



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

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**Report
On Implementation of
Regional Working Group for Fisheries**

by

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1、 Review of Activities implemented in 2007

(1) Stock Assessment

● A consultant has completed the report of “Development of joint regional stock assessment methodology”, the major task is to develop methods for joint regional stock assessment for the Yellow Sea Large Marine Ecosystem. In the report, the content consists of six contents: general Issues, methodology, major issues and priorities, recommendations, final remarks and list of references. This report accepted by regional fisheries working group after correction from suggestions during the third working group meeting last year. A presentation was given on the fourth regional working group meeting held in Sokcho, Republic of Korea, 7 - 9 November 2007.

- ✓ In the report, the first part includes: background , description of activities, expected outputs/results.
- ✓ The second part includes: current methods of assessing fisheries stocks regionally & Internationally, the mostly used population dynamic models, and survey methods (bottom trawl and acoustic surveys, tagging – recapture, egg and larval surveys), as well as ecosystem model were described. The location of data & info and access to each site by the public was presented.
- ✓ The third part presented the major issues existed in the yellow Sea LME and priorities was given for the future scientific works.
- ✓ Then, collection of fisheries and survey data, stock assessment modeling, and jointly scientific survey were recommended.
- ✓ Final remarks and list of references were given in the final.

(2) Mariculture

● **Sustainable Mariculture workshop** was held during 18-20, June in Taean, ROK, hosted by West Sea Crustacean Research Center, NFDRI, ROK,. The workshop focused on the advanced technologies for reducing environmental stress and the best management practices (BMP) for the sustainable mariculture. The workshop also would highlight not only the environmental benefits but also the economic benefits and the role of sustainability in securing the long term future for generation to come. The topics were:

- Polyculture;
- Carrying capacity models;
- Recirculation technology;
- Heterotrophic shrimp culture;
- Open sea cage culture;
- Best management practices for disease control;
- Feed management and diet development;

And finally on the information exchange between Government, Scientists and Farmers During the first day, 7 scientists from China and more than 100 scientists and participants from company from Korea participated the Symposium held at Taean Culture Center, Taean. At second day, more than 20 scientists from both China and Korea attended the “best management practices for aquaculture”.

● **Workshop on the Mariculture Carrying capacity in the Yellow Sea** was held at Rongcheng, Weihai, China, during 4– 5, September, 2007, hosted by Yellow Sea Fisheries Research Institute, CAFS, China.

The objectives of this workshop was to assemble information on the existing methods for assessing the carrying capacity of aquaculture areas in the Yellow Sea, highlighting the knowledge gaps and/or barriers to carrying capacity analysis in this region, and try to fill

those knowledge gaps with contemporary global information and/or recommendations on how to obtain the lacking data. The final objective is the development of a reliable model that can be used for predicting the optimal mariculture carrying capacity of embayments within the Yellow Sea. The outputs of the model should be easily understood by aquaculture planners and policy makers.

The topics were:

- Carrying capacity model for bivalve mariculture and explanation of Parameters
- Carrying capacity model for macroalgae mariculture and explanation of Parameters
- Carrying capacity model for finfish mariculture and explanation of Parameters
- Multi species carrying capacity model
- Hands on practice of the model (to improve data requirements and interpretation of results)
- Examples of the use of carrying capacity models in mariculture planning (mono- and multi-species)
- Simulation of carrying capacity model and workshop on the model
- Field trip to Sungo Bay to see example of the use of Carrying Capacity model and Integrated Multi Trophic Aquaculture (IMTA)

During the three days, eight scientists from Korea and more than 30 scientists and participants participated in the workshop.

- **Workshop on Mariculture Disease Diagnosis, Prevention and Control in the Yellow Sea** held at International Center, Cheju National University, Jeju, Republic of Korea, during 15– 17, October, 2007, hosted by Cheju National University, ROK

The Workshop focused on the need for the early warning system to prevent disease outbreaks. The main topics were:

- Molecular techniques and immunology in mariculture
- Disease and diagnosis
- Disease control and prevention

Seventeen papers were presented on the symposium.

(3) First Yellow Sea Regional Science Conference

First Yellow Sea Regional Science Conference was held in Hangzhou, China, during 14-16, August 2007. The scientists participated in the conferences and gave presentations.

(4) SAP preparation

During SAP Consultation Meeting (Feb. 07), SAP Ad-hoc Working Group–1st Meeting (Apr. 07), SAP Ad-hoc Working Group–2nd Meeting (Aug. 07), the regional ecosystem targets, management actions, technical feasibility of the actions, management actions to be demonstrated, sites where actions should be demonstrated were preliminarily completed.

(5) The fourth meeting of the regional working group for the Fisheries Component was held in Sokcho, Republic of Korea, 7 - 9 November 2007

2. Major achievements in fisheries components

- The contents of the report of “Development of joint regional stock assessment methodology” could be referred as partly guidelines in following activities.
- A discussion on the types of data that are available in the Yellow Sea region, the models that should be used, the gaps in the data and what activities we need to do in the next year.

- Three workshops related to sustainable mariculture had exchanged the research progress on sustainable mariculture techniques, carrying capacity and disease diagnosis and prevention for mariculture around YSLME, demonstrated the available software for estimating carrying capacity, discussed the challenges and potential risks facing the sustainable development for mariculture based on carrying capacity. It needs for the early warning system to prevent disease outbreaks.
- SAP management actions were completed.

3. Major difficulties and problems encountered

No.

4. Recommended workplan for 2008

4.1 Stock assessment

4.1.1 The formation of Working Groups to harmonise stock assessment methods. TOR will be released by 7 December 2007 and proposal deadline is 28 February 2008.

4.1.2 Two fisheries surveys will be conducted by individual countries in 2008 (One by China, one by ROK). These surveys are to use identical methods (bottom trawls) agreed at the 1st SAW. The First Stock Assessment Survey is to be performed over 5-7 days (excluding rough sea time) in May 2008

4.1.3 The Second Stock Assessment survey is to be performed in autumn depending on funding, the exact dates are to be agreed in during the 2nd SAW, using same survey methods as previously agreed at the 1st SAW.

4.1.4 The workshops are to be attended by 4-6 people in total the first Stock Assessment Workshop (SAW) is to be held in China, 25-27 March 2008. The purpose of the meeting is to:

- Select target spp
- Compare biological data (eg. Age determination and length measurements, stomach analysis, gonad development staging)
- Discuss calibration of results
- Discuss how to standardize the data collection methods
- Discussion of data required for the second workshop.
- Agreement of methodology for the country surveys

4.1.5 The 2nd SAW is to be held in ROK with the purpose to:

- Discuss survey methodology;
- Calibrate results from the survey; and
- Review fisheries fleet data.

4.1.6 The Final Regional Stock Assessment Workshop is to be held in China in Spring 2009

4.2 Young Scientist Exchange

- The programme is aimed at young scientists with a background in stock assessment/fisheries resources that want to learn a particular skill or gain experience that is only available at institutions across the Yellow Sea.
- Interested young fisheries scientists should submit applications to the PMO before 30 April 2008, detailing the aim of the visit, the institution, the duration, the outcomes and estimated budget.

4.3 Mariculture

4.3.1 The budget of mariculture advisor could be used to fund a three day Regional Mariculture Conference to be held in China 9-11 September 2008. The major topics would include:

- Technologies to reduce environmental stress
- Emerging diseases, diagnosis and control
- Ecosystem-based mariculture management (EBM)

4.3.2 World Aquaculture Society meeting will be held in Busan 19-23 May 2008. PMO will chair a half-day session, inviting 7-8 scientists from China and Korean, rent a booth and present the mariculture activities.

5. Consideration of the demonstration and/or pilot activities for SAP

- Effect of closed season/area fishing
- Evaluation of effect of stock enhancement
- Effectiveness of boat buy-back measures
- Improvement in fisheries management system
- Identification of optimal mesh size
- Integrated multi-trophic aquaculture.
- Land-based shrimp culture farm using limited water exchange

6. Other matters that you would like to be considered by RSTP and PSC.

No other matters.