界

Introduction of ZZD



Dalian Zhangzidao Fishery Group Co., Ltd. was founded as early as in 1958. It is located at Zhangzi Island which is regarded as “A Pearl on the Yellow Sea”. It is a large-scale comprehensive public fishery group covering a wide range of businesses including choice aquatic products breeding, multiplication and aquaculture products processing and sale.



The Sea Area Condition



The company, now has the right to exploit a sea water area of 60,000 hectares along Yellow Sea, Bohai Sea as well as East China Sea, owns the biggest Japanese scallop aquaculture base and the largest domestic group exploring the largest sea water in China independently.

Its excellent natural environment and highly primary productivity provide favorable condition for developing the choice aquatic products multiplication and aquaculture.



赤潮监控区养殖生物质量综合评价

The Industry



Dalian Zhangzidao Fishery Group Co., Ltd. is the first corporation in China to adopt the large-scale bottom sowing multiplication of choice aquatic products, the newest offshore multiplication model, facilitating the coordinated development of economic efficiency, aquatic ecology and environmental protection.

The company, boasting breeding factories of various choice aquatic fries with the total of 25,000 water bodies, is the high-quality breeding farm for Japanese scallop around the country and comprehensive raw material farm in Liaoning Province.

The Industry

It has five advanced aquatic products processing factories with the annual processing capacity of 10,000 tons of scallops and 10,000 tons of other aquatic products, as well as the annual refrigerating capacity of 10,000 tons.



心有帆 海无界

记者昨日从大连市水产公司获悉，今年第一季度，我市水产产量比去年同期增长了7%，其中海水产品产量比去年同期增长了10%。据市水产公司董事长孙海波介绍，如今市民对海产品的喜爱程度日益高涨，特别是海参、海螺、海带和海藻类食品，海味“醉”老百姓的餐桌。据记者了解，随着人们对大南海的洁净，企业投资在环境污染防治的投入也逐年增加，仅去年的财政投资就达1.1亿元。

大连市农业局有关负责人告诉记者，我市海水养殖业正朝着规模化、生态化、专业化方向发展，养殖技术日渐提高，养殖品种不断增多，养殖面积不断扩大，经济效益显著。今年一季度，我市海水养殖业实现总产值1.5亿元，同比增长15%，平均亩产值达1.5万元，海水养殖业已经成为我市农民增收的主要途径。

作为大连最重要的商品生产基地，如今的大连海域形成了上万亩集中连片的立体式养殖格局：浅海的底栖贝类养殖面积保持稳定，今年起，关闭夏祭海域休渔期，引导渔民向深水区转移；中层海水，发展海水养殖的立体式养殖格局；远洋的深海捕捞业继续保持增长，今年起，关闭伏季休渔和网箱养鱼的规定，引导渔民向深水区转移。

据了解，我市对深海和远洋渔船保护力度加大，五年来，新增大型渔船购置补贴资金近300万元，“北上”渔船增加

The Management of the Group



For many years, the group has been keeping a good business operation. Especially, since the reformation in 2001, it has been maintaining an annual growth rate over 20%.

The “Zhangzidao” stock has become a public company in Shenzhen Stock Exchange.



The Integration of Industry, education and Research

- Today Zhangzidao Fishery has already been the “National-recognized Enterprise Technology Center”
- It sets up the over-all cooperative relationships with China Institute of Water Resources and Hydropower Research Institute of Oceanography, Chinese Academy of Sciences as well as Ocean University of China.
- They have also created the new method of industry, education and research “strategic cooperation and joint programs”. At present, more than 20 frontier areas of fisheries, such as projects under the research program “Project 863” in the 11th Five-year General Plan, have been implemented.



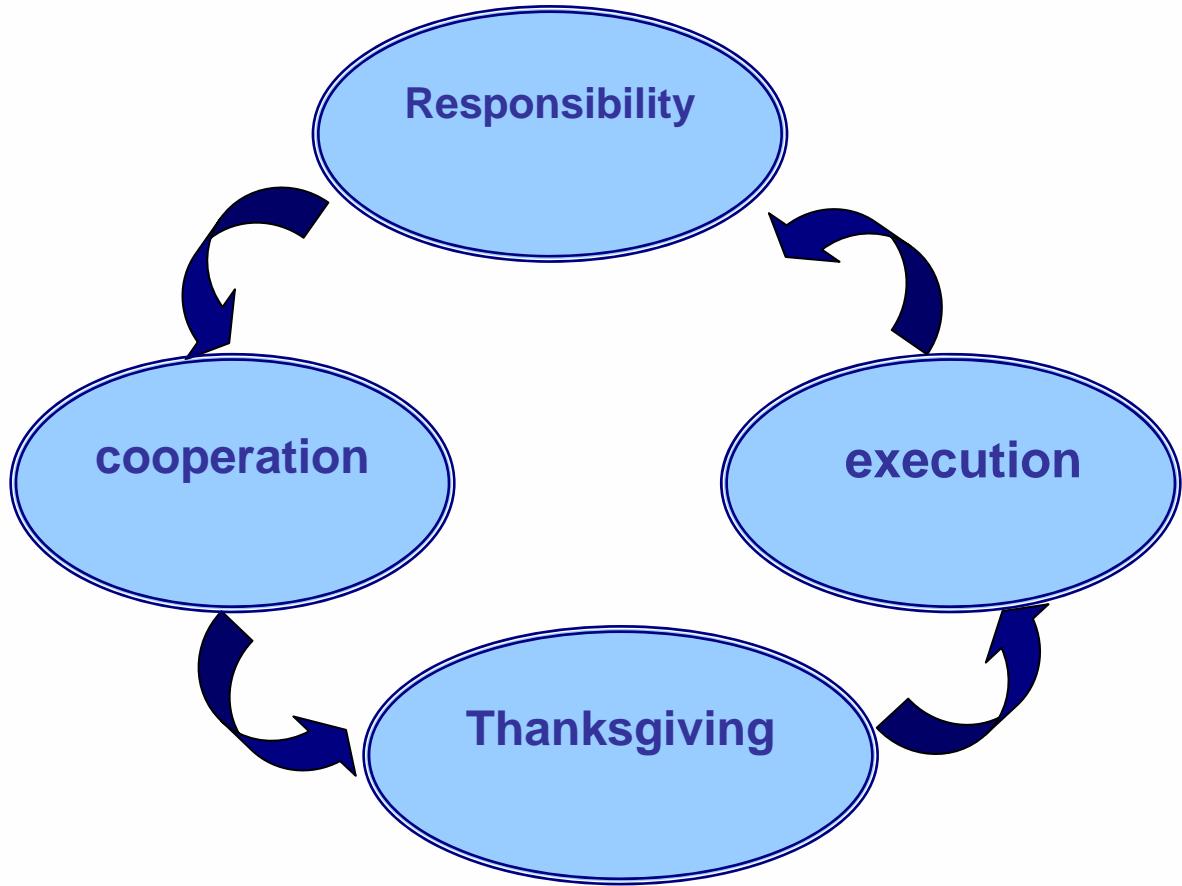
Honors of the Group



Today, the group has become “National Key Flagship Enterprise in Agricultural Industrialization” while the brand-name of “Zhangzidao” is the “China’s Famous Brand”, which has been certificated by BRC (British Retail Consortium), ISO (International Standards Organization) 9001 Quality System Certification, HACCP (Hazard Analysis Critical Control Point) and Organic Food Certification so its products are considered as the pollution-free and Grade AA Green Food. The main products of the group are sea cucumber (stichopus), abalone, Japanese scallop which are certificated as the “products with the mark of country origin”. These series of products are available in thousands of supermarkets in such countries and regions as U.S.A, Australia and Taiwan Province.



The core values of the group



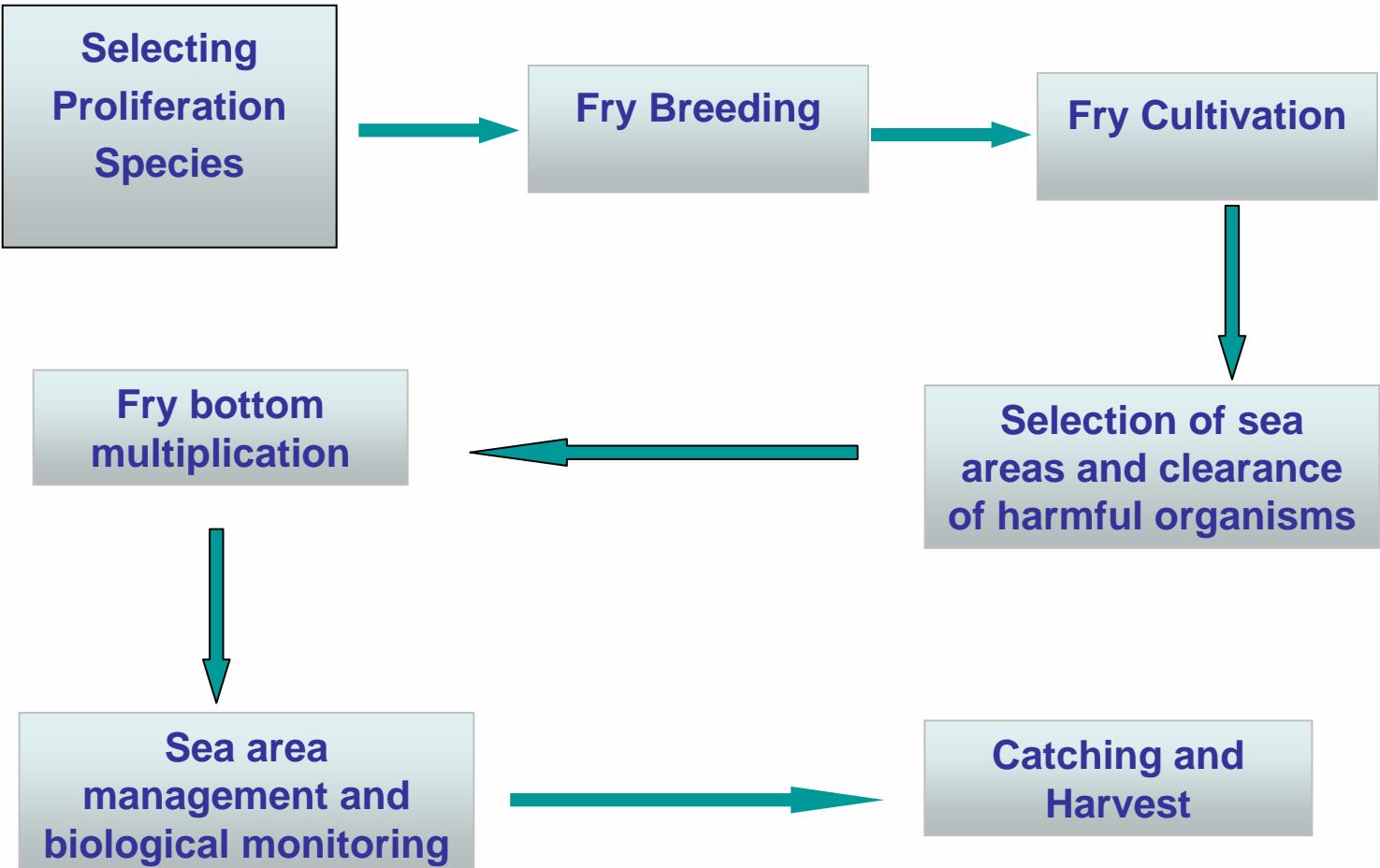
Goal: To be a superexcellent and respected fishery company.



The Construction of Sea Farm Basing on Marine Ecology Consideration

心有帆 海无界

The Ecological Bottom Multiplication Method for Large-scale Shellfish Aquaculture





1.The research and development of healthy fry breeding technology

1.1 Breeding situation of red adductor Japanese scallops

- ◆ Now there are not any reports about the fry cultivation of red adductor Japanese scallop at home and abroad .
- ◆ We select the red adductor Japanese scallop (one will be in 10 thousand) and cultivate the fries, then we find that its genetic characters are stable (reached 99.9%), its economical characters are obvious, and it has better stress resistance.



1.The research and development of healthy fry breeding technology

1.1 Breeding situation of red adductor Japanese scallops

- ◆ It has a very important developing value, because its adductor is rich in carotenoid
- ◆ Now we select and reproduce about 300 thousands of red adductor fries in all. After cultivating, their gonad has matured, and our manufacture work will start in next year.





1.The research and development of healthy fry breeding technology

1.2 Research on breeding selection technology of multi-character family

- Our purpose is to find a new variety which has speedy growth, better stress resistance and good economic characters.
- Study on the technology of multiple character selection and breeding in Japanese scallop and sea cucumber families were carried out, after having a good beginning, we construct 113 Japanese scallop families, 50 sea cucumber families, and the genetics evaluation model has been already set up.





1.The research and development of healthy fry breeding technology

1.3 Study and application on Semi-Artificial fry-collection technique of Japanese scallop

- ◆ The successful development of Semi-Artificial spat-collection technique of Japanese scallop not only reduces cost of fry production, but also improves the quality of the fry.
- ◆ Great breakthrough has achieved on the Japanese scallop larvae's motion rule in sea water, choice of seeding collection equipment, time and water layer of placing seeding collection equipment and seed mid-culture. These technologies are reliable, the effect is obvious.



1.The research and development of healthy fry breeding technology

1.3 Study and application on Semi-Artificial fry-collection technique of Japanese scallop

- ◆ Seeding collection base has already set up which has 4000 floating rafts, 882 millions of fries were collected in 2006, 946 millions collected in 2007, 1.5 billions were collected in 2008.
- ◆ After studying for 3 years, this technology has been successful implemented in Lushun Branch of Dalian Zhangzidao Fishery, it creates a precedent of natural fry collection in domestic sea water, fills the gap in this field.





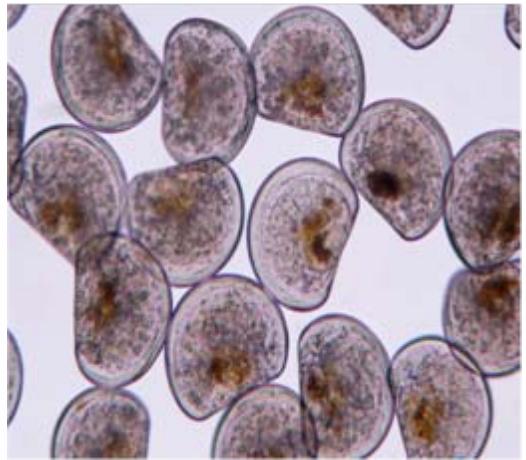
1.The research and development of healthy fry breeding technology

1.4 Fry Multiplication and Breeding

- The goal of the company is to reproduce fast growing and high-quality fries with stress resistance. Now the company can produce 4 billions of Japanese scallop fries, 200 millions of sea cucumber (stichopus) fries, 20 millions of disk abalones fries and 10 million sea urchins every year.
- To reach the goal of breeding large-size fries in a set period, we have created a three-level breeding techniques and fry output has reached the stipulated fry utilization ratio (over 80%).



1.The research and development of healthy fry breeding technology



心有帆 海无界



1.The research and development of healthy fry breeding technology



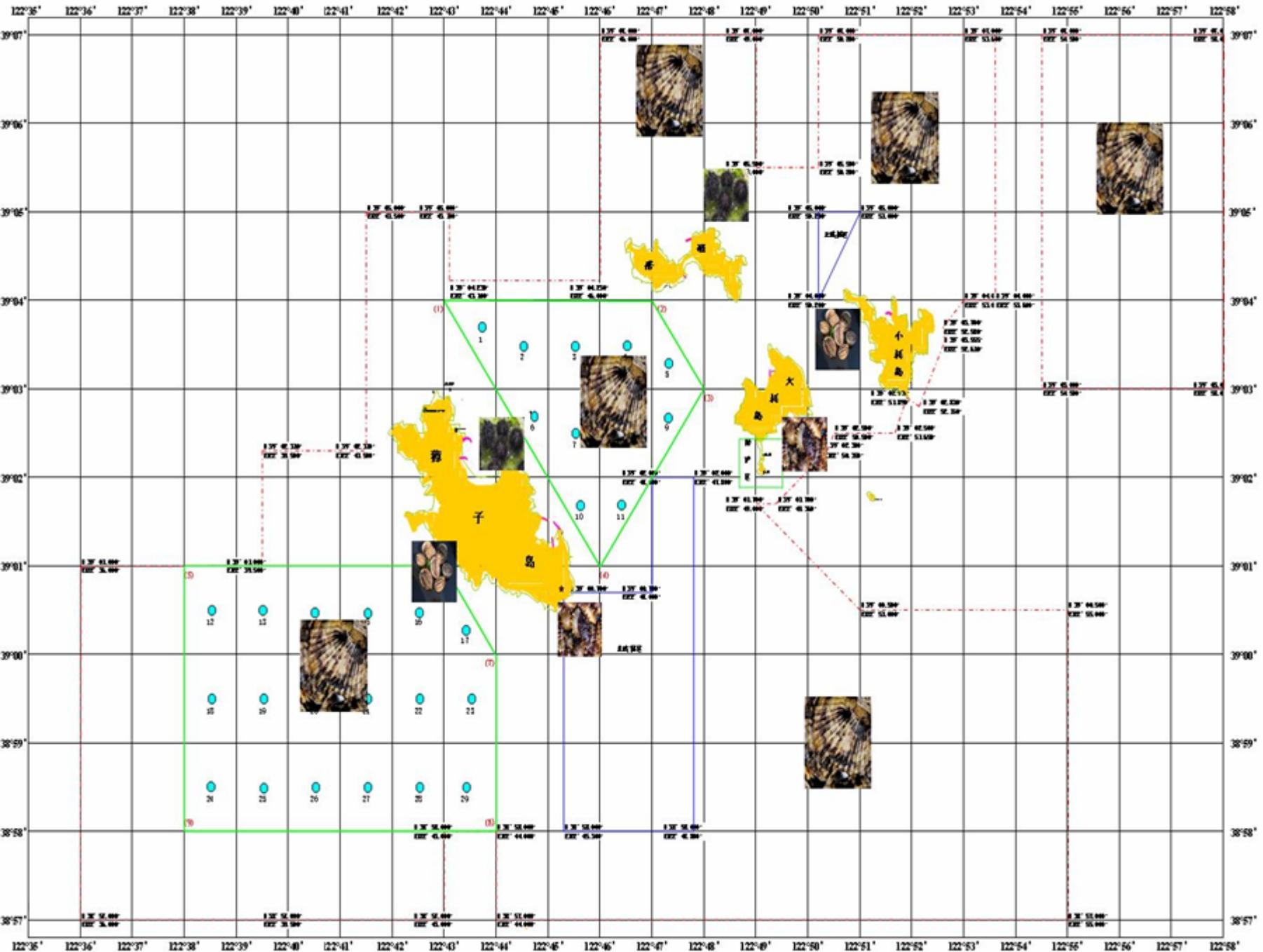
心帆 海无界



2. The Bottom Multiplication Method of scallop

2. 1 General Introduction of Proliferation

- According to the criteria for selecting organisms used in proliferation such as the environment, market demand ,economic value and research ability, the company has formed the fishery proliferation system focusing on the shellfish, sea cucumber and abalone, and supplemented by the sea urchins, conch, blood clam, clam and fish.
- Now the company has explored an area of 60,000 hectares for aquaculture, 40,000 hectares for Japanese scallop bottom multiplication, 3,000 hectares for blood clam bottom multiplication, 1,000 hectares for abalone bottom multiplication and 1, 000 hectares for sea urchin bottom multiplication.
- The corporation currently has an annual producing capacity of 20,000 tons of Japanese scallops, 1000 tons of sea cucumber (stichopus), 300 tons of disk abalones, 300 tons of sea urchins, 500 tons of Conch Hemifusus Tuba and 2000 tons of Saxidomus purpuratus each year.





2. The Bottom Multiplication Method of scallop

2. 2 Fry Proliferation by Releasing

The selection criterion of areas suitable for raising all the breeds has been set up.

Investigations on the sowing areas must be carried out to determine the multiplication area according to the above criterion before bottom breeding.

All harmful organisms must be cleaned up completely before bottom breeding. Thus the goal of timely multiplication and rational close breeding has been reached.

2. The Bottom Multiplication Method of scallop



心有帆 海无界

2. The Bottom Multiplication Method of scallop

2. 3 Catching and Ingathering

Catching and ingathering are carried out with the methods of diver catching and beam trawl.

The group make plans scientifically, catching and resting alternate in rotation of a 4-year cycle.



3. Monitoring and Evaluation of marine environmental



3.1 The Control of Seawater Environment

- ◆ We mainly focus on the control of hydrodynamic force, hydrology, hydrochemistry, pollutants and the biological organisms.
- ◆ The group company carries out a thorough investigation of the water quality and microorganism on a monthly basis (altogether 28 locations will be investigated)
- ◆ The group Entrust the Aquatic Products Quality Supervision and Testing Center, Ministry of Agriculture (Dalian) to carry out monthly water quality testing (altogether 16 location will be investigated).





3. Monitoring and Evaluation of marine environmental

3.2 Construction of multiplication cultivation capacity model of Japanese scallop (cooperating with Professor Fang)

Evaluation has put up on culture capacity and ecological bottom multiplication etc., bottom multiplication cultivation capacity model is optimized, the density, size and distribution is adjusted, research of multivariate ecology cultivation and other technologies are carried out.

The result shows that the average filtration rate of cultured Japanese scallop is $0.054 < 1$, the farming output of Japanese scallop is lower than the cultivation capacity. Multiplied 1.5 times will reach the ecology capacity, multiplied 30 times will reach the cultivation capacity, so there is much space for Japanese scallop multiplication.



3. Monitoring and Evaluation of marine environmental

3.3 The study and development on harmful organisms

- ◆ Studies are carried out on the evaluation system of harmful organisms (starfish and crab), rules and regulations have been set up .
- ◆ We have set up a specialized cleaning team for harmful organisms. 1200 tons of harmful organisms was cleared in 2006, 900 tons was cleared in 2007.
- ◆ Research is carried out which is about biology and the reproduction of the fouling organism roost with Japanese scallop. We discover 4 broad classes fouling organism in all, which include sponge, polyzoa, nemertean and polychaete annelida. After identifying them, we realize Polychaete annelida includes *Hydroides fusicola*, *Polydora ciliata*, *Nereis huanghaiensis* and *Nereis zonata*.
- ◆ Studies are put up on morphology, reproduction and growth, regeneration, actions of making pipes and burrowing into shellfish, prevention and treatment of *Polydora ciliata*.



Product Processing and Marketing

心有帆 海无界

Product Processing and Marketing



The company concentrates on improving the added value of product, energetically develops the fine and deep processing of aquatic products, lays stress on input in technology, site and equipment. Now, there are three series 20 different kinds of aquatic products, which are all very competitive in the market.



北海元界

Product Processing and Marketing



The group sets up the idea of “take the customer as the focus of attention”, and center on improving the product quality , satisfying the market requirement and customer demand. The group has won high popularity and fine reputation in domestic and foreign markets, the products sell well in each big city of China. The products have been registered in more than 30 countries and areas, such as the USA, Australia, New Zealand and so on, and the products also have been sold in more than 10 foreign countries like the USA, Australia, Japan, South Korea and so on .





Tank you!

心有帆 海无界

谢谢观看

大连獐子岛渔业集团股份有限公司
DALIAN ZHANGZIDAO FISHERY GROUP CO.,LTD.

地址：辽宁省大连市中山区人民路26号人寿大厦17F/18F

电话：0411-82659666

邮编：116001

E-mail : itd@zhangzidao.cn

网址 : www.zhangzidao.com