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**UNDP/GEF PROJECT ENTITLED “REDUCING ENVIRONMENTAL STRESS IN THE  
YELLOW SEA LARGE MARINE ECOSYSTEM”**

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UNDP/GEF/YSJC.2/3  
Date: 27 April 2006  
English only

**Second Technical Meeting for the Co-operative Study Cruises  
In the Yellow Sea Marine Basin  
For the UNDP/GEF Yellow Sea Project  
*Qingdao, China, 26 - 27 April 2006***

**Report of the Meeting**



## **1. OPENING OF THE MEETING**

- 1.1 On behalf of the “UNDP/GEF Yellow Sea Project,” Mr. JIANG Yihang, Project Manager, opened the meeting and welcomed all participants. He gave an overview of the Special Meeting of the Project Steering Committee (PSC) held one day prior to this meeting. Mr. Jiang stated that the participating countries of the Special Meeting showed a true spirit of co-operation and flexibility to enable the implementation of the co-operative spring study cruise.
- 1.2 On behalf of the experts from China, Mr. ZHU Wenxi reiterated that the continued atmosphere of mutual trust would be beneficial for achieving the outcomes of this meeting and also for the remainder of the Project.
- 1.3 Mr. HUH Hyung-Tack stated that this meeting was made possible due to the results of the Special PSC Meeting that was reached on the basis of a high level of co-operation, which he hoped would continue even after the end of the Project. This attitude should be maintained to achieve fruitful results for cruise planning. Mr. Huh thanked the Project Management Office (PMO) and First Institute of Oceanography (FIO) for organising the meeting.
- 1.4 Following the opening speeches, participants were invited to give self-introductions and a brief background on their expertise and role in the Project. The list of participants is attached as [Annex I](#) to this report.

## **2. ORGANISATION OF THE MEETING**

### **2.1 Election of Officers**

- 2.1.1 Mr. Jiang invited the participants to nominate a Chairperson for the meeting. Mr. Huh nominated Mr. Zhu Wenxi to serve as Chairperson. Participants agreed with the nomination, and Mr. Zhu was duly elected by acclamation.
- 2.1.2 The PMO served as Rapporteur and Secretariat.

### **2.2 Documentation Available to the Meeting**

- 2.2.1 The Chairperson invited the PMO to introduce the documents prepared for the meeting.
- 2.2.2 Ms. Connie Chiang explained the two kinds of documents to be used at the meeting (Document UNDP/GEF/YS/JC.2/inf.1): 1) “Working Documents;” and 2) “Information Documents,” noting that the Working Documents were for the Meeting to consider and approve, while the Information Documents were for participants’ reference.

### **2.3 Organisation of Work**

- 2.3.1 The Chairperson invited the PMO to introduce this agenda item. Ms. Chiang explained and proposed the working programme for the meeting.
- 2.3.2 **The Meeting agreed on the proposed programme,** and was organised in plenary, with working group sessions for cruise component team leaders to discuss and finalise the requirements for the Spring Cruise.

2.3.3 The meeting was conducted in English.

### **3. ADOPTION OF THE MEETING AGENDA**

- 3.1 The Chairperson introduced the Provisional Agenda (Document UNDP/GEF/YS/JC.2/1) and the Provisional Annotated Agenda (Document UNDP/GEF/YS/JC.2/2), and invited participants to provide comments on these documents.
- 3.2 **The Meeting agreed and approved the Agenda** without change. The Agenda is attached as [Annex II](#) to this report.

### **4. REPORT OF THE SPECIAL MEETING OF THE PSC**

- 4.1 Mr. Jiang reported on the outcome of the Special Meeting of the Project Steering Committee that was organised prior to this meeting. He expressed appreciation to all persons and events that helped to make the Special PSC Meeting a success, including the National Working Group Meetings, informal consultations, and other meetings that were held prior to the Special PSC Meeting, and the participants of the Special PSC Meeting.
- 4.2 Mr. Jiang informed the meeting that the Special PSC Meeting extensively discussed the implication of a cruise without all the components and also the proposal presented by the Chinese experts on the re-scheduling and new arrangements for the cruise.
- 4.3 The Special PSC Meeting agreed that: 1) data and samples collected from the cruise should be shared by the participating countries; 2) the zooplankton survey should cover all possible types of plankton; and 3) the revised observation station map should be used for the cruise.
- 4.4 Mr. Jiang noted that the survey route, sampling stations and dates of the cruise were also discussed and agreed on, and that applications for approval of the Spring Cruise would be submitted to the relevant Governments shortly after the meeting. Mr. Jiang informed the participants that this meeting would focus on the technical requirements and logistical arrangements for the spring cruise. In concluding his report, Mr. Jiang reiterated that one of the important outcomes of the meeting and activity would be the continued building of mutual trust and understanding amongst all the participants.

### **5. VISIT TO RESEARCH VESSEL**

- 5.1 Mr. ZENG Demei, from North Sea Branch of SOA, provided some information about the research vessel, "Hai Jian 17," that will be used for the spring cruise. The Meeting expressed its gratitude to Mr. Zeng for providing a research vessel on such short notice. Mr. Zeng then led all participants to visit the research vessel at Qingdao Port.
- 5.2 Aboard the vessel, Captain Liu first explained the specifications of the ship and the available facilities and equipment. Then participants were given the opportunity to visit the dry and wet labs, living quarters, and ship decks. The vessel's specifications are attached as [Annex III](#).

## **6. INTRODUCTION OF THE PLAN FOR THE SPRING CO-OPERATIVE STUDY CRUISE**

### **6.1 Expected Outputs and Outcomes of the Meeting and the Spring Cruise**

6.1.1 Ms. Chiang explained the expected outputs and outcomes of the co-operative study cruises, and the results that this meeting will seek to achieve in planning for the Spring Cruise. Ms. Chiang emphasised that in addition to gathering more scientific information about the Yellow Sea, this activity will also aim to continue and enhance mutual understanding and trust among the participating countries and institutions involved in the Project.

6.1.2 It was mentioned that both the technical and logistical cruise arrangements would have to be considered by the participants during their working group sessions. These issues include survey parameters, equipment needed, on-board scientists and each person's responsibility, methods for post-cruise analysis, dates of the cruise, and estimated costs.

### **6.2 Proposed Workplan Leading up to the Spring Cruise**

6.2.1 Ms. Chiang informed the participants that another output of the meeting is to finalise a workplan for the Spring Cruise that includes pre- and post-cruise activities. The workplan will be finalised in Agenda 9, after the participants agree on the requirements for the cruise.

6.2.2 Participants took note of the expected outputs and outcomes and the work to be done during the meeting, and applied these points to their working group sessions.

## **7 CONSIDERATION OF TECHNICAL ISSUES FOR THE SPRING CO-OPERATIVE STUDY CRUISE**

7.1 The Chairperson invited each Regional Working Group (RWG) Chairperson to present his respective group's requirements for the Spring Cruise.

7.2 Mr. WEN Quan presented the requirements for the Pollution Group, showing the parameters to measure, and methods to employ (pre-treatment, storage, transport to labs). Mr. Wen suggested to do shallow sediment core sampling, where heavy metals and persistent organic pollutants would be analysed for every 2 cm depth. Given the work to be done, the Pollution Group requested to have eight persons on-board. The on-board requirements for the group include 2 winches for sediment and water sampling, lab space for nutrient measurement and sample treatment and a refrigerator for sample storage. The pre-cruise preparation would require one month, 30 days sampling time for the cruise, and two months for post-cruise analysis. Mr. YIM Un Hyuk stated that there may be difficulties in collecting biota samples and there may be limited time for benthos sampling, which would be further discussed in the working group.

7.3 Mr. LEE Yoon stated that for the Spring Cruise, the Biodiversity Group would not need any experts on-board for marine mammal or seabird observation.

7.4 Mr. YOO Sinjae presented the requirements for the Ecosystem Group that included collecting pelagic and benthic samples, measuring abundance of bacteria,

phytoplankton, and zooplankton, measuring primary production, and collecting samples for phytoplankton community structure analysis through HPLC. If possible, the group would like to carry out a grazing experiment. The equipment needed are Bongo nets, NORPAC net, water samplers, filtering device, and incubation chamber. It was suggested that 12 persons would be needed for pelagic survey; benthos work would need an additional three scientists, and two additional scientists would be required for sediment coring.

- 7.5 Mr. Jiang reminded the participants that they should consider all other Project-related activities, e.g. inter-calibration exercises, when deciding what kinds of activities to undertake during the cruise. Participants took note of this and the requirements from each group, then separated into working groups to finalise their requirements for the cruise.
- 7.6 Upon return to the plenary, the RWG Chairpersons presented the technical, logistical, and budgetary requirements for the cruise, as well as cross-component issues that needed further discussion.
- 7.7 Mr. Yoo stated that the exact cruise dates were needed in order to firmly plan the samples to collect, and method to transfer samples to Korea for analysis, that would include inter-calibration exercises in the common zones, exchange of scientists during on-land analysis, and direct transfer of samples from the research vessel to the Korean side. Dr. Yoo stated that additional funds would be required as the work load and sampling stations have increased. He proposed that benthos sampling would require USD 61,000 for 50 stations, while sediment coring would need USD 6,000 (USD 2,000 X 3 cores), totalling USD 67,000. Zooplankton surveys might require an additional USD 18,000. Mr. Yoo proposed that four more scientists should compose the ecosystem team in order to complete the proposed work. Mr. Yoo also stated that one month would be required for pre-cruise arrangements (purchase expendables, procure/manufacture equipments), sample analysis would be completed three months after the cruise, and the final report would be available four months after the cruise. Finally, Mr. Yoo noted that the previous agreement within the Ecosystem Group that the water samplers would be provided by the Chinese scientists, still stood.
- 7.8 Mr. Wen presented the requirements for the Pollution Group, stating that the common parameters would be collected from the CTD stations. Mr. Wen also explained the sampling of nutrients, organics and heavy metals in seawater and sediment, but COD and sulfides would be excluded. He noted that many of the sediment and biota samples would be shared from the Ecosystem Group's benthos samples. From the Ecosystem Group's sediment core samples, the Pollution Group requested to share the samples for heavy metals and organic pollutant analysis. Exchange of data analysis would be partially done through the Visiting Scientist Programme, where a Chinese scientist would visit a Korean lab for organic pollutant analysis. The Pollution Group requested to have 8 scientists on-board. The equipment to transport from Korea and samples to take back to Korea would be revised and provided to the PMO before the end of the meeting. The Pollution Group would require one month for pre-cruise preparations, 30 days for the cruise, and four months after the cruise for analysis and reporting.
- 7.9 On behalf of the Biodiversity Group, Mr. Lee mentioned that the group would like to share samples from the cruise for genetic diversity analysis. Mr. Huh stated that as this was not an approved activity, a concrete plan should first be developed before the activity could be considered, and the plan needs to be discussed and approved by the PSC. Since this issue was also outstanding from the previous two Regional

Science and Technical Panel meetings, in that a proposal from the RWG Biodiversity Chairperson should first be submitted, **the Biodiversity Group agreed that a proposal for this activity would be submitted to the PMO before the end of May. The Group further agreed that the activity would not be included in the Spring Cruise, but might be re-considered for the second cruise, depending on the outcome of the proposal.**

- 7.10 Discussions were held on how and what samples should be shared, based on the principle of data and sample sharing agreed by the Special PSC Meeting. The options and reasons were suggested as follows.
- 7.11 Scientists from China suggested that in transects with an even number of stations, samples from the eastern half of the transect could be taken to Korea for analysis, while samples in the western half would be analysed in Chinese labs. In transects with an odd number of stations, the above would still hold true, but samples from the middle station would be split into 2 parts for each country.
- 7.12 The experts from China proposed this method because they felt that Korean scientists are more familiar with the fauna and flora of plankton and benthos in the eastern part of the Yellow Sea, while Chinese scientists are more familiar with these parameters in the western part of the Yellow Sea. Through this method of sample sharing, the normally time-consuming taxonomy work will be easier and more accurate, also saving time for analysis. However, to reduce the possible bias or difference in sample analysis, the intercomparison and intercalibration practices will be carried out on the commonly shared samples and other co-selected samples through exchange of scientists. As soon as the taxonomy or analysis work are finished, all data will be exchanged and further analysis will be jointly carried out. Chinese experts further stated that this is a common way of data and sample sharing for co-operative projects in which China is involved.
- 7.13 Scientists from Korea suggested that samples from every other station should be shared. The Korean station scheme is to conduct country-wise sampling/analysis and inter-comparison experiments in alternate stations throughout the survey region, aiming to resolve inter-comparison problem.
- 7.14 The experts from Korea stated that the different sampling and analysis methodologies between the countries are major scientific concerns in the synthesis of data to achieve basin-wide assessment. The Yellow Sea ecosystem is not an exception and the problems of inter-comparison have been recognised by many scientists. Such problems should be solved for better interpretation and synthesis, not only of new observations, but also of historical data. Thus, systematic planning and inter-comparison are crucial in expediting one of the Project goals, namely scientific assessment of basin-scale ecosystem status. Confounding this problem are regional differences in various ecosystem characteristics. Without controlling regional variance, inter-comparison could become a very difficult practice. Carefully designed comparison and calibration of samples from interwoven sampling positions would remove regional effects and provide much better solutions.
- 7.15 **Participants extensively discussed the two options from the scientific and management points of view, but no consensus could be reached on how samples should be shared. Participants agreed to discuss the issue further with their respective governments, in an attempt to reach an agreement.**
- 7.16 **The Chairperson thanked all participants for their efforts, and the Meeting requested that the Project Manager continue dialogues with the NPCs to reach**

**an agreement. While Mr. Jiang agreed to this suggestion, he also expressed his disappointment at a non-agreement, but ensured the Meeting that the PMO will try its best to facilitate the process to a positive outcome.**

- 7.17 The Meeting recognised that from a scientific point of view, the cruise is still an important activity, and both sides have made great efforts for cruise planning, but due to differences in opinion, it was unfortunate that the Meeting was not able to reach an agreement on this issue. The Meeting wished that the joint cruise could come true as early as possible.

## **8 LOGISTICAL ARRANGEMENTS FOR THE SPRING CO-OPERATIVE STUDY CRUISE – WORKING SESSION**

- 8.1 The Meeting decided that 22 scientists would be the ideal number of persons to carry out the cruise. However, due to limited berths on the research vessel, the number of scientists should be reduced. The North Sea Branch of SOA kindly agreed to reduce one crew member to accommodate as many scientists as possible. **The Meeting thus agreed that the Ecosystem Group would have 14 scientists, and the Pollution Group would contain 7 scientists.**
- 8.2 **The Meeting also agreed that two co-chief scientists should be nominated, and each side's co-chief scientist name will be provided to the PMO within three days after the consensus is reached on the methodology for sample sharing. The PMO will forward the names to the governments for approval. The Meeting noted that there are requirements in the application for approval of the cruise to include the lists of crew members and the scientists on-board.**
- 8.3 **The Meeting calculated, discussed and agreed that 30 days would be needed to complete the cruise.**
- 8.4 Mr. Jiang informed the meeting of the decision of the Special PSC Meeting that the Spring Cruise should start at the end of May, and **it was proposed and agreed that the cruise should start on 29<sup>th</sup> May 2006, and finish on 28<sup>th</sup> June 2006.** However, given the short time between now and the proposed start date of the cruise, participants recognised that there might not be enough time to prepare for the cruise. **The Meeting also agreed that, in keeping with the decision of the Special PSC Meeting, if the first proposed dates would not be feasible, then the cruise should start on 19<sup>th</sup> June 2006, and finish on 19<sup>th</sup> July 2006.**
- 8.5 **The Meeting also agreed on the revised station map agreed by members of the Special PSC Meeting (Annex IV).**
- 8.6 Participants considered the Ecosystem Group's requested increase in budget to collect benthos samples and sediment cores. As there were not enough funds for the requested amount of USD 67,000, it was suggested to reduce the work load to meet the available budget. After examining the available budget, the PMO proposed that it would be appropriate to allocate an additional amount of approximately USD 30,000 for benthic and sediment core samples, and requested the Ecosystem Group to re-examine the number of benthic samples to collect.
- 8.7 **The Meeting agreed with the proposal.**
- 8.8 **The Meeting also agreed to provide the remaining logistical information once an agreement is reached on sample sharing.**

## **9 WORKPLAN FOR PREPARING THE SPRING CO-OPERATIVE STUDY CRUISE**

- 9.1 The workplan is attached as [Annex V](#).

## **10 OTHER BUSINESS**

- 10.1 The Chairperson invited the participants to propose any other business to be considered at the meeting.
- 10.2 Mr. Yim asked that although arrangements for the cruise could not be finalised, he wished to know the contact person and address for transporting equipment to Qingdao. Mr. Jiang explained that Mr. Zeng should be informed prior to the transfer of equipment from Korea to Qingdao.

## **11 ADOPTION OF THE MEETING REPORT**

- 11.1 The Chairperson invited the participants to review the draft meeting report prepared by the Secretariat. The draft report was discussed, amended and adopted by the Meeting.

## **12 CLOSURE OF THE MEETING**

- 12.1 Mr. Jiang stated that everyone had worked very hard over the two days, and to plan a joint cruise requires a tremendous amount of effort. He stated that the Special PSC Meeting had agreed on the principle of a joint cruise as one of the success indicators of the Project. The PMO will continue its work with the NPCs to reach consensus on the pending issues. Mr. Jiang noted that the targets are clear for what the Project is striving to achieve, and hoped that to maintain a spirit of co-operation and compromise, all members need to work more closely with each other. Mr. Jiang reiterated that, as Project Manager, he would report the progress of pending issues to all participants. Finally, Mr. Jiang thanked everyone again for the compromises made to achieve the results thus far; he thanked the Chairperson for complementing a tough job, and also thanked FIO for helping to organise the meeting.
- 12.2 Mr. Huh fully supported Mr. Jiang's comments, and appreciated everybody's efforts for arriving at the conclusions of the meeting. Mr. Huh especially thanked the PMO and FIO for the meeting arrangements.
- 12.3 On behalf of the Chinese experts, Mr. Zhu Mingyuan thanked the Korean experts for the agreements that could be reached.
- 12.4 The Chairperson closed the Meeting at 18:55 on 27<sup>th</sup> April 2006.



## Annex I

### List of Participants

#### PARTICIPANTS

**Mr. ZHU Wenxi**

Director  
Department of International Co-operation  
State Oceanic Administration  
1 Fuxingmenwai Avenue  
Beijing 100860  
China  
Tel: 86-10-6801-9791  
Fax: 86-10-6804-8051  
Email: [wxzhu@soa.gov.cn](mailto:wxzhu@soa.gov.cn)

**Mr. ZENG Demei**

Director, Senior Engineer  
Science & Technology Division,  
North Sea Branch of SOA  
22 Fushun Road, Qingdao 266033  
China  
Tel: 86-532-8562-5513 (213)/ 8563-5406  
Fax: 86-532-8562-1244 / 8563-5406  
Mobile: 86-139-5320-2937  
Email: [Zengdemei@163.com](mailto:Zengdemei@163.com)

**Mr. CHEN Shang**

Research Professor  
First Institute of Oceanography, SOA  
6 Xianxialing Road Hi-Tech Industrial Park  
Qingdao 266061  
China  
Tel: 86-532-896-7447  
Fax: 86-532-8896-7447  
Email: [schen@fio.org.cn](mailto:schen@fio.org.cn)

**Mr. HUH Hyung-Tack**

Sr. Scientist Emeritus, KORDI  
Fellow, Korean Academy Of Science &  
Technology Chairman, IOC/WESTPAC  
1270 Sa-dong Sangnok-gu Ansan-si  
Gyeonggi-do 426-744  
Republic of Korea  
Tel: 82-31-400-6201  
Fax: 82-31-408-5934  
Email: [hthuh@kordi.re.kr](mailto:hthuh@kordi.re.kr)

**Mr. ZHU Mingyuan**

Professor  
First Institute of Oceanography, SOA  
6 Xianxialing Road Hi-Tech Industrial Park  
Qingdao 266061  
China  
Tel: 86-532-896-7447  
Fax: 86-532-896-7447  
Mobile: 86-136-0898-3422  
Email: [myzhu@public.qd.sd.cn](mailto:myzhu@public.qd.sd.cn)

**Mr. WEN Quan**

Research Professor  
SOA Key Lab of Coastal Ecosystem and  
Environment Research  
National Marine Environment Monitoring  
Centre  
42 Linghe Street  
Dalian 116023 China  
Tel: 86-411-8478-2522  
Fax: 86-411-8478-2522  
Email: [qwen@nmemc.gov.cn](mailto:qwen@nmemc.gov.cn)

**Mr. YOO Sinjae**

Senior Research Scientist  
Marine Living Resources Research Division  
Korean Ocean Research and Development  
Institute (KORDI)  
1270 Sa-dong Sangnok-gu Ansan-si  
Gyeonggi-do 426-744  
Republic of Korea  
Tel: 82-31-400-6221  
Fax: 82-31-408-5934  
Email: [sjyoo@kordi.re.kr](mailto:sjyoo@kordi.re.kr)

**Ms. YEON In Ja**

Senior Scientist  
West Sea Fisheries Research Institute  
National Fisheries Research & Development  
Institute (NFRDI)  
707, Ulwang-dong, Jung-gu, Incheon  
400-420 Republic of Korea  
Tel: 82-32-745-0551  
Fax: 82-32-745-0607  
Email: [ijyeon@nfrdi.re.kr](mailto:ijyeon@nfrdi.re.kr)

**Mr. LEE Yoon**

Director  
Plankton Ecology Division  
National Fisheries Research & Development  
Institute (NFRDI)  
408-1, Sirang-Ri, Gijang-eup, Gijang-gun  
Busan 619-902  
Republic of Korea  
Tel: 82-51-720-2240  
Fax: 82-51-720-2266  
Email: [yunlee@momaf.go.kr](mailto:yunlee@momaf.go.kr)

**Mr. YIM Un Hyuk**

Senior Researcher Scientist  
South Sea Research Institute - KORDI  
391 Jangmok-ri, Jangmok-myon  
Geoje, Gyungnam, 656-830  
Republic of Korea  
Tel: 82-55-639-8673  
Fax: 82-55-639-8689  
Mobile: 82-11-9396-2553  
Email: [uhyim@kordi.re.kr](mailto:uhyim@kordi.re.kr)

**Project Management Office (PMO)**

**Mr. Yihang JIANG**

Project Manager  
UNDP/GEF Yellow Sea Project  
Korea Ocean Research and Development  
Institute  
1270 Sa-dong Sangnok-gu Ansan-si  
Gyeonggi-do 426-744  
Republic of Korea  
Tel: 82-31-400-7825  
Fax: 82-31-400-7826  
email: [yihang@yslme.org](mailto:yihang@yslme.org)

**Ms. Connie CHIANG**

Environment Officer  
UNDP/GEF Yellow Sea Project  
Korea Ocean Research and Development  
Institute  
1270 Sa-dong Sangnok-gu Ansan-si  
Gyeonggi-do 426-744  
Republic of Korea  
Tel: 82-31-400-7833  
Fax: 82-31-400-7826  
Email: [connie@yslme.org](mailto:connie@yslme.org)

**Ms. Kyungsuk LEE**

Administrative Assistant  
UNDP/GEF Yellow Sea Project  
Korea Ocean Research and Development  
Institute  
1270 Sa-dong Sangnok-gu Ansan-si  
Gyeonggi-do 426-744  
Republic of Korea  
Tel: 82-31-400-7827  
Fax: 82-31-400-7826  
Email: [kyungsuk@yslme.org](mailto:kyungsuk@yslme.org)

## **OBSERVERS**

### **Mr. LIU Jian**

First Institute of Oceanography, SOA  
6 Xianxialing Road Hi-Tech Industrial Park  
Qingdao 266061  
China  
Tel: 86-532-8896-7476  
Fax: 86-532-8896-7476  
Email: [liujianliujian268@163.com](mailto:liujianliujian268@163.com)

### **Ms. PENG Yalin**

First Institute of Oceanography, SOA  
6 Xianxialing Road Hi-Tech Industrial Park  
Qingdao 266061  
China  
Tel: 86-532-8896-7476  
Fax: 86-532-8896-7476  
Email: [peng\\_yalin@163.com](mailto:peng_yalin@163.com)

## **SECRETARIAT**

### **Ms. WANG Wenqi**

Vice Director of Foreign Affairs Office  
First Institute of Oceanography, SOA  
6 Xianxialing Road Hi-Tech Industrial Park  
Qingdao 266001  
China  
Tel: 86-532-8896-3909  
Fax: 86-532-8896-7548  
Email: [wangwq@fio.org.cn](mailto:wangwq@fio.org.cn)



## **Annex II**

### **Agenda**

- 1 OPENING OF THE MEETING**
- 2 ORGANISATION OF THE MEETING**
  - 2.1 Election of Officers
  - 2.2 Documentation Available to the Meeting
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- 3 ADOPTION OF THE MEETING AGENDA**
- 4 REPORT OF THE SPECIAL MEETING OF THE PSC**
- 5 VISIT TO RESEARCH VESSEL**
- 6 INTRODUCTION OF THE PLAN FOR SPRING CO-OPERATIVE STUDY CRUISE**
  - 6.1 Expected Outputs and Outcomes of the Meeting and the Spring Cruise
  - 6.2 Proposed Workplan Leading up to the Spring Cruise
- 7 CONSIDERATION OF TECHNICAL ISSUES FOR THE SPRING CO-OPERATIVE STUDY CRUISE**
  - 7.1 Observation Area/Route, Transect and Sampling Stations
  - 7.2 Observation and Sampling Requirements for the Components to be Included in the Co-operative Cruise
  - 7.3 Data Analysis: Methods, Quality and Comparison of Final Results
  - 7.4 Other Technical Issues
- 8 LOGISTICAL ARRANGEMENTS FOR THE SPRING CO-OPERATIVE STUDY CRUISE – WORKING SESSION**
  - 8.1 Preparation of Research Vessel
  - 8.2 Preparation of Necessary Equipment
  - 8.3 Consideration of Scientists On-board and Their Responsibilities
  - 8.4 Transportation of Equipment and Personnel
  - 8.5 Budget and Contracts
  - 8.6 Other Arrangements
- 9 WORKPLAN FOR PREPARING THE SPRING CO-OPERATIVE STUDY CRUISE**
- 10 OTHER BUSINESS**
- 11 ADOPTION OF THE MEETING REPORT**
- 12 CLOSURE OF THE MEETING**



### Annex III

#### General Information “Hai Jian 17” Research Vessel of SOA

**Ship Name:** Hai Jian 17

**Contact:** Mr. Zeng Demei

**Operator:** North Sea Branch of SOA  
22 Fushun Road  
Qingdao 266033 China  
Tel: 86-532-8562-5513 (213)/ 8563-5406  
Fax: 86-532-8562-1244 / 8563-5406

<b>Length (m):</b>	73.90
<b>Width (m):</b>	10.20
<b>Height (m):</b>	21.00
<b>Tank Capacity (tonnes):</b>	114.00
<b>Freshwater capacity (tonnes):</b>	110.00
<b>Endurance (days):</b>	30
<b>Distance on one full tank (km):</b>	5000
<b>Draft (M):</b>	3.40
<b>Gross Tons (tonnes):</b>	1111
<b>Personnel:</b>	
<b>Maximum on-board</b>	43 persons
<b>Maximum crew members</b>	25 persons
<b>Safety Equipment:</b>	
<b>Small life boat</b>	6 persons (1)
<b>Big life boat</b>	25 persons(4)
<b>Main vessel activity:</b>	Oceanographic Research
<b>Year built:</b>	2005
<b>Energy sources</b>	
Main engine(s): number (MaK9M20):	1
Main engine power (kw):	1710 at 1000 rpm
Generator Power (kw):	250 (400 main power) at 400 volts
Backup engine (kw):	250
<b>Fixed equipment</b>	
Navigation and communication	
Nav. equip:	Radar, Compass
Comms:	Fax, telex, intranet, satellite phone, radio
GPS:	yes

**Dry Lab:**

Area 49m<sup>2</sup>

Equipment: Knudsen 320B/R bathymetry sonar  
EPC Printer, Control Unit 2000, Screen (Samsung 510N)  
RDI 600KHz Acoustic Doppler Current Profiler

**Wet Lab:**

Area 35 m<sup>2</sup>

Oil analyser

**Winch (2000m for sampling physical parameters):**

300 kg max wt

≥1.3m/s speed

Cable diameter – Φ6.2mm X 2000m

≤18 MPa oil pressure

Size: 1540 X 110 X 1200

Produced June 2004

S/N: 0419

**3-tonne A-shaped Crane in rear of ship:**

-25° ~ + 30° working angle

3,000kg max. wt when in use

7,000kg max. wt when stationary

73m distance from ship

Size: 3750 X 6850 X 2100

Produced June 2004

S/N: 0410

**1-tonne crane:**

-50° ~ + 45° working angle

+/- 110° rotation angle

2.5 ~ 4.4m arm length

1,000 kg max. wt

Produced June 2004

S/N: 0403

**Central Pump:**

≤ 23MPa oil pressure

130L/min oil provision

1950 x 1400 X 1700

Produced June 2004

S/N: 0422

**Geological winch (4,000 m):**

1,000 kg max. wt

≥1.8m/s speed

Cable diameter – Φ9.3mm X 4000m

≤ 20MPa oil pressure

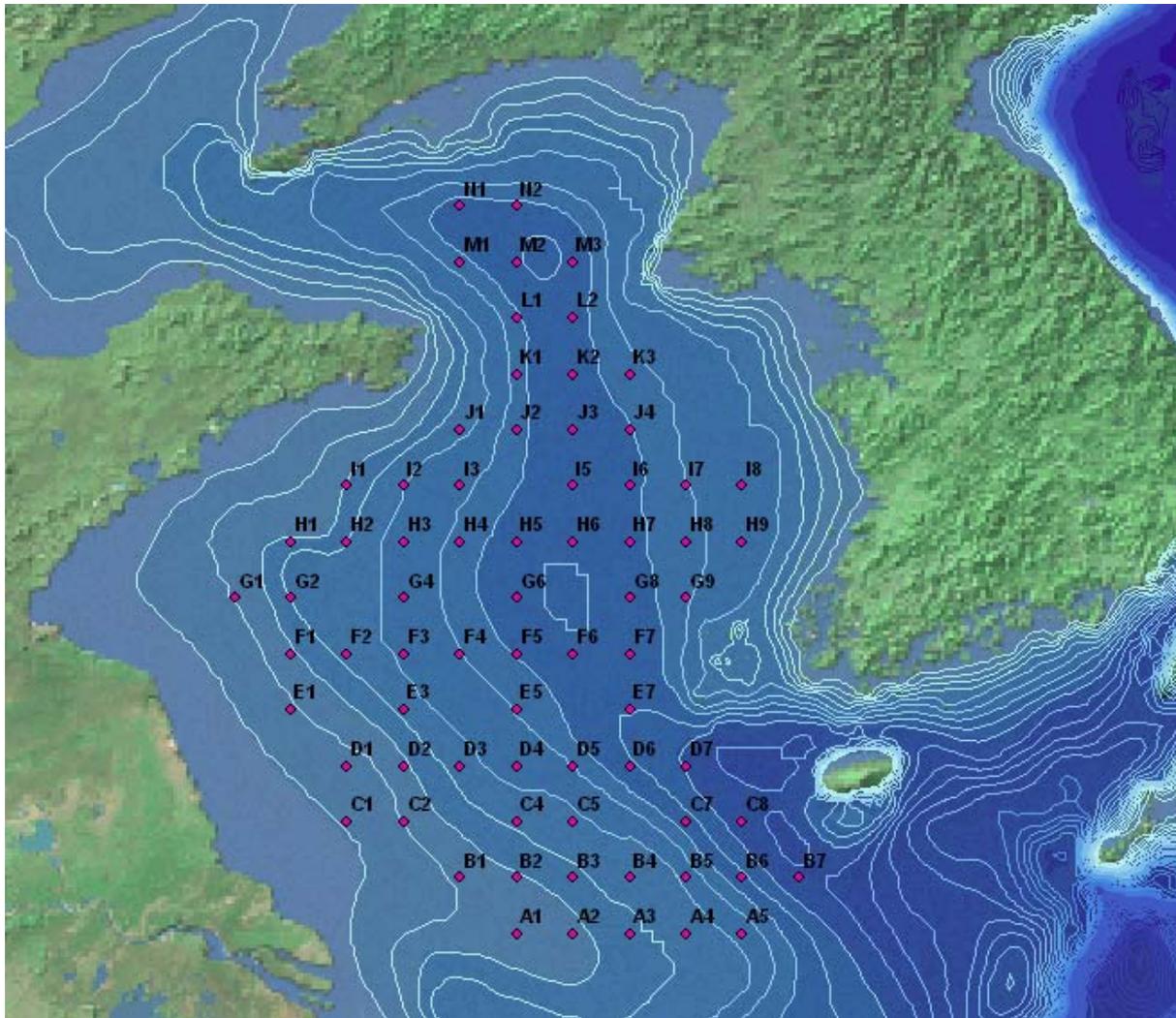
Size: 1850 X 1550 X 1220

Produced June 2004

S/N: 0419

## Annex IV

### Revised Spring Cruise Sampling Stations





## Annex V

### Proposed Workplan

<b>PRE-CRUISE ACTIVITIES</b>	<b>Start</b>	<b>Finish</b>
2nd Joint Cruise Meeting	26 April 2006	27 April 2006
<b>Pollution Component</b>		
Participate in first round intercalibration exercise among labs	01 November 2005	31 March 2006
Summarize results from inter-calibration exercise	03 April 2006	30 April 2006
Prepare agents and chemicals for analyses	one month before cruise	
Improve analytical procedures and methods		
Decide the data format and recording tables		
Prepare devices and storage bottles, standards and reagents		
Adjust in situ instruments and devices		
Move all facilities and devices to Qingdao		
<b>Ecosystem Component</b>		
Meetings of Regional Working Group for Ecosystem	29 November 2005	02 December 2005
Discuss and agree on the detailed methods and sampling plan	one month before cruise	
Begin procurement of equipment		
Procure Expendables		
Meeting of National Working Group for Ecosystem		
<b>Research Vessel PREPARATION FOR SAILING</b>		
Vessel Loading	one week before cruise start	
All equipment onboard vessel		
Personnel to Qingdao	at least one day before cruise start	
Install personnel and Equipment (and test)		
All personnel onboard vessel		
<b>CRUISE ACTIVITIES</b>		
Survey underway	30 days	
<b>POST-CRUISE ACTIVITIES</b>		
<b>Pollution Component</b>		
Analyse all samples	three months after end of cruise	
Process and exchange data		
Discuss the findings or issues		
Analyse data		
Final report on first cooperative study cruise with data set and preliminary analysis	four months after end of cruise	
Reporting		
<b>Ecosystem Component</b>		
Sample and data analyses	three months after end of cruise	
Visit of Korean scientist to China for sample analysis		
Assessment of current productivity and structure in the lower trophic levels		
Synthesize the results from different levels and discuss how to make an overall assessment		
Final reporting		