

UNDP/GEF Project entitled

“Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem”



REPORT

OF THE YELLOW SEA YOUTH PROGRAMME

ENVIRONMENT EDUCATION PROGRAMME FOR YOUTH

IN YALUJIANG RIVER ESTUARY



Liaoning Ocean and Fishery Department
Dandong, China, 11 - 12 August 2007

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I. Background of the Programme

In co-operation with the UNDP/GEF Yellow Sea Project Management Office (PMO), Liaoning Ocean and Fishery Department, Liaoning Ocean and Fisheries Science Research Institute and Dandong Ocean and Fishery Bureau conducted the activity of Youth programme in 2007 as one of the public awareness activities. In this Programme, 2 days activity was organized for environmental education targeting middle school students in Yalujiang river estuary. Liaoning Ocean and Fisheries Science Research Institute prepared this report to inform the PMO of the Process of and results from the implemented activities.

The Youth Programme with the theme “with a desire, with an ocean”, was held in Dandong, China on 11 and 12 August 2007. The activity consisted of lectures, completing questionnaire, discussion, the release of juvenile puffer fish stocks, marine litter clean-up and a visit the Dandong National Nature Reserve. About 50 students (aged 12-16) from Dandong No.6 Middle School and their two teachers participated in the activity to broaden their knowledge on importance of marine environment protection. Amway International and Amway Dandong Office sponsored the hands-on activities and visit to Dongang Nature Reserve in Yalu River estuary. Over 30 Amway staff participated in the event, as they also wished to improve their understanding on marine environmental problems and potential solutions. All the teaching materials were prepared in Chinese.

1. Objective of the Youth Programme

The project aimed to promote awareness of young students on the status and problems in the area which resulted from human activities through field study, to recognize the importance of marine conservation through necessary knowledge and information from the lectures, and to encourage them to consider the possible actions through discussion.

2. Activities of the Youth Programme

2.1 The activity consisted of lectures, field study, discussion and questionnaire survey. The lectures in the theme of “with a desire, with an ocean” were conducted in Yalu River Hotel located in Dandong city. The field study with the theme of “Protecting marine environment, cherishing our blue home” focused on two regions along the Yellow Sea in China: the

Haiyanghong area which is the spawning site for fish and shrimp and the Dandong National Nature Reserve which is designated as a protected area due to its valuable coastal and marine resources.

2.2 Total 50 students participated in the Programme from Dandong No.6 Middle School. The students in this school do not have a lot of opportunities to visit the Yellow Sea and learn its environmental problems.



2.3 The lectures provided the information on the marine and coastal environment in the Yellow Sea and on the status and feature of its local coastal region to promote the understating of students. During the lectures, educational materials such as propagate booklets were distributed to the students. After the lectures, the students were allowed to ask questions to all speakers.

2.4 Then, the students had field trips, participating in the release of juvenile puffer fish stocks, marine litter clean-up and a visit the Dandong National Nature Reserve to observe the marine environment and resources and participate in hands-on activities.

2.5 An initial questionnaire was completed by students within a few weeks of them attending the youth programme. An exit questionnaire was completed by students as they near the end of their involvement with the youth programme. The students could contribute their views and opinions that they obtained from the field study as well as the lectures through the exit questionnaires.

2.6 The Programme produced several education materials as below (see Annex):

- Lecturers's materials;
- Propagate booklets;
- The Initial and Evaluation Questionnaires

2.7 The following organisations co-operated with the Liaoning Ocean and Fishery Department to organise the Programme:

- Liaoning Ocean and Fisheries Science Research Institute;
- Marine and Fishery Bureau of Dandong;

- Amway (China) Co., Limited Liaoning Province Branch;
- Dandong National Nature Reserve;
- China Ocean News;
- Liaoning Daily News

II. List of participants

1. Project Management Office (PMO)

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3. Dandong #6 Middle School

50 students and 2 teachers

From Dandong #6 Middle School

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5. Amway (China) Co., Limited Liaoning Province Branch

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Ms. Guixin Feng

Director
Amway (China) Co., Limited
Liaoning Province Branch

Mr. Hongchen You

Public Relations Manager
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Over 30 staff

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III. Summary of Preparatory Education

The Preparatory Education was conducted in Dandong Yalu River Hotel on 11 August 2007. About 50 students (aged 12-16) from Dandong No.6 Middle School, their two teachers and over 30 Amway staff participated in this activity.

1. The opening ceremony

On the first day, 11th August 2007, at the opening ceremony of the activity, Mr. Laizhao Chen, assistant Director of Liaoning Ocean and Fishery Department, introduced and welcomed all participants, and gave a brief introduction about the aim of the programme. Mr. Yihang Jiang, Project Manager from the PMO made welcome remarks, briefly describing the background and importance of the programme. Ms. Jue Wang, senior manager of Amway (China) Co., Limited Liaoning Province Branch, expressed



her willingness to participate in Marine Environmental Protection. After that, Mr. Yuejing Song, director of Dandong Ocean and Fishery Bureau, gave an overview on the status of environment in Yalujiang river estuary and introduced the activities of the project.

2. The initial questionnaire

Following the opening ceremony, an initial questionnaire which was completed by students within a few weeks of them attending the youth programme was submitted to event organizers. Otherwise, event organizers also collected 1000 questionnaires completed by students from Dandong No.19 Middle School. Survey results revealed that most students felt a strong curiosity about the ocean.

3. Lectures

Five lectures were given to all participants: (1)'Reducing Environmental Stress In The Yellow Sea Large Marine Ecosystem' presented by Mr. Yihang



Jiang from The Yellow Sea Project Management Office (PMO); (2)' Marine environment and current status of the Yellow Sea's costal region' presented by Mr. Dexin Meng From Liaoning Ocean and Fishery Department; (3)'The Spotted Seals in Chinese Seas' presented by Mr. Jiabo Han

from Liaoning Ocean and Fisheries Science Research Institute; (4)'Cherishing the Ocean' presented by Wen Quan from National Marine Environmental Monitoring Centre (NMEMC); (5) 'Utilization and Ecological Protection of the Yellow Sea' presented by Mr. Nianbin Wang from Liaoning Ocean and Fisheries Science Research Institute. All the lectures in electronic edition had been transferred to Dandong No.6 Middle School for education materials. The

target audience included 50 students from Dandong No.6 Middle School and over 30 staff from Amway (China) Co., Limited Liaoning Province Branch. During the lectures, educational materials such as booklets were distributed to the participants. The lectures enabled the students to have a good understanding of the significance of marine environment and marine living creatures.



IV. Summary of the field study

On the second day, 12th August 2007, field study consisted of hands-on



activities in the Haiyanghong Area. Despite the pouring rain, all participants actively participated outdoors. The first event was the release of juvenile puffer fish stocks into the sea in the hope that the fish may mature in the wild and increase catch for fishermen.

The second event was marine litter clean-up. In the clean-up, the participants were broken into two groups and dispatched with bags to collect the rubbish that had accumulated along the beach area. The rubbish such as tangled nets, carelessly strewn plastic bottles and abandoned shoes along the coastline were picked up.



The third event was a visit the Dandong National Nature Reserve located



in Yalu River estuary. Here, participants were introduced to the nature reserve zones, management plans, and the various bird and plant species found in the estuary. Participants were also informed about the importance of the area as a stopover place

for migratory birds of the Asian-Australia flyway.

Finally, the exit questionnaire was conducted to get feedback from the students. The students could contribute their views and opinions that they obtained from the field study as well as the lectures through the exit questionnaires.

Two reporters were present to report on the activity. China Central Television's main station, CCTV-1, reported the event during one of the main news broadcasts - the 7PM news. China Ocean News also wrote an article about the event.



V. Summary of the discussion by participating students on lessons and experiences learned from the programme



After all lectures were given, students were allowed to ask questions to all speakers. The students' questions showed their vast knowledge gained from the lectures and other sources. Students were able to ask quite profound questions which at times, were difficult for lecturers to answer. For example, one student asked how to predict red tides and whether red tides will become more frequent and worse around the Yellow Sea.

VI. Suggestions from participating students for the future implementation of similar programme

The exit questionnaire surveys were conducted to get feedback from the students. Based on the 50 submissions under the question "Your suggestions for the similar youth programme (if any)", students' suggestions could be summarized roughly into five main themes:

- The Programme was a good opportunity for the participating students to deepen their understanding of the marine environmental issues and to have interests in the marine environment which is close to their lives.
- All the students thought more information on how to keep the ocean away from pollution should be provided in the lectures.

- Due to busy school work, most students lacked opportunities to participate in the field study of marine environmental protection. So they hoped they would have more opportunities to observe the marine environment and marine organisms during vacation period.
- Having participated in the Programme, some students expressed their willingness to join the monitoring activity of the pollution in Yalu River Estuary Area.
- Some students suggested that the field study should focus on a few important sites which cause serious environmental problems. Visiting those sites would greatly raise their interest.

ANNEX I

CONTACT INFORMATION OF IMPLEMENTING INSTITUTIONS

Implementing institutions	Address	Contact information (Person in charge, E-mail, telephone and fax)
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ANNEX II
LECTURER MATERIALS

中国的斑海豹 The Spotted Seals in Chinese Seas

辽宁省海洋水产科学研究院
Ocean and Fisheries Research
Institute of Liaoning Province



介绍的主要内容



- 1、斑海豹的基本知识 (The basic information of spotted seal)
- 2、斑海豹保护方面的研究 (The researches about the spotted seal)
- 3、斑海豹保护的行动 (The actions of spotted seal protection)

1. 斑海豹的基本知识



- 包括5个内容：
 - 分类 (Classification) ;
 - 分布 (Distribution) ;
 - 繁殖 (Breeding) ;
 - 运动 (Movement) ;
 - 食物 (Foods) 。

Q1: 什么是斑海豹 ? Classification of seals



(门-纲-目-科-属-种)
(Phylum-Class-Order-Family-Genus-Species)

海豹(Seals) 泛指鳍足亚目 (Pinnipeds / Pinnipedia)
哺乳动物, 分为3科:

- 海狮科 (Eared Seals / Otariidae): 海狮 (Sea lion) 1属5种
及海狗 (Fur seal) 2属11种
- 海豹科 (True Seals / Phocidae): 10属共19种(斑海豹)
- 海象科 (Walrus / Odobenidae): 1属1种

海狮、海豹和海象的外型



海狮



海豹



独特的外露象牙

海象

Q2: 如何区分海狮和海豹? Identification of true seal and eared seal



斑海豹

斑海豹属
斑海豹科
斑海豹属
斑海豹属
斑海豹属

无外耳廓, 后鳍肢不能转到体下面
(各鳍肢在顶面和底面完全被毛, 前鳍肢有5个
显著的趾, 每趾具1爪, 后鳍肢的5个趾均具爪
或没有着得见的爪)

有外耳廓, 后鳍肢能转到体下面
(各鳍肢不完全被毛, 前鳍肢的爪囊退化
或缺失, 各后鳍肢的中央3趾具爪)

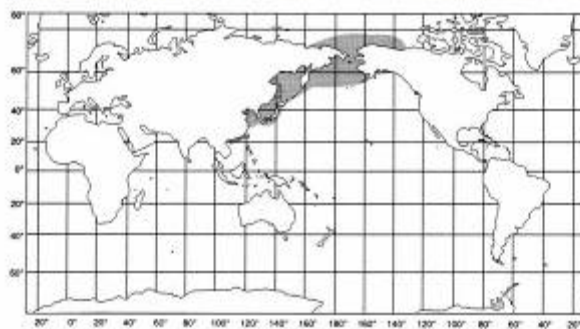


斑海豹属的成员



Q3: 世界上那有斑海豹?

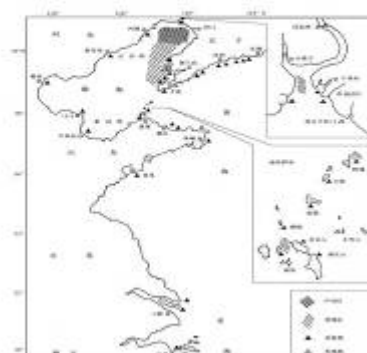
Distribution of Spotted Seals in World Seas



西北到西楚科奇海的Chau湾 (北纬70°N, 东经170°E);
东北至波弗特海 (Beaufort Sea) 的Herschel岛 (北纬69°35' N, 西经139°W); 东南到白令海的布里斯托尔岛 (Bristol); 西南至长江口 (北纬31°N, 东经122°E)

Q4: 中国那里能够见到斑海豹?

Distribution of Spotted Seals in Chinese Seas



主要分布渤海和黄海，偶见东海、南海。活动范围较广，繁殖期过后，成兽在辽宁省双台子河口附近岸滩，大连市猪岛、胡平岛及渤海海峡的庙岛群岛较常见，幼兽则分散于辽宁、河北、天津、山东的渤海沿岸觅食。黄海西南部记录于青岛市，江苏省赣榆县、滨海县和如东县。东海北部记录于崇明岛。东海南部记录于福建省平潭海区，少数向南进入南海，在广东省汕头市和阳江市曾有发现。

Q5: 斑海豹在什么地方繁殖?



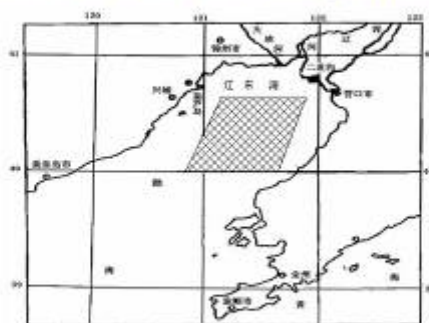
雌兽的妊娠期约为8-10个月，斑海豹每胎只产1仔，分娩时需要爬到岸边或冰块上。

The Eight Breeding Concentrations of Spotted Seals in the World Seas



1. 辽东湾; 2. 符拉迪沃斯托克; 3. 鞑靼海峡; 4. 萨哈林岛东海岸延伸至北海道岛北部;
5. 舍利霍夫湾; 6. 卡拉金湾至奥柳托夫斯基角;
7. 阿纳德尔湾; 8. 布里斯托湾至普里比洛夫群岛。

The Breeding Concentrations of Spotted Seals in Liaodong Gulf



40° 00' N, 120° 50' ~121° 40' E至40° 40' N, 121° 10' ~121° 50' E

斑海豹的幼仔(pups)



幼仔长约50厘米，体重约100千克。幼仔出生后第16天左右，开始换毛，此时，开始长出斑点。幼仔出生后第16天左右，开始换毛，此时，开始长出斑点。幼仔出生后第16天左右，开始换毛，此时，开始长出斑点。

Q6: 斑海豹游多快? 潜多深?

- 速度能达到每小时14-90 千米。雄斑海豹在一个月，运动的距离达到1000千米。
- 潜水能力也很强，可下潜至60~100米左右，最深可达300米。
- 每天潜水多达30~40次，每次持续20分钟以上。

Q7: 斑海豹吃什么? Prey Preference

- 斑海豹为广食性的动物，其食物多样性主要取决于季节、海域及栖息地的环境，栖息地的环境对食物选择影响最大。
- 在白令海中部、鄂霍茨克海，
 - 白令海南部，
 - 白令海北部，
- 在楚科奇海东南部
- 在日本海、阿拉斯加的近海
- 在黄、渤海，春季捕食鲱、玉筋鱼、小黄鱼等，秋冬季节则多以梭鱼为食。
- 其他食物包括各种甲壳类、头足类等海洋性动物。此外，对食物的选择也与年龄有关，研究表明：一龄斑海豹偏爱小型甲壳类；一至四龄斑海豹主要捕食鱼、大虾，偶尔也捕食头足类；四龄以上斑海豹主要捕食鱼，并显著地增加捕食底层生物的量，如蟹类和头足类。



绿鳍；
毛鳞鱼；
北极鲑鱼
鲱鱼、胡瓜鱼
鳕、鲑等鱼类。

爱水还是爱冰？



斑海豹生物学

项目	基本情况	
名称	西太平洋海豹	
别名	斑海豹	
分类	食肉目；犬形亚目/鳍足类；海豹科	
保护级别	国家Ⅱ级保护动物	●●●●
分布范围	渤海、黄海、偶见于黄海	●●●●●●●●
性格	比较机警，成队或者小群活动	●●●●●●●●
形态特征	体长150~200厘米，体重120~150千克	●●●●●●●●
外貌特征	全身生有细密的短毛，背面灰黑色并有不规则的得棕黑色斑点，腹面乳白色。头圆而平滑，眼大，唇部有长硬的须，没有外耳廓。趾间有蹼相连，尾小	●●●●●●●●
食性	为广食性，以鱼类为主，各种甲壳类、头足类等海洋性动物	●●●●●●●●

项目	基本情况	
成长过程	幼仔初生时全身披白色的胎毛。16天后皮下脂肪开始形成，开始褪胎毛，全部脱换完约需9天。哺乳期为1个月，3~5岁性成熟	●●●●●●●●
抚幼行为	在冰上发现危险时，亲兽利用后肢抱住仔兽逃入水中，有时咬住仔兽的前肢拖走。当船驶近，雄兽先逃入水中，离的较远；母兽在船近时下水，并不远离，屡次爬上附近的冰块，或在水中时常露出头来窥视。船离开后，母兽即爬上冰块寻找仔兽，若找不到仔兽，便跟在船后游，因此常被捕杀。	●●●●●●●●
群体迁移	洄游具有适应意义，保证种群得到有利的生存条件和繁殖条件，是与生活周期中的前后各个环节相联系的不可分隔的重要环节。斑海豹的流冰生活期和沿岸生活期的生活场所有变动，带有明显的生活年周期。	●●●●●●●●
濒危原因	1、为获取毛皮、药材或供观赏而大量猎捕 2、石油工业、海洋运输业	●●●●●●●●

项目	基本情况
生态习性	在温带、寒温带的海域生活。大部分时间在海水中度过，仅在生殖、哺乳、休息和换毛时才爬到海岸上或者冰块上。昼夜活动。游泳时主要依靠后肢和身体的后部左右摆动前进。在陆地上依靠前肢和上体的蠕动匍匐爬行。
游泳速度	平均运动速度可以达到每小时14-90千米。
水性	潜水能力很强，一般可以下潜至60-100米左右，水深的地方可以下潜300米。每天潜水多达30-40次，每次持续20分钟以上。
栖息环境	在我国沿海主要栖息在渤海，栖息的环境包括海水、河水、浮冰、泥沙滩、岩礁和沼泽地。对水温的适应范围在-12℃- 33℃之间。可以在盐度范围4-30海水或淡水中生活。
生殖	雌兽的妊娠期约一年，分娩时需要爬到岸边或冰块上。每胎产1仔，亲体一般产后20余天即在水中交配。辽东湾斑海豹产仔期在1月初至2月上旬，晚至2月中旬，分娩时间比西太平洋北部的其他七个繁殖区的斑海豹为早。

2 、关于斑海豹保护方面的研究（The researches about spotted seals）

- 2.1 斑海豹的栖息地 (Habitat)
- 2.2 斑海豹的数量调查(Surveys)
- 2.3 斑海豹的分子生物学研究(bio-molecular study)
- 2.4 斑海豹的迁移 (Migration)

2.1 斑海豹的重要栖息地 Haul sites of spotted seals in China

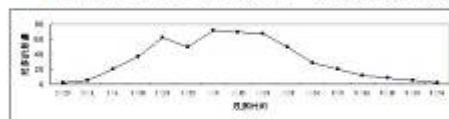
- 斑海豹在渤海的栖息地分为三种类型：（1）河口一段开阔的泥沙滩或泥沙岗河岸，向河水或海水的方向斜度较小，有利于斑海豹的爬行，在大潮或满潮时大部分会被海水淹没。双台子河口属于这一种类型；（2）海岛周围的岛礁，无论大潮还是小潮，大部分礁石通常露出水面，如山东庙岛周围的岛礁属于此类型；（3）海里的浅石滩，只在低潮或枯潮时部分露出水面，如大连的虎平岛。斑海豹的栖息地都位于比较偏僻的水域。

斑海豹的栖息地-1: Spotted seals near Shuangtaizi River

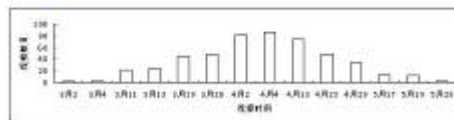


斑海豹的栖息地-2: Spotted seals of Miaodao Islands

- 图a 2002年核心区斑海豹数量



- 图 b 2004年核心区斑海豹的数量



斑海豹的栖息地-3: Spotted seals in waters of Huping Island

表2 虎门岛附近斑海豹数量统计 (2006年2-5月)
Table 2 The spotted seals daily numbers around Huping Island in Salween (between May to May of 2006)

日期(2月)	9-11	12	13	14	15	16	17	18-19	20	21-22	23	24	25	26	27	28
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	2	4	5	6	7	8	9	10	11	12	13	14	15	16
日期(2月)	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(3月)	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(4月)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(4月)	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
湾岸封港	0	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14
日期(5月)	43	44	45	46	47	48	49	50	51	52	53	54				

2.2 数量调查—空中调查(Aerial Surveys)



调查飞机：
运-12

调查时间：
1月-2月，

调查范围：
斑海豹繁殖区

数量调查---Aerial Surveys



录像

空中调查(Aerial Surveys)



记录斑海豹的位置

黄海海洋利用现状及生态保护

Utilization and Ecological Protection of the Yellow Sea



黄海自然概况

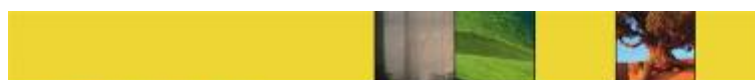
Yellow Sea Natural Profiles

- 黄海位于西太平洋西北侧，全部为大陆架所占的浅海。海域面积约38万 km^2 ，平均水深约45.3m，最深140m。
- 长江口北岸的启东角与韩国济州岛西南角的连线是黄海与东海的分界线。
- 辽东半岛的老铁山角与山东半岛的蓬莱角的连线是黄海与渤海的分界线。
- 山东半岛的城山角与朝鲜的长山串连线将黄海分割成北黄海和南黄海两部分。



内容提要 Summary

- 黄海自然概况 Yellow Sea Natural Profiles
- 自然保护区及分布 Distribution of the Nature Reserves
- 传统海洋产业及走向 Traditional Marine Industries and Trends
- 环境污染对海洋生态的影响 Impacts of Environment Pollution on Marine Ecology
- 海洋灾害 Marine Disasters
- 海洋事故 Marine Accidents
- 物种入侵对生态的影响 Impacts of Species Invasion on Marine Ecology
- 海洋开发与保护 Ocean Development and Protection



黄海自然地貌

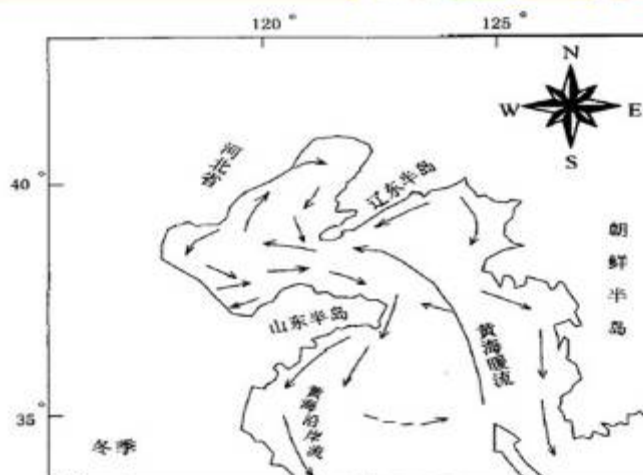
Yellow Sea Natural Landscapes

- 黄海东部和西部岸线曲折，岛屿众多。主要有长山列岛和朝鲜半岛西岸诸岛。
- 海湾有西部的胶州湾、海州湾，东有朝鲜湾、江华湾等。
- 注入黄海的河流有淮河水系诸河、鸭绿江和大同江等。
- 黄海海底地势较平缓，但地貌呈现多种形态。

黄海温、盐度

Yellow Sea Temperature and Salinity

- 黄海是中国近海温跃层最强而盐跃层最弱的区域。温跃层由海面增温和风混合造成的季节性跃层；盐跃层是由两种性质不同的水团叠置形成。
- 黄海的水温年变化为 $15^{\circ}\text{C}\sim 24^{\circ}\text{C}$ 。黄海海水的盐度为32‰。黄海寒暖流交汇，水产丰富，特别是黄海沿岸地势平坦，面积宽广，适宜晒盐。



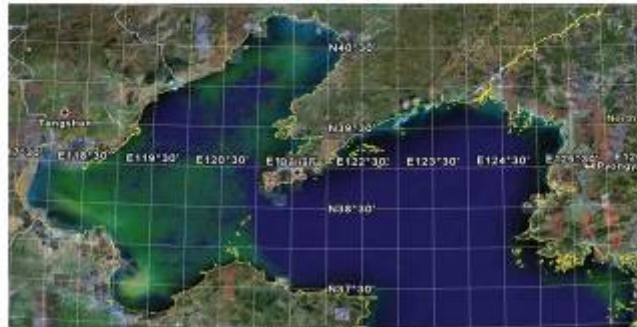
黄海海流

Yellow Sea Currents

- 黄海海流微弱，流速通常仅为最大潮流速度的十分之一。
- 表层流受风力制约，具有风海流性质。
- 黄海环流主要由黄海暖流（及其余脉）和黄海沿岸流组成。
- 黄海暖流是对马暖流在济州岛西南方伸入黄海的一个分支。

北黄海 (the Northern Yellow Sea)

- 北黄海是指山东半岛、辽东半岛和朝鲜半岛之间的半封闭海域，海域面积约为7.1万平方公里，平均水深40米，最大水深在白翎岛西南侧，为86米。



黄海生态区潜在保护区

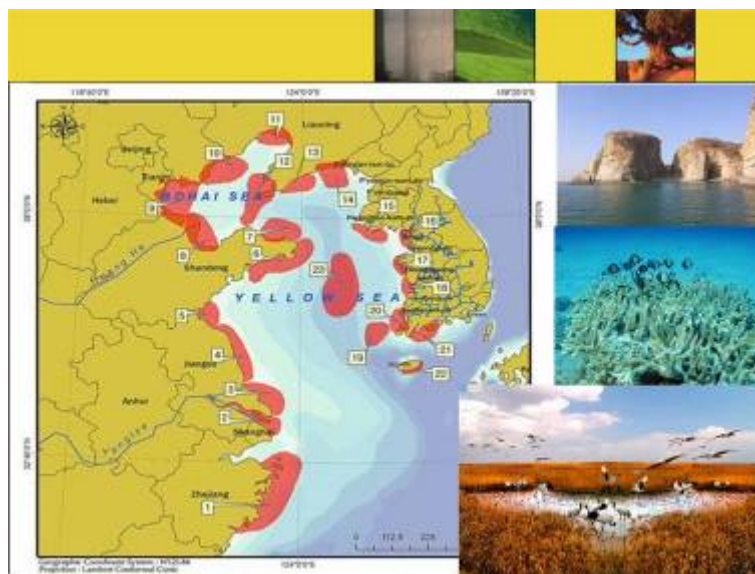
Potential Protection Areas in Yellow Sea Ecological Zones

- 世界自然基金会（WWF）已启动“黄海生态区规划项目”，首次对黄海生态区进行了规划。
- 中、日、韩三国的科学家根据海洋哺乳动物、鸟类、鱼类等6个生物类群对栖息地的需求，已经在黄海生态区确定了23个潜在优先地区。
- 2006年12月13日，在中国海南召开的第二届东亚海大会上，WWF在会上首次向公众展示了黄海生态区潜在保护区域图。

自然保护区分布

Distribution of the Nature Reserves

- 北黄海辽宁境内的海岸及海洋生态区域被列为7个保护区。
- 国家级：鸭绿江口滨海湿地自然保护区、大连成山头海滨地貌自然保护区；
- 省级：长海海洋珍稀生物自然保护区；
- 市级：大连老偏岛——玉皇顶海洋生态自然保护区、大连海王九岛海洋景观自然保护区、大连三山岛海珍品自然保护区、大连金石滩地质遗迹自然保护区。



传统海洋产业及走向

Traditional Marine Industries and Trends

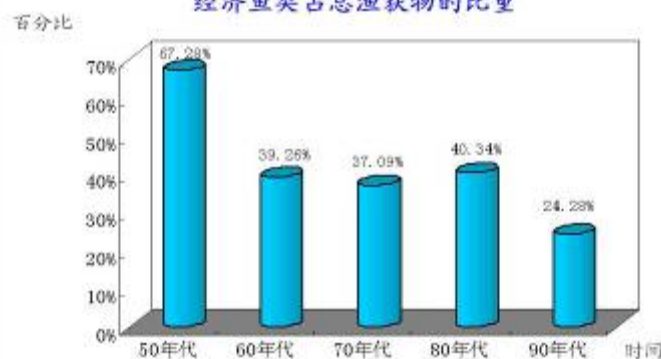
- 20世纪，渔业、盐业和港口运输是黄海海域及其沿岸的主要海洋产业。
- 上世纪前叶，盐业、渔业是海洋产业中最大的产业。
- 黄海曾是我国主要经济鱼类的捕捞渔场。
- 下半叶，随着造船业和贸易的发展，海上交通运输业蓬勃兴起，港口运输占据了海洋产业的主导地位。
- 伴随着海洋天然渔业资源的衰退，捕捞渔业逐渐退出历史舞台，被养殖渔业所替代。
- 随着晒盐技术的不断进步，盐业的单产日益提高，盐业占海的规模逐渐缩小。1983年水产养殖启动，养殖面积1万公顷，对虾年产量在1万吨。

渔获品种规格的变化

Catch Species Specifications Change

- 黄海渔业品种规格变化较大的主要有小黄鱼、带鱼、鲈鱼、蓝点马鲛和鲆鲽类，虽每年有一定的数量，但规格偏小。
- 现在捕获的小黄鱼，主要是以1龄鱼和部分当龄鱼为主。
- 由于捕捞强度太大，小黄鱼为了种群的延续，生理上已发生变化，绝大部分1龄鱼已达性成熟。
- 其余几种鱼的情况与小黄鱼类似，尤其是蓝点马鲛，现在的渔获物中是以当龄鱼为主，鲈鱼也是以1龄鱼和当龄鱼为主。

经济鱼类占总渔获物的比重



渔获品种的组成

Catch Species Composition

- 50年代黄海经济鱼类主要种类为小黄鱼，带鱼，鲆鲽类，鲈鱼，兰点马鲛，鳕鱼，对虾，占总渔获量的平均比例为67.28%。
- 60年代经济鱼类比例急剧下降（39.26%），小黄鱼、带鱼下降了10倍多。
- 70年代黄海经济鱼类比例继续下降（37.09%），1972年太平洋鲱鱼旺发，连续几年资源较好。
- 80年代主要靠马面鲀使黄海经济鱼类比例有所回升（40.34%）。
- 90年代鳕鱼产量上升，中后期主要是玉筋鱼，因鳕鱼、玉筋鱼不能算经济鱼类，因此，90年代经济鱼类比例仅占24.28%。

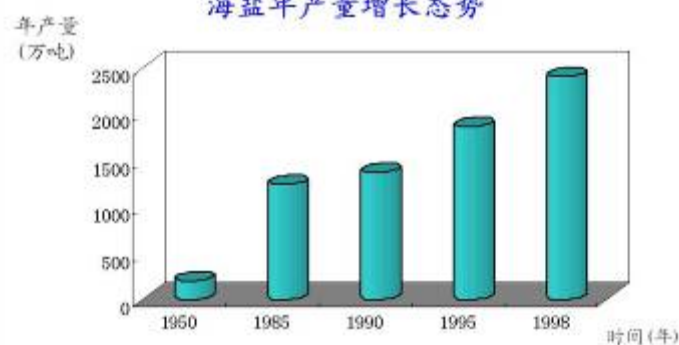
海水养殖产量(吨)

Aquaculture production (tons)

	鱼类	甲壳类	贝类	海藻	合计
1980	*	*	*	*	778,000
1985	14,000	43,000	82,000	27,000	1247,000
1990	43,000	189,000	2390,000	27,000	2842,000
1995	145,000	116,000	6601,000	739,000	7215,000
2000	427,000	343,000	8607,000	1200,000	10,613,000

20年增加了12.6倍。2004年海水养殖产量2004年的1309万吨。

海盐年产量增长态势



海水养殖产量占海洋水产品的比例

Aquaculture production accounts for the proportion of marine aquatic products

	比例 (%)
1980	19.9
1985	24.4
1990	31.7
1995	38.8
2000	41.8

• 2004年占海水养殖产量的比重上升到48.2%。

环境污染对海洋生态的影响

Impacts of Environmental Pollution on Marine Ecology

- 近年来我国海洋产业的高速发展和科学技术的进步，开发利用海洋资源的需求和能力有了较强的增长，但是，在经济快速增长的背后，是资源的大量消耗以及对生态环境特别是海洋生态环境的严重破坏。
- 近海海域的污染比较严重，海域污损事件频发，环境灾害不断；工业废水大量排海，以及海水养殖业的迅猛发展，海域海水富营养化程度明显加重，赤潮不时发生。
- 近20年以来，由于陆源污染物入海量的剧增和沿岸海域的无序开发，使黄海海洋生态环境遭到了严重破坏。

陆源污染及其影响

Ocean Pollution from Land-based Sources and its effects

近年来平均每年排入黄海的污水超过20亿吨



污染的来源

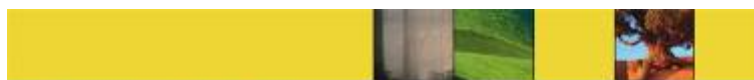
Pollution Sources

陆源污染

- 点源污染
- 面源污染
- 大气沉降
- 海洋动力输入

海洋产业带来污染

- 港口的污染
- 船舶运输的污染
- 海洋旅游的污染
- 海水养殖污染
- 盐业生产



港口运输业的环境风险

Port Traffic Environment Risk

- 我国自1993年由石油出口国转为石油进口国以来，石油进口量逐年上升，2005年石油进口量达到1.3亿吨，沿海石油运输量超过2亿吨。
- 据悉，我国进口石油的90%是通过海上船舶运输完成的。石油进口量的迅速增加，海上通航环境的日趋复杂，使我国管辖海域内发生重大船舶溢油事故的风险进一步加大。
- 大连港2006年原油吞吐量为2,089万吨，比2005年增长14.4%。成品油吞吐量为1,096.8万吨。



Reducing Environmental Stress In The Yellow Sea Large Marine Ecosystem



<http://www.yslme.org>



Project Brief Information

Project Title: "Reducing Environment Stress in the Yellow Sea Large Marine Ecosystem".

Project Objective: Ecosystem-based Environmentally-Sustainable management and Use of the YSLME and its Watershed: Reducing Development Stress and Promoting sustainable Development of the Ecosystem from a Densely Populated, Heavily Urbanised, Industrialised Semi-Enclosed Shelf Sea

Participating countries: People's Republic of China, Republic Of Korea

Duration: 5 years

<http://www.yslme.org>



Project Budget and Contributions

Total budget:	USD 29,416,698
GEF Budget:	USD 14,294,783
Governments:	USD 13,086,915
YSEPP:	USD 135,000
UNDP:	USD 1,300,000
NOAA:	USD 600,000

<http://www.yslme.org>

Long-Term Objective

The long-term development/environment objective of the project is:

Ecosystem-based Environmentally-Sustainable management and Use of the YSLME and its Watershed: Reducing Development Stress and Promoting sustainable Development of the Ecosystem from a Densely Populated, Heavily Urbanised, Industrialised Semi-Enclosed Shelf Sea

<http://www.yslme.org>

Immediate Objectives

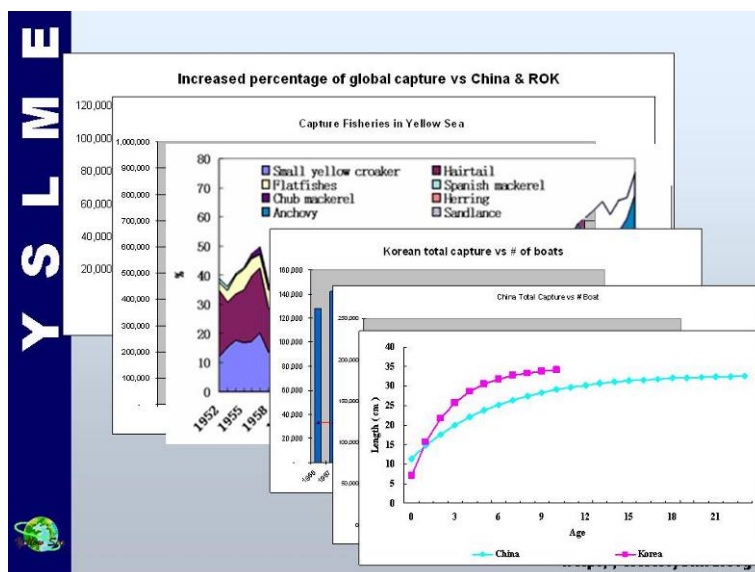
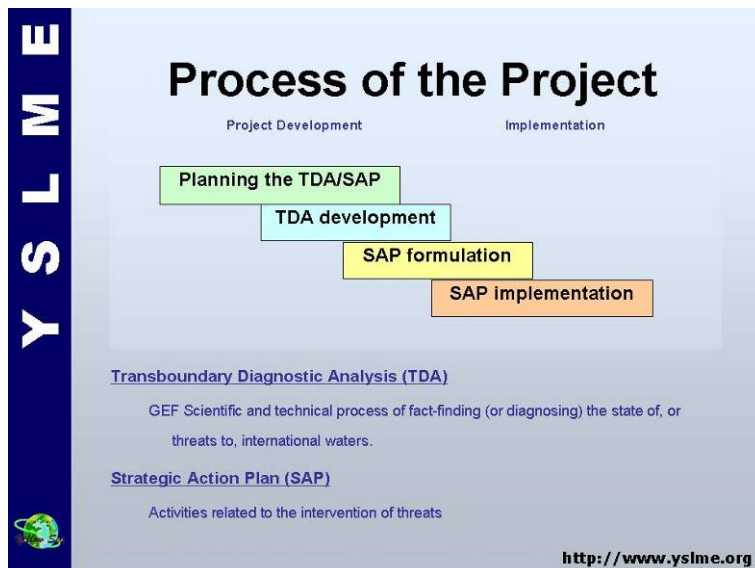
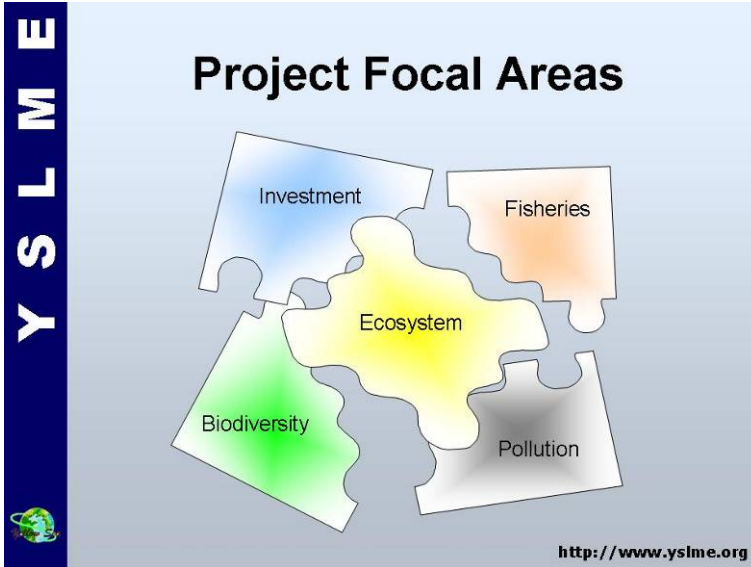
1. Develop Regional Strategies for Sustainable Management of Fisheries and Mariculture
2. Propose and Implement Effective Regional Initiatives for Biodiversity Protection
3. Propose and Implement Actions to Reduce Stress to the Ecosystem, Improve Water Quality and Protect Human Health
4. Develop and Pilot Regional Institutional and Capacity Building Initiatives

<http://www.yslme.org>

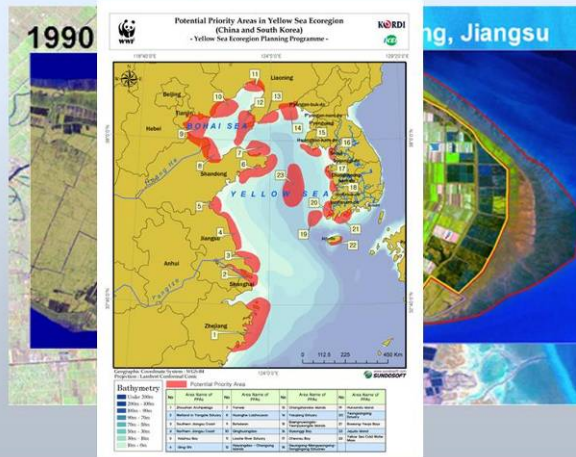
Expected Major Outcomes

1. Scientifically & Environmentally Sound Transboundary Diagnostic Analysis (TDA)
2. Approved Regional Strategic Action Plan (SAP) & National Yellow Sea Action Plan (NYSAP)
3. Established Regional Framework for Co-operation
4. Upgraded Capacities of Participating Countries

<http://www.yslme.org>

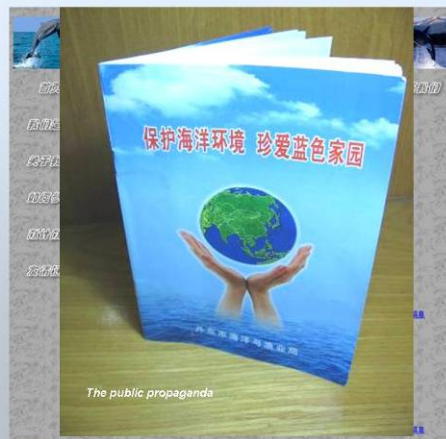


Project implementation – Biodiversity



<http://www.yslme.org>

Project implementation – Investment 2



<http://www.yslme.org>

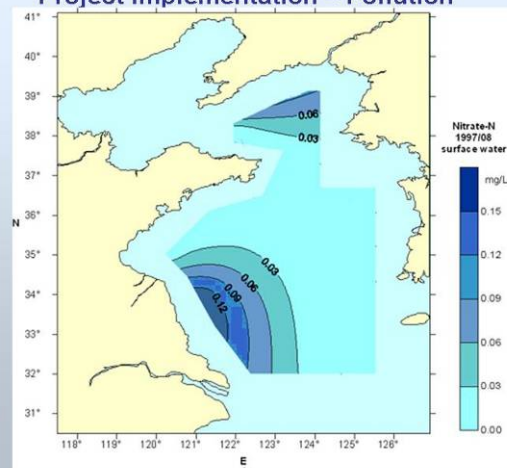
Project implementation – Investment



<http://www.yslme.org>



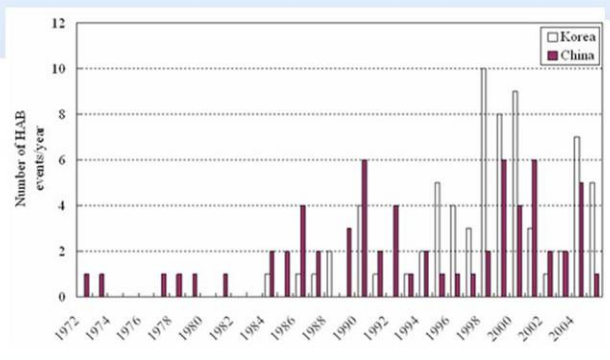
Project implementation – Pollution



<http://www.yslme.org>



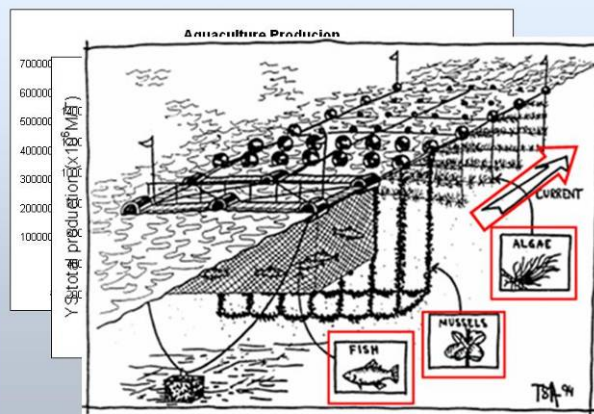
Project implementation – Ecosystem 2



<http://www.yslme.org>



Project implementation – Fisheries 2



<http://www.yslme.org>

ANNEX III
EVALUATION QUESTIONNAIRE

第一份调查表

选择题：

1、位于黄海沿岸的主要国家有（ ）

A 中国 B 日本 C 韩国 D 朝鲜

2、海洋越来越受到国际社会的关注。联合国将 1998 年定为“国际海洋年”，主题是“海洋——人类共同的遗产” 海洋越来越受到国际社会的关注。然而，我们是怎样继承和使用这笔“遗产”的呢？你认为，当前最突出、亟待解决的问题主要有（ ）

A 海洋意识淡薄 B 海洋环境污染不断加重
C 海洋综合管理能力弱 D 各级政府重视不够

3、我国是一个海洋大国。我国濒临西太平洋，东面和南面为“渤海、黄海、东海、南海”四海所环抱，海洋资源门类齐全，海洋资源主要包括海岛资源、化学资源、海底石油、天然气、矿物等矿产资源、再生能源、生物资源、港址资源、旅游资源、自然造陆地区等，其中海洋空间资源主要是。

A 海床 B 海洋水底 C 底土 D 水面及上覆空间

4、现代海洋观主要体现在海洋是国土和公土、海洋是新的生存和发展空间、海洋是国家安全防卫前沿，还指（ ）

A 海洋是环境健康的根本 B 海洋是资源宝库
C 海洋是全球通道 D 海洋是生命的摇篮

5、到目前我国出台有关海洋环境保护的法律法规主要有（ ）

- A 《海洋环境保护法》
- B 《防治海洋工程建设项目污染损害海洋环境管理条例》
- C 《环境保护法》
- D 《海域使用管理法》
- E 《海岛开发管理法》
- F 《自然保护区条例》
- G 《海洋倾废管理条例》

6、由于海洋体积的巨大，海水具有全球流动的特殊性，海洋污染与大气、陆地污染比较有其很多不同的特点。主要有（ ）

- A 污染源广 B 持续性强 C 扩散范围广 D 防治难，危害大

7、根据污染物的性质和毒性，以及对海洋环境造成危害的方式，大致可以把污染物分为石油及其产品、重金属和酸碱、农药、有机物质和营养盐类、放射性核素、固体废物、废热、生活垃圾等，其中（ ）进入海洋，容易造成海水的富营养化，能促使某些生物急剧繁殖，大量消耗海水中的氧气，易形成赤潮，使大批鱼虾、蟹贝的死亡。

- A 农药 B 有机物质和营养盐类 C 废热 D 生活垃圾

8、遭到污染的海洋，通过各种途径，反过来对人类进行报复，一些典型事例的发生，至今仍令人难忘，这也同时告诫人们，不按自然规律办事，到头来受到惩罚的还是人类自身。你知道下列那些海洋重大污染事件？

- A 50 年代初发生在日本九州岛南部熊本县水俣镇的水俣病
- B 被美国选作原子弹和氢弹的试验基地比基尼岛的厄运。
- C 1989 年 4 月美国超级油轮触礁石油外泄 1.2 万吨的阿拉斯加黑色灾难

D 累计造成约 30 万人患甲肝病的上海甲肝事件

E 已发展成全球性灾害的给海洋经济带来了巨大的损失赤潮的泛滥

9、你认为海洋资源为我们人类的生存和发展带来的影响大吗？

A 影响很大 B 一般般 C 没多大

10、你自己是否重视或爱护海洋环境呢？

A 我很重视海洋环境的

B 比较重视

C 无所谓

问答题：

你最了解和掌握的海洋开发与海洋生态保护知识有那些？

第二份调查问卷

选择题：

1、污染海洋的物质众多，按污染物的性质和毒性，以及对海洋环境危害方式，你认为以下哪几种属于海洋污染物？

- A、营养盐类和有机物质 B、细菌和病毒等病原体
C、重金属和酸碱类物质 D、有毒化学制品

2、海洋环境(质量)标准指确定和衡量海洋环境好坏的一种尺度。它具有法律的约束力，一般分为三类，即____、____和____。

- A、海水水质标准 B、海洋沉积物标准
C、海洋废弃物标准 D、海洋生物体残毒标准

3、____包括为开发海洋资源和依赖海洋空间而进行的生产活动，以及直接和间接为开发海洋资源及空间的相关服务性产业活动。

- A、现代海洋开发 B、现代海洋经济 C、现代海洋规划

4、下列海洋生物中哪一种不属于海洋哺乳动物？

- A、海狮 B、海豚 C、鲸鲨 D、蓝鲸

5、科学家们根据海藻的生活习性，把海藻分为浮游藻和____两大类型。

- A、珍珠藻 B、底栖藻 C、巨藻 D、马尾藻

6、____是指在海上作业或航行过程中发生的石油泄露事件。____是指海洋中某些微小的浮游藻类、原生动物或细菌，在一定的环境条件下爆发性繁殖或集聚而引起水体变色的一种有害的生态异常现象。

- A、风暴潮和海岸侵蚀
B、海上溢油和海岸侵蚀
C、海上溢油和赤潮

7、鉴于辽东湾斑海豹的补充世代逐年减少，危及了种群的延续能力，为确保资源不继续遭受破坏，已将斑海豹列为____国家保护动物，并于 1983 年起实施禁捕。

A、一类 B、二类 C、三类

8、从现在起，你自己是否会重视或爱护海洋环境呢？

A、我会更重视海洋环境的 B、比较重视 C、无所谓

9、从现在起，你认为海洋环境保护工作是____

A、势在必行 B、可以缓一缓，慢慢来 C、没多大必要

简答题：

你对今后开展类似的青年活动有哪些好的建议？