



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

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Report on Developments and Progress of the Regional GIS and Meta Databases

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YSLME GIS Database System II
Progress Report

Submitted to

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(YSLME PMO)

By

China-Korea Joint Ocean Research Centre (CKJORC)

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1 Introduction

1.1 Background

“Reducing Environmental Stress in the Yellow Sea Larger Marine Ecosystem (YSLME)” is a United Nation Development Program/Global Environment Facility (UNDP/GEF) supported project by ministerial representatives of China and South Korea serving together in a joint steering committee. The objective of the project is ecosystem-based, environmentally-sustainable management and use of the YSLME and its watershed by reducing development stress and promoting sustainable exploitation of the ecosystem from a densely populated, heavily urbanized, and industrialized semi-enclosed shelf sea. Under the 24 million dollar program, researchers from both China and Korea will conduct on-site studies on many scientific fields, including biodiversity, fishery, ecosystem, pollution, *etc.*, in the Yellow Sea. During the implementation of the project, plenty of and heterogeneous YSLME data both spatial and non-spatial are produced and the amount is growing rapidly. Therefore, there are strong requirements to handle these various scientific data efficiently and provide convenient data sharing services for scientists and other public to promote the development of YSLME.

Sponsored by the YSLME Project Management Office, the “YSLME GIS Database System” project is taken charged by the China-Korea Joint Ocean Research Centre (CKJORC) and technically supported by the First Institute of Oceanography, SOA. This system takes advantage of spatial information technology to input, manage, query and display the multi-source and heterogeneous information of YSLME and provide convenient and effective data sharing services through World Wide Web. The long-term aim of the system is to promote international data exchange and scientific cooperation on the regional ecosystem environment in the Yellow Sea area. The main architecture of the system is shown in Fig.1.

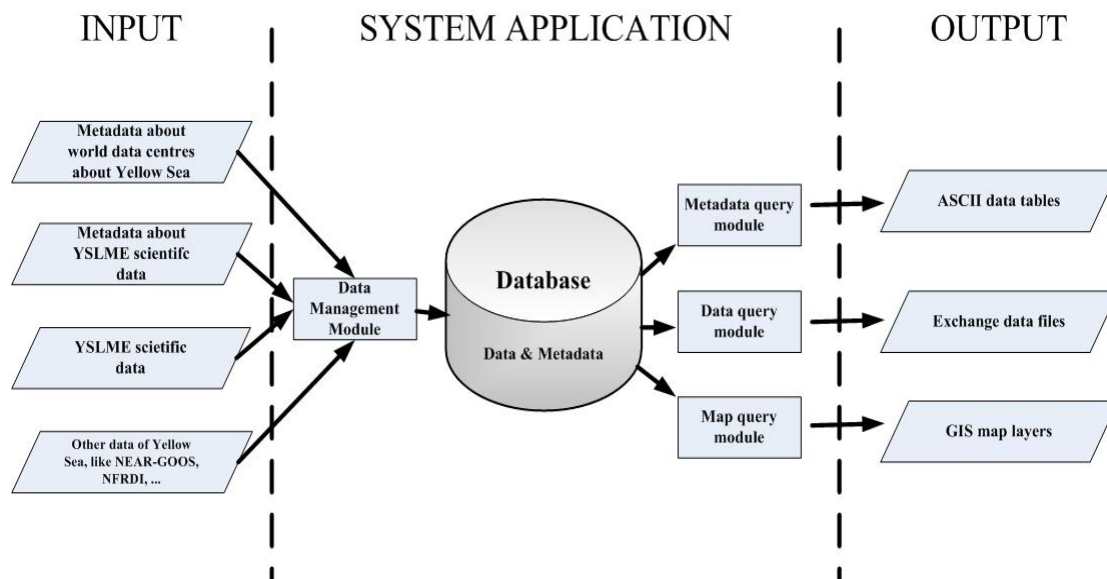


Fig.1 Data-flow chart of the system

1.2 YSLME GIS Database System I

The first period of the project, YSLME GIS Database System I, is from 14 April 2006 to 30 September 2006. During the first period, the database and web service system had been developed and established, and the data collected from YSLME PMO had been rearranged and inputted into the database. Now, the system is running in CKJORC to provide data sharing services through World Wide Web and the address of website is 221.0.186.2. Users can do query operation by many approaches, such as metadata query, data query and map query. The detail of the “YSLME GIS Database System I” can be found in the final report, which had been submitted in September 2006.

1.3 YSLME GIS Database System II

After finishing the “YSLME GIS Database System I” contract, the system is still maintained by the project team and new data are continued to be collected and inputted into the database.

In order to enhance the functionality of system and continue collecting and inputting scientific data, the” is sponsored by the YSLME PMO. The detail statements of the progress of “YSLME GIS Database System II” are provided in the following sections.

2 Data preparation

2.1 YSLME data

During the period of “YSLME GIS Database System I”, some YSLME scientific data had been collected from PMO and inputted into the database. The statistics information of the data inputted into the database is listed in Table 1. And the scientific elements are listed in Annex 1.

Table 1 YSLME data records statistics

Scientific specialty	Number of tables	Total number of records
Biodiversity	13	771
Fishery	20	2685
Ecosystem	6	3177
Pollution	9	529
Total	48	7162

At the start of the “YSLME GIS Database System II”, we got a data disc from the PMO (see Table 2). We compare the new data with the old data collected in “YSLME GIS Database System I” carefully (see the attached file: Annex 2), and we found that there are some new data collected in the second period, which need to be rearranged and inputted into the database.

Table 2 YSLME data collected from PMO

Data	File formats	Size	Contents
China biodiversity	MS Word and PDF	5.5 MB	Final report and some annex files
Korea biodiversity	MS Word and MS Excel	3 MB	Data tables
China ecosystem	MS Word	17.5 MB	Final report
Korea ecosystem	MS Word, MS Excel and MS Powerpoint	15.8 MB	Data tables and figures
China fishery	MS Word and MS Excel	1.25 MB	Final report and annex file
Korea fishery	MS Word	4.5 MB	Final report
China pollution	MS Word	26.7 MB	Final report and annex file
Korea pollution	MS Word	24.5 MB	Final report

However, from the “YSLME data comparing and analyzing report”, we can see

that there are also lots of data in the data disc the same as that of the first period, although the data files or data formats are different. Therefore, these data don't need to be inputted into the database again, but they are really cost large amount of time to compare these same data. So we recommend that if new data are submitted in the future, please attach some statements about the data status, like new, old or changed.

Another problem is that the Korea pollution data from the data disc are different from the data tables collected from the first period of the project, and the newly collected China pollution data in the data disc are different from Korea pollution data. So it is difficult to design data structure for the pollution data and we are going to consult some pollution scientist to solve this problem. And we also hope the data submitted to PMO should be standard in the future.

2.2 World data centers investigation

In order to promote the marine scientific data exchange and enrich the data resources of the system, we have investigated many world data centers' websites (see the attached file: Annex 3), which contain the scientific data about the Yellow Sea or marine ecosystem. And the metadata about these data centers are also been collected while investigating and are going to inputted into the metadata database.

2.3 Data download

Through investigating the world data centers, we have found that there are some data can be downloaded and shared in our system. So, we are going to download some data relative to the YSLME project and input them into the database to let users query and download the data through our system. Now, we have arranged persons to download the real-time NEAR-GOOS data from KODC website every half hour in 24 hours a day. And we also try to download periodical observed oceanographic data from NFRDI database.

Now, the downloaded NEAR-GOOS data and NFRDI data are inputting into the database (Table 3) and the GIS search engine for them is in development.

Table 3 NEAR-GOOS and NFRDI Oceanography data in database

Data	Elements	Temporal coverage	Statistics
NEAR-GOOS data	Water_T, Wave_H, Wave_P,	From September 18 2007 till now in half an hour record	25 stations 1785 record number totally

	Wind_S, Wind_D, Air_T, Humid, Air_Press	interval. But sometimes the data cannot downloaded from the website because of the problem of network.	
NFRDI data	Observed_Depth, Temperature, Salinity, Oxygen, Phosphate_P, Nitrite_N, Silicate_SI, Nitrate_N, PH	From 1961 to 2006.	31 stations 12 lines 428,050 record number totally

However, there are also some problems in the data download. Firstly, the downloadable data resources related to the marine ecosystem or YSLME project in the world data centers are a little few and the data formats are different from that of YSLME. So, we hope that some good world data centers that have lots of valuable scientific data to be downloaded could be recommended. Secondly, real-time NEAR-GOOS data can be downloaded from KODC, but the historical data can only be displayed in curve graph and the data cannot be downloaded. And the website of the KODC real-time NEAR-GOOS data cannot be opened sometimes. Besides, the real-time NEAR-GOOS data website of China can not be accessed and some historical data can not be downloaded. This problem needs to be coordinated with governmental help and we are trying to deal with that.

3 GIS map maintenance

In the course of first period of this project, some map layers are produced using the collected spatial data to provide map query functions, which will make data query interactively, graphically and conveniently.

Newly collected YSLME spatial data are picked up from the data disc and processed for map query module. Now, the new spatial layers are producing and linking to the database to realize spatial data query. The spatial layers produced are listed in Table 4.

Table 4 Produced spatial layers

Spatial layer name	Number of special elements
Functional zone	37
Reclamation zone	18
Habitat conversion zone	19
Protected area	14
Pollution region	7
Stations	25

Additionally, NEAR-GOOS station and NFRDI oceanography station map layers are making to realize spatial query for the downloaded NEAR-GOOS data and NFRDI oceanography data.

4 Database maintenance

During the period of data inputting, some problems about the database structure design had been found and solved. But there are some problems in the source data. Because the data are submitted from two countries, there are some different in the data format. For example, the “Area” field type of table should be designed as Integer and the default unit is ha. But there are some are values in source data use Km^2 as unit or even use text description, which cannot be inputted into the database designed before. So we can only change the “Area” field type to Character to input all the data values but the data cannot be used to do analysis any more. Another example is shown in Fig.2, in which “a” represents “Growth parameters by species” table of Korea fishery data and “b” represents that of China fishery data. Apparently from the figure, the “ $W=aL^b$ ” data value formats and units are different in the two data tables. So we can only design the field type as Character to input these data. But this will cause much difficulty in data analysis. The same problem also exists in field “ $L_\infty(\text{cm})$ ” and field “ t_0 ”.

Growth Parameters by Species							
Species		Growth Pattern					References
Common Name	Scientific Name	L_{∞} (cm)	k	t_0	$W=aL^b$	Longevity (yr)	
small yellow croaker	<i>Larimichthys polyactis</i>	34.7	0.376	-0.609	$0.004298 TL^{3.227}$	10	NFRDI, 2005
		36.2	0.332	-0.593	$0.0196 TL^{2.802}$		Hwang and Choi, 1980
Spanish mackerel	<i>Scomberomorus niphonius</i>	123.3	0.196	-2.140	$6.577 FL^{3.002} \times 10^{-6}$	8	NFRDI, 2005
anchovy	<i>Engraulis japonicus</i>						
chub mackerel	<i>Scomber japonicus</i>	40.2	0.403	-0.718	$0.0056 FL^{3.2537}$	6	NFRDI, 2005
		51.7	0.299	-0.428	$0.00044 FL^{3.332}$	6	Choi et al., 2000
		40.2	0.408	-0.719	$1.756 FL^{3.342} \times 10^{-6}$		Ahn, 1971
largehead hairtail	<i>Trichiurus lepturus</i>	45.6	0.408	0.440	$0.06321 AL^{2.5456}$	9	NFRDI, 2005
		50.5	0.162	-1.722	$0.0323 AL^{2.7826}$		Park et al., 1996
		52.3	0.154	-1.496			Park et al., 2000
Pacific herring	<i>Clupea pallasii</i>						
sandlance	<i>Ammodytes personatus</i>						
acetes	<i>Acetes chinensis</i> and <i>A. japonicus</i>						
fleshy prawn	<i>Fenneropenaeus chinensis</i>	F: 20.1	0.018	25 days	$0.0000111 BL^{3.002}$	360 days	NFRDI, 2005
		M: 16.4	0.017	9 days			
common squids	<i>Todarodes pacificus</i>	27.4-31.4	0.147-0.189		$0.0091 ML^{3.2472}$	1	NFRDI, 2005

a

Table 4 Growth parameters by species							
Species		Growth Pattern					Remarks
Common Name	Scientific Name	L_{∞} (cm)	k	t_0	$W=aL^b$	Longevity (yr)	
Small yellow croaker	<i>Larimichthys polyactis</i>	33	0.17	-2.5	$W=1.4835 \times 10^{-6} L^{3.03}$	23	
Spanish mackerel	<i>Scomberomorus niphonius</i>	71	0.53	-0.70	$W=1.8 \times 10^{-6} L^{2.85}$	7	
Anchovy	<i>Engraulis japonicus</i>	16.3	0.2	-0.8	$W=4.0 \times 10^{-3} L^{3.09}$	4	
Chub mackerel	<i>Scomber japonicus</i>	42.5	0.53	-0.80	$W=0.798 \times 10^{-6} L^{3.078}$	8	
Largehead hairtail	<i>Trichiurus lepturus</i>	55.3	-0.2928	-0.4106	$W=3.025 \times 10^{-6} L^{2.8806}$	7/10	
Pacific herring	<i>Clupea pallasii</i>	30.5	0.66	-0.198	$W=7.938 \times 10^{-6} L^{3.02}$	9	
Sandlance	<i>Ammodytes personatus</i>				$W=1.906 \times 10^{-3} L^{3.17}$	3	
Acetes	<i>Acetes chinensis</i> and <i>A. japonicus</i>				$W \ddagger = 0.0065 L^{2.9888}$	1	
					$W \ddagger = 0.0005 L^{3.0787}$		
Fleshy prawn	<i>Fenneropenaeus chinensis</i>	19.1	0.47	0.54	$W=11.06 \times 10^{-6} L^{3.0015}$	1	$W \ddagger = 11.0 \times 10^{-6} L^{3.0044}$ $W \ddagger = 11.3 \times 10^{-6} L^{2.9987}$
Squids	<i>Sepiella maindroni</i>				$W=1.0381 \times 10^{-3} L^{2.6396}$	1	
	<i>Todarodes pacificus</i>	28.6	0.37	0.2	$W=4.0 \times 10^{-6} L^{2.9064}$	1	
	<i>Loligo japonica</i>				$W=3.98 \times 10^{-4} L^{2.527}$	1	

b

Fig.2 Difference in “Growth parameters by species” table of Korea and China data

And through analyzing the data from the newly collected data disc, we have found that some new data tables need to be designed to manage the new added data such as social-economic data, NEAR-GOOS data, NFRDI data and so on.

5 System maintenance

The system has been running since it was established during “YSLME GIS Database System I”, and some errors were founded and good recommendations were collected (see Table 5). In order to solve these problems, some old modules were redeveloped and updated and new modules like data download module are under

developing.

Table 5 Problems found in database

Problems	Status
There is a problem in “page down” and “page up” function	Solved
There are no data units displayed in some data list pages, like fisheries income	Because the units in some data are different between China and Korea, so it’s difficult to use one unit. We are consider to solve the problem
There is a problem to display data list in predefined sequence	Solved
There are several problems in data editing module	Solved

Because of time limit of the first period of the project, the functions of system search engine are simply and there are not many search condition to be selected. In the second period of the project, the search engine will be improved to provide better services for users.

Additionally, because the NEAR-GOOS data and NFRDI data are going to be added to the database, NEAR-GOOS and NFRDI oceanography map query modules are designed and developed to NEAR-GOOS and NFRDI oceanography data sharing.

6 Conclusion and suggestion

As described above, the “YSLME GIS Database System II” project is implementing according to the time schedule and some jobs have not been finished till now. The system can be access from the Internet with address of 221.0.186.2. We hope that YSLME scientists should take time to use and test the system and give some ideas and recommendations for system updating.

However, there are some suggestions or problems need to be discussed or solved and listed as follows.

- Data contents

As described in section 2.1, we recommend that if new data are submitted, please attach some statements about the data status, like new, old or changed.

- Pollution data

We have designed the pollution data structure according to the data format and Korea pollution data during the first period. However, as described in section 2.1, it is difficult to design data structures for the new collected pollution data and we are going to consult some pollution scientists to solve this problem. And we also hope the data submitted to PMO should be standard in the future.

- Downloadable data resources

As described in section 2.2, we have found that there are a little few data relative to YSLME or marine ecosystem that can be downloaded. So, we hope that the YSLME scientists could recommend some good world data centers containing lots of valuable scientific data, which can be downloaded freely.

- NEAR-GOOS data

As described in section 2.2, some NEAR-GOOS data sharing websites cannot be accessed, and this problem needs to be coordinated with governmental help.

- Formats of downloaded data

The format of the downloaded data are different from that of YSLME data, we hope some recommendations could be collected from the YSLME scientists.

Annex 1

YSLME data comparing and analyzing report

The YSLME data collected from two periods are going to be compared and analyzed in this file. To be convenient, we use “old data” to represent the data collected from the first period and use “new data” to represent the data collected from the second period in the following statements.

1 Biodiversity

In “new data”, there are biodiversity data of both China and Korea and the Korea biodiversity data are new to “old data”.

1.1 China biodiversity data

China biodiversity data include final report and annex files. Every data tables in final report and annex files are checked and compared with the “old data”, which are listed as follows

(1) The file “Annex 3 Information on habitat reclamation of Yellow Sea.pdf” in “new data” is about habitat reclamation, and the data fields and record number are same as the “Reclamation” sheet of file “Data&InformationCollection-final.xls” in “old data”. But there are some data values in “new data” are different from that of “old data” and need to change the value of the database.

(2) The file “Annex 4 Information on habitat conversion of Yellow Sea.pdf” in “new data” is about functional zones, and the data fields and record number are same as the “habitat conversion” sheet of file “Data&InformationCollection-final.xls” in “old data”. But there are some data values in “new data” are different from that of “old data” and need to change the value of the database.

(3) The file “Annex 5 Information on marine functional zones of Yellow Sea.pdf” in “new data” is about habitat conversion, and the data fields and record number are same as the “Functional Zoning” sheet of file “Data&InformationCollection-final.xls” in “old data”. But there are some data values in “new data” are different from that of “old data” and need to change the value of the database.

(4) The file “Annex 6 Information on marine natural reserves of Yellow Sea.pdf” in “new data” is about natural reserves, which are new to the “old data” and need to create the data tables in the database and input these data.

(5) The file “Annex 7 Information on vulnerable species of Yellow Sea.pdf” in

“new data” is about vulnerable species, and the data fields are same as the “vulnerable species” sheet of file “Data&InformationCollection-final.xls” in “old data”. But the record number in “new data” is less than that of “old data” and need to change the value of the database.

(6) The file “Annex 8 Information on introduced species of Yellow Sea.pdf” in “new data” is about introduced species, and the data fields are same as the “exotic species” sheet of file “Data&InformationCollection-final.xls” in “old data”. But the record number in “new data” is more than that of “old data” and need to add the records to the database.

(7) The file “Annex 9 Information on endemic species of Yellow Sea.pdf” in “new data” is about endemic species, and the data fields are same as the “endemic species” sheet of file “Data&InformationCollection-final.xls” in “old data”. But the record number in “new data” is more than that of “old data” and need to add the records to the database.

(8) The file “Annex 10 listing of biodiversity-related laws and regulatio.pdf” in “new data” is about biodiversity-related laws and regulation, and the data fields are same as the “Laws and Regulations” sheet of file “Data&InformationCollection-final.xls” in “old data”. But the record number in “new data” is more than that of “old data” and need to add the records to the database.

(9) The file “Annex 11 Name listing of marine species in YS.pdf” in “new data” is about marine species, and the data value, data fields and record number are same as the file “3.Species listing in YS.doc” in “old data”.

1.2 Korea biodiversity data

Korea biodiversity data in the “new data” are new to the “old data” and these data are compared with the data structure that have constructed in database to determine whether to modify the database or not. The followings are the detail of the comparison.

(1) The species list from Korea data and China data are a little different and need to make supplement to the database, like adding Korean name of the species to the species table.

(2) “Figures 21 Mar.doc” is the map about stations, but there are not coordinates about the stations and can’t be used in GIS map query.

(3) The “Table 2” sheet in “Table 2-6.xls” is titled as “List of Marine Protected Area (MPA) with information” and the data fields are the same as the “marine natural reserves” data except that there is not coordinate information in Korea data. These

data need to be inputted into the “marine natural reserves” data table which is going to be constructed in database as described in 1.1-(4).

(4) The “Table 3” sheet in “Table 2-6.xls” is titled as “List of Habitat Conversion with information” and the data fields are the same as the “habitat conversion” data and need to be inputted into the “habitat conversion” data table which has been established in database.

(5) The “Table 4” sheet in “Table 2-6.xls” is titled as “List of Reclamation and Artificial Coastal Line with information” and the data fields are the same as the “habitat reclamation” data and need to be inputted into the “habitat reclamation” data table which has been established in database.

(6) The “Table 5” sheet in “Table 2-6.xls” is titled as “List of Environmental Protection Area with information” and the data fields are the same as the “functional zone” data and need to be inputted into the “functional zone” data table which has been established in database.

(7) The “Table 6” sheet in “Table 2-6.xls” is titled as “List of Laws and Regulations Related to Biodiversity with information” and the data fields are the same as the “Laws and Regulations” data and need to be inputted into the “Laws and Regulations” data table which has been established in database.

(8) The “Table 7” sheet in “Table 2-6.xls” is titled as “List of Species Introduced for Aquaculture (Genetic Diversity) with information” and the data fields are the same as the “Genetic diversity” data and need to be inputted into the “Genetic diversity” data table which has been established in database.

(9) The “Table 8” sheet in “Table 2-6.xls” is titled as “List of Species Introduced to the Wild (Exotic species) with information” and the data fields are the same as the “introduced species” data and need to be inputted into the “introduced species” data table which has been established in database.

(10) The “Table 9” sheet in “Table 2-6.xls” is titled as “List of Species Introduced to the Wild (Exotic species) with information” and the data fields are the same as the “introduced species” data and need to be inputted into the “introduced species” data table which has been established in database.

(11) The “Table 10” sheet in “Table 2-6.xls” is titled as “List of Indigenous Species with information” and the data fields are the same as the “Endemic species” data and need to be inputted into the “Endemic species” data table which has been established in database.

(12) The file “Tables.doc” includes some statistics tables which are not going to

be inputted into the database.

2 Fishery

In “new data”, there are fishery data of both China and Korea, which are also included in the “old data”.

2.1 China fishery data

The China fishery data in “new data” include a final report and an annex file. These data are compared with China fishery data in “old data” in the following sections.

2.1.1 Final report

(1) The “Table 1”, which is in page 10 of the final report in “new data”, is the same as the “Species list” sheet of the file “China Fisheries.xls” in “old data”.

(2) The “Table 2”, which is in page 11 of the final report in “new data”, is the same as the “growth parameters” sheet of the file “China Fisheries.xls” in “old data”.

(3) The “Table 3”, which is in page 13 of the final report in “new data”, is the same as the “aqua farm 10 yr” sheet of the file “China Mariculture.xls” in “old data”.

(4) The “Table 4”, which is in page 14 of the final report in “new data”, is the same in fields name as the “change in tot prod” sheet of the file “China Mariculture.xls” in “old data”. But the values in the tables of the “new data” and “old data” are different and need to change the values in database.

(5) The “Table 5”, which is in page 28 of the final report in “new data”, is basically the same as the “tot catch comm spp” sheet of the file “China Fisheries.xls” in “old data”.

(6) The “Table 6”, which is in page 29 of the final report in “new data”, is basically the same as the “tonnage and KW boat” sheet of the file “China Fisheries.xls” in “old data”.

(7) The “Table 7”, which is in page 31 of the final report in “new data”, is the same as the “vessels fish” sheet of the file “China Fish Scio-economic data.xls” in “old data”.

(8) The “Table 8”, which is in page 32 of the final report in “new data”, is the same as the “fisherman” sheet of the file “China Fish Scio-economic data.xls” in “old data”.

(9) The “Table 9”, which is in page 33 of the final report in “new data”, is the same as the “fish income” sheet of the file “China Fish Scio-economic data.xls” in “old data”.

(10) The “Table 10”, which is in page 33 of the final report in “new data”, is basically the same as the “fish consum per capita” sheet of the file “China Fish Scio-economic data.xls” in “old data”. But in “new data”, there is not “website” field which is included in “old data”.

2.1.2 Annex file

(1) The “Annex 1” sheet of the annex file in “new data” is the same as the “comm spp comp total catch” sheet of the file “China Fisheries.xls” in “old data”.

(2) The “Annex 2” sheet of the annex file in “new data” is the same as the “reprod spawn” sheet of the file “China Fisheries.xls” in “old data”.

(3) The “Annex 3” sheet of the annex file in “new data” is basically the same as the “season spp comp bot tr” sheet of the file “China Fisheries.xls” in “old data” except add the values measured in Winter of every year. The new data values need to be added into the database.

(4) The “Annex 4” sheet of the annex file in “new data” is the same as the “season ichthyoplankton” sheet of the file “China Fisheries.xls” in “old data”.

(5) The “Annex 5” sheet of the annex file in “new data” is the same as the “tot farm” sheet of the file “China Mariculture.xls” in “old data”.

(6) The “Annex 6” sheet of the annex file in “new data” is basically the same as the “change in tot prod” sheet of the file “China Mariculture.xls” in “old data” except there are some values are changed and added. So the changed and new data values need to be modified and added into the database.

(7) The “Annex 7” sheet of the annex file in “new data” is basically the same as the “change prod maj farm” sheet of the file “China Mariculture.xls” in “old data” except there are some values are changed and added. So the changed and new data values need to be modified and added into the database.

(8) The “Annex 8” sheet of the annex file in “new data” is basically the same as the “last 10 yr mar farm” sheet of the file “China Mariculture.xls” in “old data” except there are some values are changed and added. So the changed and new data values need to be modified and added into the database.

(9) The “Annex 9” sheet of the annex file in “new data” is basically the same as the “tot farm org 95” sheet of the file “China Mariculture.xls” in “old data” except there are some values are changed and added. So the changed and new data values need to be modified and added into the database.

(10) The “Annex 10” sheet of the annex file in “new data” is basically the same as the “aqua farm 2004” sheet of the file “China Mariculture.xls” in “old data” except

there are some values are changed and added. So the changed and new data values need to be modified and added into the database.

(11) The “Annex 11” sheet of the annex file in “new data” is basically the same as the “summ aqua group 10yr” sheet of the file “China Mariculture.xls” in “old data” except there are some values are changed and added. So the changed and new data values need to be modified and added into the database.

(12) The “Annex 12” sheet of the annex file in “new data” is new data to the “old data” and need to construct data tables to input the new data into the database.

2.2 Korea fishery data

In “new data”, Korea fishery data only includes one final report. And the data in the final report will be checked and compared with the Korea fishery data in “old data”.

(1) “Table 6” in the final report of “new data” is the same as the “Table F-1” of “Fisheries data table.xls” in “old data”.

(2) “Table 7” in the final report of “new data” is basically the same as the “Table F-2” of “Fisheries data table.xls” in “old data” except that there are a new “Tons/Vessel” field added in the “Table 7”. The new field can be calculated by the old data, so the data will not be added into the database.

(3) “Table 8” in the final report of “new data” is the same as the “Table F-3” of “Fisheries data table.xls” in “old data”.

(4) “Table 9” in the final report of “new data” is the same as the “Table 11” of “bottom trawl survey data.doc” in “old data”.

(5) “Table 10” in the final report of “new data” is the same as the “Table 12” of “bottom trawl survey data.doc” in “old data”.

(6) “Table 11” in the final report of “new data” is the same as the “Table 13” of “bottom trawl survey data.doc” in “old data”.

(7) “Table 12” in the final report of “new data” is the same as the “Table F-4” of “Fisheries data table.xls” in “old data”.

(8) “Table 13” in the final report of “new data” is basically the same as the “Table F-5” of “Fisheries data table.xls” in “old data” except that there are some data added, so the new added data need to be added into the database.

(9) “Table 14” ~ “Table 20” in the final report of “new data” are the same as the “Table 1” ~ “Table 7” of “Socio-economic data table.doc” in “old data”.

(10) “Table 21” ~ “Table 20” in the final report of “new data” are the same as the “95production” ~ “change of species productio mar” sheets of “Aquaculture data

table-2.xls” in “old data”.

(11) “Table 32” in the final report of “new data” is basically the same as the “change of species prod maj sp” sheet of “Aquaculture data table-2.xls” in “old data” except that there are some errors in “Table 32”.

(12) “Table 33” ~ “Table 35” in the final report of “new data” are the same as the “change of kind production” ~ “change of kind production-1” sheets of file “Aquaculture data table-2.xls” in “old data”.

(13) “Table 36” in the final report of “new data” is basically the same as the “95Area” sheet of “Aquaculture data table-3.xls” in “old data” except that the data cells G42 and H42 in “95Area” sheet is different from “Table 36”.

(14) “Table 37” ~ “Table 41” in the final report of “new data” are the same as the “96Area” ~ “00Area” sheets of “Aquaculture data table-3.xls” in “old data”.

(15) “Table 42” ~ “Table 45” in the final report of “new data” are the same as the “01Area” ~ “04Area” sheets of “Aquaculture data table-3.xls” in “old data”.

(16) “Table 46” and “Table 47” in the final report of “new data” are basically the same as the “10years-area” sheet of “Aquaculture data table-3.xls” in “old data” except that there are some values in data cells lost in “Table 46” and “Table 47”.

(17) “Table 48” ~ “Table 58” in the final report of “new data” are the same as the “95Method” ~ “04 Method” sheets of “Aquaculture data table-1.xls” in “old data”.

(18) “Table 60” in the final report of “new data” is the same as the “PMO List of Species” sheet of “Aquaculture-4.xls” in “old data”.

3 Pollution data

The pollution data in “new data” include China pollution data and Korea pollution data. The China pollution data are new to the “old data”.

Through checking and analyzing the China pollution data and Korea pollution data, we have found that there are some problems in the pollution data structure design for database. The pollution data structure had been designed during the first period of the project according to the Korea pollution data in “old data”. But the new pollution data of Korea and China are different from the old Korea pollution data, so the new pollution data are difficult to be inputted into the established pollution data tables. Also, there is no coordinate information in “Pollutant distribution map” in China pollution final report, which can not be displayed in the GIS map.

The problem had make much influence to the work of pollution data structure design and data input. we are going to consult some pollution scientists for data structure design and hope the data submitted by the YSLME scientists could be

standard.

For the new data, we also find that there are lots of social-economic data which are not considered before. So the “social-economic” table will be constructed in the database to input the new data.

4 Ecosystem

In “new data”, there are ecosystem data of both China and Korea, which are also included in the “old data”.

4.1 China ecosystem data

The China ecosystem data in “new data” include a final report. These data are compared with China fishery data in “old data” in the following sections.

(1) Tables of “Annex 1” in final report of “new data” is the same as the excel file under the “Phytoplankton” directory in “old data”.

(2) “Table 5” of “Annex 2” in final report of “new data” is the same as the excel file “YS_Zooplankton_1984-85_China.xls” under the “Zooplankton” directory in “old data”.

(3) “Table 6” ~ “Table 13” of “Annex 3” in final report of “new data” is the same as the excel file “YS_Macrobenthos_1998-00.xls” under the “Benthos” directory in “old data”.

(4) “Table 14” ~ “Table 23” of “Annex 4” in final report of “new data” is the same as the excel file “YS_Macrobenthos_1984-85.xls” under the “Benthos” directory in “old data”.

(5) “Table 30” of “Annex 5” in final report of “new data” is basically the same as the excel file “S_HAB_1972-2005_China.xls” under the “HAB” directory in “old data” except that there some fields’ name in the two data are different and the fields name of “new data” are more detail than those of “old data”

4.2 Korea ecosystem data

The Korea ecosystem data in “new data” include some figures and tables in MS Word an MS Excel format, which are basically the same as the “old data except there are some values are changed and need to do some modification to the database.

Annex 2

Element lists

1. Biodiversity

LatinName	EnglishName
<i>Porphyra tenera</i>	Purple laver
<i>Hizikia fusiformis</i>	Unknown
<i>Silvetia siliquosa</i>	Unknown
<i>Laminaria japonica</i>	Sea tangle
<i>Undaria pinnatifida</i>	pinnatifida
<i>Macrocystis pyrifera</i>	Giant kelp
<i>Glossobalanus palybanchioporos</i>	Unknown
<i>Balanoglossus misakiensis</i>	acornheaded worm
<i>Saccoglossus hwangiauensis</i>	Unknown
<i>Perinereis aibuhitensis</i> Grube	Unknown
<i>Hydroides elegans</i> (Haswell)	Unknown
<i>Argopecten irradians</i>	Atlantic bay scallop
<i>Argopecten irradians irradians</i>	New Atlantic bay scallop
<i>Argopecten irradians concentricus</i>	Mexican bay scallop
<i>Patinopecten yessoensis</i>	Giant ezo scallop
<i>Crassostrea gigas</i>	Pacific oyster
<i>Crassostrea virginica</i>	American oyster
<i>Spisula solidissima</i>	surf clam
<i>Haliotis rufescens</i>	red abalone
<i>Haliotis fulgens</i>	green abalone
<i>Haliotis diversicolor</i>	variously colored abalone
<i>Panopea abrupta</i>	Geoduck clam
<i>Mercernaria mercernaria</i>	Hard-shell clam
<i>Pecten maxima</i>	big scallop
<i>Mytilopsis sallei</i> Recluz	black-striped mussel
<i>Strongylocentrotus intermedius</i>	sea urchin
<i>Crepidula onyx</i>	Unknown
<i>Mactra veneriformis</i> Reeve	Unknown
<i>Meretrix</i> spp.	Hard clam
<i>Sinonovacula constricta</i>	Agamaki clam
<i>Chlamys farreri</i>	Farrer scallop
<i>Penaeus chinensis</i>	Chinese shrimp
<i>Penaeus japonicus</i>	Common shrimp
<i>Litopenaeus stylirostris</i>	Unknown
<i>Penaeus vannamei</i> Boone	Pacific white shrimp
<i>Penaeus vannamei</i>	Unknown

Lingula anatina Lamarak	Lingula
Terebratella eoreanica Adams et Reeves	Unknown
Branchiotoma belcheri tsingtauense	Unknown
Larimichthys polyactis	Small Yellow Croaker
Scomber japonicus	Japanese mackerel
Gadus macrocephalus	Pacific cod
Clupea pallasii	Pacific herring
Pagrosomus major	red seabream snapper
Cleisthenes herzensteini	pointhead plaice
Larimicthys crocea	Large Yellow Croaker
Trachidermus fasciatus	roughskin sculpin
Acipenser sinensis	Chinese sturgeon
Psiphurus gladius	Chinese paddlefish
Scophthalmus maximum	Turbot
Sciaenops ocellatus	Red drum
Cynoscion nebulosus	spotted seatrout
Salmo gairdnerii	Rainbow Trout
Anguilla anguilla	Moray
Fugu rubripes	ocellate puffer
Tilapia zillii	redbelly tilapia
Sarotherodon galilaea	galilaea tilapia
Oreochromis mossambicus	Mozambique tilapia
Oreochromis aeneus	Unknown
Oreochromis niloticus	Nile tilapia
Oreochromis aureus	aureus tilapia
Morone saxatilis	striped bass
Lates calcarifer	barramundi
Atlantic flounder	summer flounder
Collichthys lucidus	spinyhead croaker
Collichthys niveatus	bighead croaker
Miichthys miiuy	brown croaker
Nibea albiflora	yellow drum
Argyrosomus argentatus	white mouth croaker
Johnius belengerii	corvina
Lateolabrax japonicus	Japanese sea perch
Scomberomorus niphonius	Blue-spotted mackerel
Chelonia mydas	Common Green Turtle
Eretmochelys imbricata	hawksbill turtle
Lepidochelys olivacea	Olive Ridley Sea Turtle
Dermochelys coriacea	Leather Turtle
Neophocaena phocaenoides	Chinese finless porpoise
Phoca largha	Hair seal

Eschrichtius robustus	Grayback
Grus japonensis	red-crowned crane
Grus monacha	hooded crane
Grus vipio	white-naped crane
Platalea minor	Black-faced spoonbill
Egretta eulophotes	Chinese Egret
Anas formosa	baikal teal
Cygnus Cygnus	swan
Laurs saundersi	Saunder's gull
Spartina anglica	Spartina
Spartina patens	Unknown
Balanus eburneus	Ivory Barnacle
Balanus improvisus	Unknown
Balanus amphitrite amphitrite	barnacle
Ciona intestinalis	Unknown
Molgula manhattensis	Unknown
Styela canopus	Unknown

2. Pollution

EnglishName

Dissolved Oxygen(%)
 Nitrate-N (ug/L)
 Nitrite-N (ug/L)
 Phosphate-P (ug/L)
 Silicate-Si (ug/L)
 Chlorophyl_A (ug/L)
 Cd
 Cr
 Hg
 PH
 Temperature(C)
 Transparency(m)
 Pb
 Zn
 Salinity(ppt)

3. Ecosystem

EnglishName

Polychaeta
 Mollusca
 Crustacea
 Totle

Ceratium intermedium
Ceratium fusus
Pyrophacus horologicum
Coccinodiscus subtilis
Rhizosolenia alata f. indica
Bacteriastrum hyalinum
Rhizosolenia stolterforthii
Melosira sulcata
Hemiaulus sinensis
Bacteriastrum delicatulum
Chaetoceros compressus
Rhizosolenia setigera
Nitzschia delicatissima
Chaetoceros densus
Chaetoceros castracanei
Grammatophora marina
Peridinium depressum
Rhizosolenia hebetata f. semispina
Liriope tetraphylla
Lensia subtiloides
Skeletonema Grev.
Mesodinium rubrum
Dinoflagellate
Heterosigma akashiwo
Skeletonema
Thalassiosira nordenskioldi
Pyrrophyta
Heterosigma akashiwo Hada
Euglenophyta
Phaeocystis
Noctiluca scientillans
Chaetoceros
Echinodermata
Chaetoceros pseudocurvisetus
Coccinodiscus spp.
Nitzschia pungens
Nitzschia paradoxa
Rhizosolenia alata f. gracillima
Skeletonema costatum
Thalassionema nitzschioides
Muggiaea atlantica
Sagitta nagae

Sagitta enflata
 Sagitta crassa
 Calanus sinicus
 Undinula vulgaris
 Euchaeta plana
 Labidocera euchaeta
 Themisto gracilipes
 Pseudeuphausia sinica
 Euphausia nana
 Lucifer intermedius
 Thalia democratica
 Coscinodiscus sp.
 Chattonella marina
 Biddulphia aurita
 Gymnodinium Stein
 Eucampia zoodiacus
 Chaetoceros socialis Lauder

4. Fishery

ScientificName	CommonName	ChineseName	KoreanName
Acanthopagrus schlegelii	black sea bream		
Ammodytes personatus	Sandlance	玉筋鱼	
Atrina pectinata	comb pen shell		
Cancer spp.	Cancer spp.		
Charybdis bimaculata		双斑螯	
Chelidonichthys kumu		绿鳍鱼	
Chlamys farreri nipponensis	scallop		
Cleisthenes herzensteini		高眼蝶	
Cleisthenes pinetorum	Cleisthenes pinetorum		
Clupea pallasii	Pacific herring	鲱	
Codium fragile	sea staghorn		
Collichthys nivertus	Collichthys nivertus		
Conger myriaster	Conger myriaster		
Crangon affinis		脊腹褐虾	
Crangon gracilis	Crangon gracilis		
Crassostrea gigas	Pacific oyster		
Crustaceans_SubTotal	crustaceans_subtotal		
Cyclina sinensis	Venus clam		
Enedrias fangi		方氏云鳎	
Engraulis japonicus	Anchovy	鳀鱼	
Enteromorpha spp.	sea lettuce		
Epinephelus septemfasciatus	seven-band grouper		

Eupleurogrammus muticus		小带鱼
Fenneropenaeus chinensis	Fleshy prawn	
Finfish_SubTotal	finfish_subtotal	
Gadus macrocephalus	Gadus macrocephalus	
Gelidium amansii	Agar agar	
Gigartina spp.	other agars	
Haliotis discus hannai	abalone	
Hemitripterus villasus	Hemitripterus villasus	
Hexagrammos otakii	Hexagrammos otakii	
Hijika fusiforme	fusiforme	
Japanese anchovy		
Jelly fish		
Konosirus punctatus	dotted gizzard shad	
Laminaria japonica	kelp	
Larimichthys polyactis	Small yellow croaker	小黄鱼
Lateloabrax japonicus	Lateloabrax japonicus	
Lateolabrax latus	Sea Bass	
Lateolabrax spp.		
Liparis tanakae		细纹狮子鱼
Litopenaeus vannamei	Pacific white shrimp	
Loligo beka	Loligo beka	
Lophius litulon		黄鮟鱇
Mactra chinensis	Chinese mactra	
Mactra veneriformis	surf clam	
Meretrix lusoria	hard clam	
Metapenaeopsis dalei		戴氏赤虾
Miichthys miiuy	brown croaker	
Muguil spp.	mulletts	
Mytilus coruscus	hard shelled mussel	
Okamejei kinojei	Okamejei kinojei	
Oplegnathus fasciatus	rock bream	
Oratosquilla oratoria		虾蛄
Oregonia gracilis	Oregonia gracilis	
Other Crustacean	other crustacean	
Other finfishes	other finfishes	
Other rock fishes	other rock fishes	
Other sea breams	other sea breams	
Other seaweed	other seaweeds	
Other shellfish	other shellfishes	
Others	others	
Others_SubTotal	Others_SubTotal	
Pagrus major	red sea bream	

<i>Palaemon gravieri</i>		葛氏长臂虾
<i>Paralichthys olivaceus</i>	oliver founder	
<i>Penaeus japonicus</i>	Kuruma prawn	
<i>Pleurogrammus azonus</i>	Atka mackerel	
Pomfret		银鲷
<i>Porphyra</i> spp.	laver	
<i>Portunus trituberculatus</i>	Blue crab	
Puffers		
<i>Rapana venosa</i>	Murex shell	
<i>Ruditapes philippinarum</i>	short necked clam	
<i>Sargassum fulvellum</i>	gulf weed	
<i>Saurida elongata</i>		长蛇鲭
<i>Scapharca broughtonii</i>	ark shell	
<i>Scapharca subcrenata</i>	granular ark	
<i>Sciaenops ocellatus</i>	red drum	
<i>Scomber japonicus</i>	Chub mackerel	鲈鱼
<i>Scomberomorus niphonius</i>	Spanish mackerel	蓝点马鲛
Seaweeds_SubTotal	seaweeds_subtotal	
<i>Sebastes schlegeli</i>	jacopever	
<i>Seriola quinqueradiata</i>	yellow tail	
<i>Setipinna taty</i>		黄鲫
Shellfish_SubTotal	shellfish_subtotal	
Skate		孔鳐
<i>Solen</i> spp.	Gould's jackknife clam	
<i>Squalus megalops</i>	<i>Squalus megalops</i>	
<i>Stephanolepis</i>	sp.; file fishes	
<i>Thamnaconus</i> sp.		
<i>Stichopus japonicus</i>	sea cucumber	
<i>Styela clava</i>	tunicates	
<i>Synthina roretzi</i>	sea squirt	
<i>Takifugu</i> spp.	puffers	
<i>Todarodes pacificus</i> , <i>Loligo</i> sp. and <i>Sepia</i> sp.	Squids	头足类
Total	total	
<i>Trachypenaeus curvirostris</i>		鹰爪虾
<i>Trichiurus lepturus</i>	Largehead hairtail	带鱼
<i>Undaria pinnatifida</i>	sea mustard	
<i>Zoarces gilli</i>	<i>Zoarces gilli</i>	

Annex 3

World data centers investigation report

1 JODC

1.1 URL

<http://www.jodc.go.jp/>

http://www.jodc.go.jp/aboutJODC_work_data.html

1.2 Introduction

Japan Oceanographic Data Center (JODC) was established in the Hydrographic Department, Maritime Safety Agency, in 1965 in accordance with the resolution adopted by the Intergovernmental Oceanographic Commission (IOC) of UNESCO in 1961 as well as the reports of the Council for Marine Scientific Technology in 1963 and 1964.

Since its establishment JODC has been fulfilling the role of the synthetic marine data bank of Japan in acquisition of marine data obtained by various marine research institutes and organizations concerned in Japan and in providing users with these data.

In addition JODC has been carrying out international services as the National Oceanographic Data Center of Japan under the framework of International Oceanographic Data and Information Exchange (IODE) promoted by IOC.

Maritime Safety Agency was renamed Japan Coast Guard in 2000,

Hydrographic Department was renamed Hydrographic and Oceanographic Department in 2002.

1.3 Data contents

Temperature and salinity, ocean current, tide (sea level), tidal current, marine pollution, bathymetry and marine geophysics, marine geophysics and marine biology, NEAR-GOOS data

1.4 Data can be downloaded

Most data can be downloaded, but some of them need authority right. Additionally, most of the data are not relative to the YSLME data and the data can not be inputted into the established database.

1.5 NEAR-GOOS data

(1) 30 days delayed data center

<http://near-goos1.jodc.go.jp/index.html>

There are some problems in the data downloading.

(2) Real-time data center

<http://goos.kishou.go.jp/rrtdb/database.html>

The real time data NEAR-GOOS data downloading needs password. We have submit the application but have not get the password yet.

2 KODC

2.1 URL

<http://kodc2.nfrdi.re.kr:8001/home/eng/main/index.php>

2.2 Introduction

The Korea Oceanographic Data Centre(KODC) was established in 1974 by the Ministry of Science and Technology(MOST) in the Republic of Korea. However KODC is now hosted by the National Fisheries Research & Development Institute(NFRDI) since 1981. National Oceanographic Programme of Korea submitted by KODC is distributed by IOC of UNESCO every year since 1981.

2.3 Data contents

Real-time Coastal Oceanographic Data, Real-time Oceanographic Information for Pelagic Fishery, Coastal Oceanographic Data, Serial Oceanographic Data, ARGO Delayed Mode Data, NEAR-GOOS Data.

The detail metadata about the data centers can be get by address <http://kodc2.nfrdi.re.kr:8001/home/eng/metadata/metaDBSearch.php>.

2.4 Data can be downloaded

Most data can be downloaded, but some of web pages are in Korean language. Additionally, most of the data are not relative to the YSLME data and the data can not be inputted into the established database.

2.5 NEAR-GOOS data

(1) Real-time data center

<http://near-goos.kordi.re.kr/>

The real time data NEAR-GOOS data are updated every half hour on the web page and we are going to download the data in real-time 24 hours. But there are often problems in the website connection and sometimes the web page can not be open.

(2) Historical data

<http://near-goos.kordi.re.kr/>

The historical NEAR-GOOS data can only be displayed as graph and can not download the data form the website.

3 CODC (National Marine Data & Information Service)

3.1 URL

<http://www.nmdis.gov.cn/>

3.2 Introduction

The National Marine Data and Information Service (NMDIS) is a national facility under the State Oceanic Administration (SOA) of China responsible for looking after and distributing data and information cocncerning the marine environment. As a National Oceanographic Data Center, NMDIS maintains and develops the national marine database. This is a collection of marine data sets originating mainly from China marine observation establishments. NMDIS is not only providing marine data and information services, but also providing technical support for national marine economic development, sea area management, marine environmental protection, and marine research community.

NMDIS manages tidal data recorded from tidal stations along the Chinese coast. The tide and tidal current analysis and prediction are one of the major task of the NMDIS. The tide tables for China Seas as well as world oceans are compiled and published yearly by NMDIS.

As a national coordinator, NMDIS is actively participating the activities of International Oceanographic Data and Information System (IODE) and many other international marine data and information managemement activities. NMDIS hosts the World Data Center for Oceanography (Tianjin, China), China Argo Data Center, China Delayed Mode Database for NEAR-GOOS. NMDIS manages the ODAS Metadata Center for JCOMM.

3.3 Data contents

Coastal station data, Temperature-salinity data, Surface current data, ARGO Buoy data, Sea Surface Meteorological Observational Database, Nansen station data, Marine biological data, Marine geological and geophysical data, Coastal Station Meteorological Data, Marine meteorological observations, Global Telecommunication System (GTS), NEAR-GOOS data.

The data and metadata can be get from the web site

<http://www.nmdis.gov.cn/english/data/index.htm>

3.4 Data can be downloaded

In English version page, most data can be downloaded, but the data amounts are very few. Also, there are very few data relative to the YSLME data.

In Chinese version page, the data can be downloaded only after governmental application.

3.5 NEAR-GOOS data

30 days delayed data center

<http://near-goos.coi.gov.cn/index.html>

We have registered as a member and can get into the data downloading page. But data are not continuous in time and most of them are before year 2003.

4 WDC-D

4.1 URL

<http://wdc-d.coi.gov.cn/>

4.2 Introduction

As the third center for oceanography of the World Data Center following WDC-A of the United States and WDC-B of Russia, WDC-D for oceanography boasts long-term and stable sources of domestic marine basic data. The State Oceanic Administration now has long-term observations obtained from the fixed coastal ocean stations, offshore and oceanic research vessels, moored and drifting buoys. More and more marine data have been available from the Chinese-foreign marine cooperative surveys, analysis and measurement of laboratory samples, reception by the satellite ground station, aerial telemeter and remote sensing, the GOOS program and global ships of opportunity reports, etc; More marine data are being and will be obtained from the ongoing "863" program, one of the state key projects during the Ninth Five-year plan and the seasat No 1 which is scheduled to be launched next year. Through many years' effort, the WDC-D for oceanography has established formal relationship of marine data exchange with over 130 marine institutions in more than 60 countries in the world and is maintaining a close relationship of data exchange with over 30 major national oceanographic data centers. The established China Oceanic Information Network has joined the international marine data exchange system via Internet. Through these channels, a large amount data have been acquired of through international exchange, which, plus the marine data collected at home for

many years, has brought the WDC-D for Oceanography over 100 years' global marine data with a total data amounting to more than 10 billion bytes. In the meantime, a vast amount of work has been done in the standardized and normalized processing and management of the data, and a series of national and professional standards have been formulated and implemented successively. Moreover, appropriate standards and norms are being formulated as required.

4.3 Data contents

Coastal station data, Temperature-salinity data, Surface current data, ARGO Buoy data, Sea Surface Meteorological Observational Database, Nansen station data, Marine biological data, Marine geological and geophysical data, Coastal Station Meteorological Data, Marine meteorological observations, Global Telecommunication System (GTS), NEAR-GOOS data.

4.4 Data can be downloaded

The data can be downloaded only after governmental application.

5 China Ocean Information Network

5.1 URL

<http://www.coi.gov.cn/>

5.2 Data contents

Coastal station data, SST, Sea Level Data, Sea Surface Meteorological Data, Data Analysis Products, Tide Forecast

5.4 Data can be downloaded

Most of the data can be downloaded.

6 IODE

6.1 URL

<http://www.iode.org/>

6.2 Introduction

The IOC's International Oceanographic Data and Information Exchange (IODE) was established in 1961 to enhance marine research, exploitation and development by facilitating the exchange of oceanographic data and information between participating Member States and by meeting the needs of users for data and information products.

6.3 Data contents

The data centers of IODE can be introduced and listed on the website http://www.iode.org/index.php?option=com_content&task=view&id=3&Itemid=33

7 Ocean portal

7.1 URL

<http://www.iode.org/oceanportal/>

7.2 Introduction

Ocean Portal is a high-level directory of Ocean Data and Information related web sites. Its objective is to help scientists and other ocean experts in locating such data & information.

7.3 Data contents

Information about ocean data centers and you can search for the data centers which contain the information you are interested in.

8 Large Marine Ecosystems Information Portal

8.1 URL

<http://woodsmoke.edc.uri.edu/Portal/ptk>

8.2 Introduction

Website about large marine ecosystem which introduce the programs of large marine ecosystem and download the background information, map and data product.

8.3 Data contents

Feature Maps, Administrative Boundaries, Bathymetry and Elevation, Salinity, Temperature

8.4 Data can be downloaded

The data can be downloaded are only product map in JPEG format.

9 Marine Biodiversity and Ecosystem Functioning

9.1 URL

<http://www.marbef.org/>
<http://www.marbef.org/data/>

9.2 Introduction

MarBEF, a network of excellence funded by the European Union and consisting of 92 European marine institutes, is a platform to integrate and disseminate knowledge and expertise on marine biodiversity, with links to researchers, industry, stakeholders and the general public. On the network description pages you will find more detailed information of MarBEF

9.3 Data contents

Different resources related to marine biodiversity mainly about European marine.

10 Species 2000

10.1 URL

<http://www.sp2000.org/index.php>

10.2 Introduction

Species 2000 is a "federation" of database organisations working closely with users, taxonomists and sponsoring agencies.

The goal of the Species 2000 project is to create a validated checklist of all the world's species (plants, animals, fungi and microbes). This is being achieved by bringing together an array of global species databases covering each of the major groups of organisms.

Each database covers all known species in the group, using a consistent taxonomic system. The participating databases are widely distributed throughout the world and currently number 47. The existing global species databases presently account for some 50% of the total known species, so substantial investment in new databases will be needed for full coverage of all taxa to be achieved.

The programme in partnership with the [Integrated Taxonomic Information system \(ITIS\)](#) of North America currently produces the Catalogue of Life. This is used by the [Global Biodiversity Information facility \(GBIF\)](#) as the taxonomic backbone to its web portal. Species 2000 receives funding from GBIF

10.3 Data contents

Checklist of all the world's species (plants, animals, fungi and microbes).

10.4 Data can be downloaded

The checklist can be searched and downloaded by Dynamic Checklist and

Annual Checklist.

11 ITIS (the Integrated Taxonomic Information System)

11.1 URL

<http://www.itis.gov/>

11.2 Introduction

The ITIS is the result of a partnership of federal agencies formed to satisfy their mutual needs for scientifically credible taxonomic information. Since its inception, ITIS has gained valuable new partners and undergone a name change; ITIS now stands for the *Integrated Taxonomic Information System*.

The goal is to create an easily accessible database with reliable information on species names and their hierarchical classification. The database will be reviewed periodically to ensure high quality with valid classifications, revisions, and additions of newly described species. The ITIS includes documented taxonomic information of flora and fauna from both aquatic and terrestrial habitats.

11.3 Data contents

Authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world.

11.4 Data can be downloaded

The data can be downloaded by search engine.

12 GBIF (Global Biodiversity Information facility)

12.1 URL

<http://www.gbif.org/>

12.2 Introduction

The Global Biodiversity Information Facility (GBIF) is an international organisation that is working to make the world's biodiversity data accessible anywhere in the world.

GBIF's members include countries and international organisations who have signed a Memorandum of Understanding that they will share biodiversity data and contribute to the development of increasingly effective mechanisms for making those data available via the Internet.

12.3 Data contents

Information on species and other groups of plants, animals, fungi and micro-organisms, including species occurrence records, as well as classifications and scientific and common names.

Information on the species recorded in each country, including records shared by providers from throughout the GBIF network.

Information on the data providers, datasets and data networks that share data through GBIF, including summary information on 1597 datasets from 221 data providers.

12.4 Data can be downloaded

The data can be downloaded through the website <http://data.gbif.org/welcome.htm;jsessionid=40A7DCB9CE8ECB14FEA4C7EC36C78C2B>

13 OBIS

13.1 URL

<http://www.iobis.org/>

13.2 Introduction

OBIS was established by the Census of Marine Life program (www.coml.org). It is an evolving strategic alliance of people and organizations sharing a vision to make marine biogeographic data, from all over the world, freely available over the World Wide Web. It is not a project or program, and is not limited to data from CoML-related projects. Any organization, consortium, project or individual may contribute to OBIS.

13.3 Data contents

Taxonomically and geographically resolved data on marine life and the ocean environment, interoperability with similar databases, software tools for data exploration and analysis..

13.4 Data can be downloaded

The data can be downloaded by search engine.

14 World Data Center for Biodiversity and Ecology

14.1 URL

<http://wdc.nbi.gov/portal/server.pt>

14.2 Introduction

The WDC for Biodiversity and Ecology provides access to data in both a local traditional access method and through its distributed network of [National Biological Information Infrastructure \(NBII\)](#) Regional and Thematic Nodes throughout the country. Tours are available of the [Center for Biological Informatics](#), Denver Colorado, where the core capabilities and various data are held.

14.2 Data contents

The WDC for Biodiversity and Ecology contains data related to federal, state, non-profit, university, and private sector research data and information gathered within the United States. This information includes land cover ([vegetation mapping](#), [gap analysis](#)), species information, regional information throughout the U.S., national level data and information related to [bird conservation](#), [invasive species](#), [fisheries and aquatic resources](#), [wildlife disease](#), and [amphibian declines](#).

14.4 Data can be downloaded

The data can be downloaded by search engine.