



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

UNDP/GEF/YS/YP.3/3
Date: 21 August 2008
English only

Youth Programme 2008
Buan, ROK, 19-21 August 2008



Report of the Youth Programme 2008

Summary of the Programme

As one of public awareness activities of the UNDP/GEF Project on “Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem (YSLME),” the third “Youth Programme” was organised in Buan, Republic of Korea (ROK), from 19 to 21 August 2008.

Twenty middle/high-school students attended the Programme from the Yellow Sea’s coastal provinces and cities: ten students from China and ten students from ROK. Professional scholars with expertise in marine ecosystem as well as officials at local government and international organisations were invited as lecturers. A list of the participants and lecturers is attached as Annex I to this report.

The Programme, a 3-day activity consisting of classroom lectures, field activities, and group work, provided the students with an opportunity to understand the importance of the Yellow Sea and to observe and experience its ecosystem. Through the Programme, the students achieved a better understanding of the Yellow Sea, and they were encouraged to actively think and act for conservation. The students also nurtured a friendship each other by sharing and exchanging views and opinions.

The Programme was conducted in Chinese and Korean with a consecutive interpretation service provided between the two languages.

This activity was made possible by the co-operation with a number of organisations, including Buan Municipal Government, Korea Marine Rescue Center, Korea Ocean Research and Development Institute, Northwest Pacific Action Plan, China Ocean News, and Sea Explorers of Korea.

1. Objective of the Workshop

- 1.1 The objective of this Programme was to provide participating students with an opportunity not only to understand the role and importance of the Yellow Sea and its ecosystem, but also to experience the actual environment through a variety of activities.
- 1.2 It was expected that the participants would realise the current situation and environmental problems in the Yellow Sea and would be motivated to think and act for conservation positively.

2. Contents of the Workshop

- 2.1 The Programme consisted of a series of lectures, field activities, and group work. The lecture topics included: (Specific titles of the lectures were provided below in parentheses.)
 - International co-operation for marine conservation: Role of the U.N. and the Yellow Sea Project (“Yellow Sea is Our Common Heritage”);
 - Marine environment and species: Role and importance of the Yellow Sea Ecosystem (“What is the Yellow Sea Like?”);

- Impact of human activities on the marine environment 1: Conservation activities by local government (oil spill disaster as an example) (“Role of Buan Municipality for Saving the Yellow Sea”);
- Impact of human activities on the marine environment 2: Regional co-operation to mitigate oil spill disaster (“Regional Co-operation to Mitigate Oil Spill Disaster”); and
- Environmental youth leadership.

(See Annex II for the lecture materials.)

- 2.2 During the field activities led by local instructors from governmental and non-governmental organisations, the students observed the coastal ecosystem and species as well as the coastal area affected by the oil spill disaster at Taean, ROK on 7 December 2007. The students also visited local cultural sites to broaden their knowledge of Korean culture and custom.
- 2.3 The participants conducted beach cleanup at the Gosapo Beach in Buan, following the protocol of the International Coastal Cleanup. According to the report prepared by Korea Marine Rescue Center, a total of 27 people, including the 20 students, cleaned the beach with a distance of approximately 100 m. The total weight of collected marine litter is about 100 kg. Bags, cigarettes, and ropes accounted for 21%, 15%, and 13% of the collected litter, respectively. For details, see the Youth Programme Beach Cleanup Result in Annex III.
- 2.4 The group work was introduced for the students to (i) define environmental problems in the Yellow Sea based on the lecturers and field activities, (ii) create possible solutions for those problems through discussing with the lecturers and other participants, and (iii) present the solutions to all the participants to exchange views and opinions.
- 2.5 The students were divided into four groups (Team A to D) in which Chinese students and Korean students worked together to organise their thoughts and prepare presentations. A representative of each group gave a presentation. The topics of the presentations are the following:
- Team A: What can we do to save wet lands;
 - Team B: Eco-friendly use of wet lands;
 - Team C: Economic development and sea pollution; and
 - Team D: Environmental degradation and conservation of the Yellow Sea.

(See Annex IV for the presentation materials.)

- 2.6 To organise the activities mentioned above, prominent scholars as well as officials at a local government and international organisations were invited as follows.

Mr. Kim Ho Il
Buan Municipal Government

Dr. Kim Woong Seo
Korea Ocean Research and Development Institute

Ms. Kim Yu Kyung
Buan Municipal Government

Mr. Lee Jong Myoung
Korea Marine Rescue Center

Dr. Oh Jeong-Hwan
Marine Environmental Emergency Preparedness and Response Regional Activity
Centre
Northwest Pacific Action Plan

Dr. Park Jeung Sook
Regional Coordinating Unit
Northwest Pacific Action Plan

- 2.7 Having appreciated the information and opportunities provided by the Programme, the students realised the importance and necessity to improve the health of the ecosystem in the Yellow Sea. The participants expressed their willingness to take actions for conserving the marine environment.
- 2.8 The students hoped that there will be similar opportunities to be provided in the future, having pointed out the usefulness of this Programme.

3. Outcomes of the Programme

- 3.1 Through the Programme, the students achieved a better understanding of the Yellow Sea ecosystem and the problems that the ecosystem faced. The Programme successfully motivated the participants to think and act positively for protecting the environment.
- 3.2 The participants deepened their knowledge of the Yellow Sea by sharing and exchanging views and opinions with other participants from different cities, provinces, and countries. The Programme greatly contributed to nurturing a friendship among the students from China and ROK.

Annex I

List of Participants

Participants: People's Republic of China	
Mr. GAI Guang Sheng*	China Ocean News
Ms. ZHAI Chen Meng*	
Mr. YANG Wei*	
Ms. WANG Qiu Rong*	
Mr. LU Sheng	Jiangsu Ru Dong High School
Ms. TAO Yi	Jiangsu Ru Nan Tong NO.1 High School
Mr. NIU Chun Qi	Shandong Cang Le NO.2 High School
Ms. CHEN Qian	Shandong Qing Dao NO.58 High School
Ms. ZENG Yun	Beijing High School attached to Capital Normal University
Ms. ZHANG Yu Tong	Hebei Qin Huang Dao NO.7 Middle School
Ms. WEI Wen	Beijing Hai Dian NO.11 High School
Ms. SUN Yue Di	Shanadong North Town High School
Mr. WANG Di	Shandong Middle School attached to Qingdao University
Mr. LUO Kun	Northeast Yucai High School

Participants: Republic of Korea	
Mr. KIM Youn-tae*	Daechung High School
Ms. BAEK Dan-bee	
Ms. SEO You-lee	
Ms. JI Na-hye	
Ms. PARK Mi-hye	
Mr. LEE Kwang-won	
Mr. NOH Jin-hyuk	
Mr. BAEK Jin-sung	
Mr. OH Min-sik	Buan High School
Mr. LEE Jong-ho	
Mr. PARK Seung-jae	

Note: * Teachers/supervisors.

Instructors	
Mr. KIM Ho Il	Buan City
Dr. OH Jeong-Hwan	NOWPAP MERRAC
Dr. KIM Woong Seo	KORDI
Dr. PARK Jeung Sook	NOWPAP
Ms. KIM Yu Kyung	Buan Municipal Government
Mr. LEE Jong Myoung	Korea Marine Rescue Center

Secretariat	
Mr. JIANG Yihang	Project Management Office (PMO)
Mr. ENDO Isao	
Mr. PARK Sung-Jun	

Annex II
Lecture Materials

Yellow Sea is Our Common Heritage

Mr. Yihang Jiang

Project Manager

UNDP/GEF Yellow Sea Project



Yellow Sea is Our Common Heritage



*Prepared by Yihang Jiang,
For Korea University Student*

<http://www.yslme.org>



Our Knowledge on the Yellow Sea ...



<http://www.yslme.org>



<http://www.yslme.org>



<http://www.yslme.org>



<http://www.yslme.org>



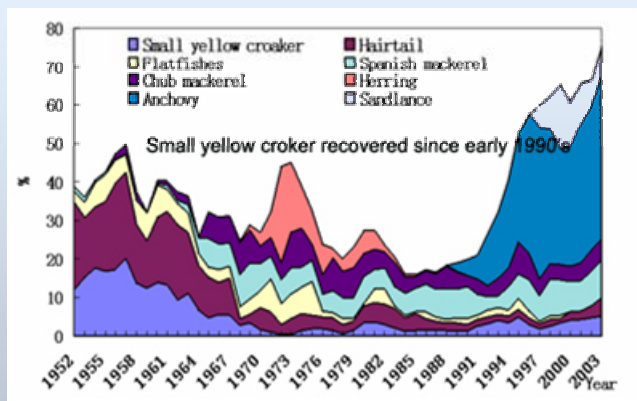
We Have Problems, but We have Hope too ...



<http://www.yslme.org>



<http://www.yslme.org>

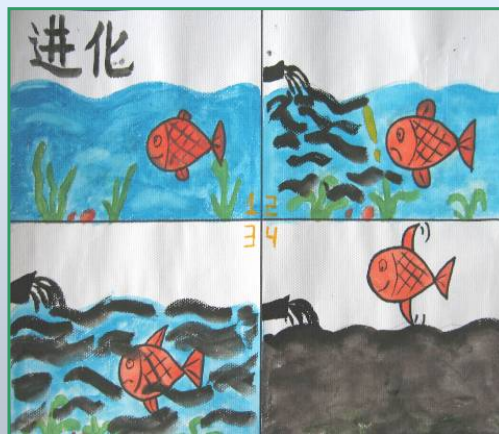


<http://www.yslme.org>

We Need Long-Term Planning, We Need Young Generation



<http://www.yslme.org>



<http://www.yslme.org>

Harmonisation of Environment with Economy, Culture



<http://www.yslme.org>



<http://www.yslme.org>



<http://www.yslme.org>

Role of Buan Municipality for Saving the Yellow Sea

Mr. Kim Ho Il

Buan Municipal Government



2008. 8



순서



- I. 바다의 역할과 중요성
- II. 해양환경오염의 원인 및 문제점
- III. 부안군 해양환경의 현황 및 오염 실태
- IV. 해양환경 보전을 위한 부안군의 주요시책
- V. 앞으로 개선방향
- VI. 해양폐기물을 줄일 수 있는 10가지 실천방법
- VII. 맺음말

I. 바다의 역할과 중요성

1. 바다에 관한 일반상식

2. 바다의 중요성

3. 바다는 우리 모두의 꿈과 희망

I. 바다의 역할과 중요성

1. 바다에 관한 일반상식

바다의 기원	먼 옛날 원시지구가 식으면서 대기속 수증기가 지표면에 내려앉아 형성
부 피	13억 7천만km ² (지구 전체 표면의 71%를 차지) ※ 사람의 몸도 71%가 물로 구성 (우연의 일치이지만 인간과 바다는 밀접한 관계에 있음을 시사해 줌)
면 적	3억 6천만km ²
평균수심	3,800m (육지의 평균높이는 840m)
서식생물종의수	약 30만종
생명의 근원지	지구상 최초 생명체는 바다에서 잉태 (바다는 육지의 어머니)

2. 바다의 중요성

환경적 측 면	수분의 저장과 공급 등을 통하여 지구의 기후를 안정적으로 유지
	각종 오염물질을 최종 정화시켜 지구 생태계로 재순환 (갯벌 10km ² 는 인구 10만명의 도시 배출오염물질을 자연 정화할 수 있는 능력 보유)
	다양한 생물의 서식처 (지구 생물의 80%인 30만종이 생활 / 육지생물의 7배)
에너지 측 면	조력, 풍력 등 청정 에너지원 보유로 대체에너지 개발 잠재력 풍부
생활공간 측 면	전세계 인구의 약 30%가 연안에 거주

경제적 측 면	풍부한 수산자원은 전세계 인류의 중요 식량 공급원
	석유와 철, 니켈, 코발트, 망간, 구리 등 광물이 풍부한 자원의 보고 (육상자원 매장량의 수백배 / 인류가 수천년은 사용 가능) ※ 육상 자원의 고갈 심화로 해저자원 개발 가속화
	항만, 공단 등 물류유통 및 산업활동의 중심지(전세계 교역량의 75%인 약40억톤의 화물이 해상을 통해 수송) ※ 지구 저 편에 있는 철광석, 석탄을 톤당 5 ~ 7달러에 수송할 수 없었더라면 지금의 세계 경제발전은 사실상 불가능
	아름다운 해안절경으로 관광·레저 산업의 중심지

바다의 경제적 가치



해 운



산 업



에 너 지



자 원



수 산



관 광

3. 바다는 우리 모두의 꿈과 희망

미국의 케네디 대통령은 1960년대에 이미
 “우리가 바다에 관심을 갖는 것은 단순한 호기심 때문이
 아니다. 바다에 우리의 미래가 달려있기 때문이다” 라고 역설

바다가 세계와 인류의 미래를 좌우할 것으로 예견

육상자원의 고갈에 직면하여 지금 전세계와 인류는
 바다의 무한한 가능성과 잠재력에 주목
 (21세기는 해양의 시대)

바다는 지구촌 전 인류의 공동유산으로 우리 인간 모두에게
 없어서는 안될 중요한 역할을 수행하고 있으며 인간생활에
 필요한 모든 것들을 제공하여 주는 자원의 보고이자 미래의
 삶의 터전 (인류 생존을 위한 마지막 희망의 공간)

II. 해양환경오염의 원인 및 문제점

1. 해양환경오염의 정의

2. 발생원인

3. 해양환경오염으로 인한 문제점

II. 해양환경오염의 원인 및 문제점

1. 해양환경오염의 정의

일반적
개 념

오염물질이 바다의 자정능력을 넘어서서
해양생태계에 해를 끼치는 것

구체적
정 의

인간활동의 결과로 생긴 물질이 해양에 유입
되어 해수의 질을 저하시켜 생물자원에 해를
입히고 어업을 포함한 해양활동에 장애를
주며 해양환경의 쾌적성을 저하시키는 것

✦ 해양오염물질의 특성 : 부유성, 광역이동성, 난분해성

2. 발생원인

육상으로부터의 유입	생활폐기물로 인한 오염	생활하수, 각종 생활쓰레기 등	직접 투기나 강, 하천을 통하여 바다로 유입
	농업활동으로 인한 오염	화학비료, 약, 축산폐수 등	〃
	산업활동으로 인한 오염	산업폐수, 산업폐기물 등	〃
해양에서 발생	선박 및 해양시설로부터의 오염	유류, 유해물질, 폐기물 등	직접 투기나 해난사고 발생으로 바다로 유입
	어업활동으로 인한 오염	폐선, 폐어구류, 양식부산물 등	고의 또는 과실, 자연재해로 인하여 발생
대기로부터의 유입	오염된 대기에 의한 2차 오염	각종 연소물질, 유기오염물질 등	강수 및 용해 등으로 바다에 유입

육상으로부터의 유입물질이 전체 해양환경오염의 80%이상을 차지

육상 폐기물 유입사례



생활 및 산업 오폐수



각종 생활쓰레기



초목류



해상발생 폐기물 사례



폐 선

수중에
방치된
폐그물



해안가에 방치된 닻

어업용 페스티로폼



방치된 양식 시설물



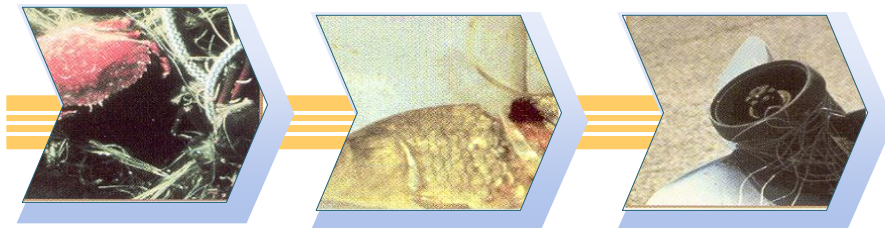
어획물 처리 부산물을 바다에 다시 버리는 광경



해양환경오염 피해 사례



● 폐어망 등에 걸려 죽은 해양생물



● 선박 스크류에 폐어망이 걸린모습



적 조 발생



적조로 때죽음을 당한 양식물



적조방제 작업(황토살포)

아름다운 해안경관 훼손



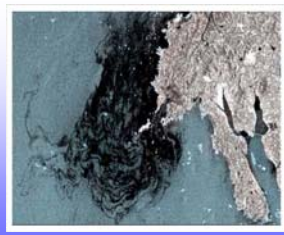
태안유출기름 오염피해 사례



유조선과 기중기선이 충돌, 유조선에서 기름 유출



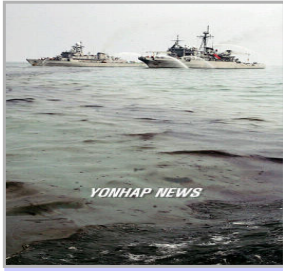
기름 뒤덮인 바다



인공위성 촬영



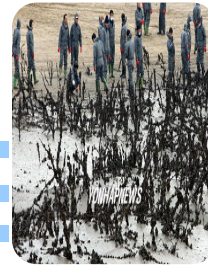
오염지역 전경



해상방제



해안방제



해안방제



3. 해양환경오염으로 인한 문제점

수산생물의 산란·서식처 파괴 페어망 등에 걸려죽음(Ghost fishing)	➡	수산자원 감소, 어업소득 급감, 식량공급 차질
영양염 농도의 과도한 증가로 인한 부영양화로 오염생물 대량번식 유발	➡	적조발생, 양식물 폐사, 양식산업위축, 식품안전성 위협
수질오염	➡	인체건강 위해(피부접촉, 독성물질이 축적된 수산물 섭취 등), 연안 주거 환경 악화, 해양 활동 지장
선박 안전운항 저해	➡	귀중한 인명과 재산 피해 초래 (전체 해난사고의 10%를 차지)
해양경관 훼손	➡	천혜의 자연휴양지 상실, 해양관광산업 쇠퇴, 지역경제 악영향
자연분해에 장기간 소요	➡	지속적으로 해양생태계를 파괴(플라스틱이나 비닐봉지 등은 분해에 수백년 소요) ※ 이를 먹은 해양생물은 고통속에 폐사
해수의 수평 또는 수직운동으로 일부 특정지역의 오염도 전체 해역으로 확산	➡	광범위한 지역을 대상으로 대규모 피해 발생

🔍 우리가 무심코 오염시킨 것들이 부메랑이 되어 결국 우리 자신에게 다시 되돌아 와서 돌이킬 수 없는 피해를 입힘

Ⅲ. 부안군 해양환경의 현황 및 오염 실태

1. 현 황

2. 오 염 실태

Ⅲ. 부안군 해양환경의 현황 및 오염 실태

1. 현 황

해안선	167km (육지부 92, 도서부 75)
섬	35개 (유인도 7, 무인도 28)
갯벌	120km (전체 해안선 대비 72%)
주요 서식생물	우럭, 광어, 삼치, 멸치, 주꾸미, 갑오징어, 굴, 바지락, 전복, 해삼 등
양식어장	157개소 / 1,645ha (어류,패류,해조류 등)
연안거주 인구	3,004가구 / 9,035명
주요 이용상황	어업 및 관광
특징	해안경관이 뛰어나 해상국립공원으로 지정, 관리 (개발 제약으로 환경보존 상태 양호)
	주변에 특별한 오염원이 없어 청정해역 유지
	갯벌이 잘 발달하였으며 다양한 수산동식물이 서식
	해안을 따라 관광명소가 많이 있어 관광분야 이용 활발

부안군 연안



어업과 관광으로 이용 사례



어업중심지인 격포항 전경



관광이용 활성화

2. 오염 실태

❖ 전반적으로 양호한 상태이나 부분적으로 오염

해안가	무단투기 쓰레기 및 방치폐선 산재
해상	육상 또는 타 해역 유입 쓰레기 부유
수중	과거 조업이 성행한 어장에는 해저에 가라앉은 폐어구 다수 존재

🚧 최근들어 연안 개발이 가속화되고 해양관광·레저 인구가 증가하면서 해양배출 쓰레기는 매년 증가하는 추세

iv. 해양환경 보전을 위한 부안군의 주요시책

1. 연안환경 개선사업 시행
2. 육상유입 오염원 저감 추진
3. 해양쓰레기 재활용 강화
4. 방제태세 확립 및 유사시 신속 대응
5. 사회·시민단체 참여 활성화
6. 주민의식 계도

1. 해양환경 개선사업 시행

❖ 해양환경보전의 중요성 증대로 2008년도 관련분야 사업예산을 대폭 확대하여 투자 시행중

구 분	사 업 명	사업 규모	사업비 (백만원)	사업내용
계	11 종		4,200	
해안가	방치폐선 처리	30척	100	소유자미상 장기 방치폐선 처리
	육상유입 쓰레기 수거	400톤	200	무단투기 또는 자연재해로 발생된 쓰레기처리
	습지보호구역 지정·관리	1개소 (3.5km ²)	600	갯벌생태복원, 갯벌생태학습관 등
	어장정화	80ha	100	오·폐물 수거, 저질개선 등
	연안정비	2개소	200	침식·훼손해안 복원 쾌적한 휴식공간조성
	연안관리계획 수립 용역	부안군	100	무분별한 이용·개발 방지를 위한 종합적·체계적인 계획 수립

해수면	부유쓰레기 수거	200톤	200	정소선 활용 수거
해저면	조업중 인양된 해양쓰레기수매	200톤	200	항구로 되가져올 경우 유상 수매
	수중침적 폐기물 수거·처리	150톤	200	정화선 활용 수거
기 타	치어방류	150만 마리	300	자원조성으로 생태계 회복
	인공어초 설치	320ha	2,000	해양생물 산란·서식처 제공으로 해양생태계 회복

방치폐선 처리



육상유입 쓰레기 수거



육상쓰레기 유입 차단막 설치 모습



습지 보호구역 지정·관리



부유쓰레기 수거

청소선 활용·수거



수거된 쓰레기 육상 운반·처리



조업중 인양된 해양쓰레기 수매



새우잡이 그물에 같이 올라온
해양쓰레기



쓰레기를 항구로 되가져
오는 모습

수중침적 폐기물 수거·처리



- ① 해양폐기물 전용수거선
- ② 선외 추진기
- ③ 침적폐기물 수거장비(레이크)
- ④ 침적폐기물 수거장비(오렌지 그라블)
- ⑤ 부유폐기물 수거장비(픽업넷)
- ⑥ 폐기물절단기(와이어�터)

수거에 활용되는 어장정화선 모습



정화선에서 해양쓰레기 수거장면



정화선에서 해양쓰레기 수거장면

어장 정화선에서 해양쓰레기 수거 장면



폐어구류





폐 로 프



폐 로 프



항내 침적된 퇴적물



폐 타이어

폐 자동차



수거 완료된 모습

2. 육상유입 오염원 감소 추진

- ❖ 육상 오염물질의 유입에 의한 해양환경오염이 80%이상을 차지하고 있으므로 육상오염원의 해양유입을 원천적으로 차단하거나 대폭 축소시키는 것은 해양환경 관리에 있어 매우 중요

기초 환경시설 (하수종말처리장) 확충	목표	부안군에서 발생하는 각종 오폐수의 완전 정화 후 해양 배출
	사업규모	186개소 (광역권 10, 마을별 176)
	사업비	1,817억원
	사업기간	2001 ~ 2021년도
각종 폐기물의 육상처리 확대로 해양배출량 감소	축산분뇨	가축분뇨 자원화(비용) 확대로 해상 배출량 감축 추세
	음식물 처리폐수	육상처리시설 확충으로 배출량 감소 추세
육상쓰레기 수거 강화	생활쓰레기 초목류 등	쓰레기 무단투기 예방 및 자연정화 활동의 지속 전개 등을 통하여 해상 유입전 육상에서 전량 수거·처리 추진

3. 해양쓰레기 재활용 강화

- ❖ 어업 폐기물의 재활용을 위하여 2007년도부터 어업용 폐스티로폼 감용기 처리 시스템을 도입, 시행중

추진배경	어업활동 과정에서 다량의 폐스티로폼이 발생하게 되나 처리시설 전무에 따른 해상투기나 소각, 해안가 방치 등으로 해양환경오염 심각 ※ 친환경적이며 재활용이 가능한 처리 시스템 구축 필요성 대두	
감용기관 ?	폐스티로폼을 당초 부피의 1/20로 압축시켜 재활용 가능한 고형물질로 생산하는 기계설비 ※ 감용된 폐스티로폼은 플라스틱 원료로 판매	
감용기 설치개요	설치장소	부안군 폐기물사업소 부지내
	시설비용	350백만원
	소요기간	2006 ~ 2007년도
기대효과	폐스티로폼 수거·처리 활성화로 연안 환경오염 방지 자원의 재활용을 통한 처리비용 절감	

어업용 폐스티로폼 감용기 설치사례



어업활동에서 불가피하게 발생



4. 해양오염 방제태세 확립 및 신속 대응으로 피해 최소화

❖ 유관 기관·단체와 긴밀한 방제체제 구축 및 방제물자 사전확보 등을 통하여 해양오염사고 발생시 신속한 방제작업 실시로 피해최소화 도모

● 방제준비 태세

방제체제	평상시	자체보유 선박 및 인력을 활용, 예찰 활동 강화 군산해양경찰서 주관 방제대책협의회 가입, 참여
	오염사고 발생시	전문 방제기관인 해양환경관리공단과 협조, 전문 인력 및 장비를 현장에 즉시 투입, 오염원 제거
방제훈련	자체시행	연2회 해상 및 해안 방제훈련 실시
	외부기관 시행	군산해양경찰서 주관으로 연2회 실시하는 해상 훈련에 적극 참여
방제교육	방제관계자	외부 전문기관에 위탁교육 실시로 대응능력 향상
	방제관계자 외	방제관계자가 전달교육 실시
방제물자 사전확보	종류 및 수량	오일펜스, 유흡착재 등 20종 15,000점
	비치장소	신속한 대처가 가능하도록 격포 및 위도 어항 부지 내 보관(초기대응에 충분한 물량 확보)

방제태세 확립



방 제 훈 련



방 제 교 육



방제물자 확보, 비치



사 고 발 생 시 신 속 대 응

태안 유출기름 유입에 따른 부안군 방제작업 실시 개요

발생원인	2007.12.7 태안 앞바다에서 유조선과 기중기선이 충돌, 유조선에서 원유 12,547㎩가 유출되었으며 해류의 이동에 의하여 유출 기름 중일부가 2007.12.24 부안군 수역으로 유입	
오염지역	변산반도 해안가 및 도서지역 (위도, 식도, 왕등도 등)	
오염상태	반고체 상태의 타르덩어리가 해안가에 부분적으로 부착	
방제작업기간	2007. 12. 24 ~ 2008. 3. 20	
참여인원	15,000명 (공무원, 지역주민, 사회단체, 자원봉사자 등)	
동원장비	4종 120대 (선박,차량,굴삭기,경운기 등)	
방제방법	해상 부유 타르	선박을 이용, 뜰채로 수거
	해안 부착 타르	헝겂 등으로 일일이 닦아 냄
방제비용	8억원 (방제작업동원 주민 인건비, 방제물자 구입비, 방제장비 임차료, 폐기물처리비 등)	
방제실적	해상 부유 및 해안가 부착 기름 150톤 제거	
피해예상액	약200억원 이상 추정 (수산 및 관광분야 등)	

태안 유출기름 방제 사례



태안 앞바다에서 원유 유출



우리 군 해역 유입



해상방제 작업 광경





해안 방제작업 광경



수거된 기름 보관 모습

5. 사회·시민단체 및 기업 참여 활성화

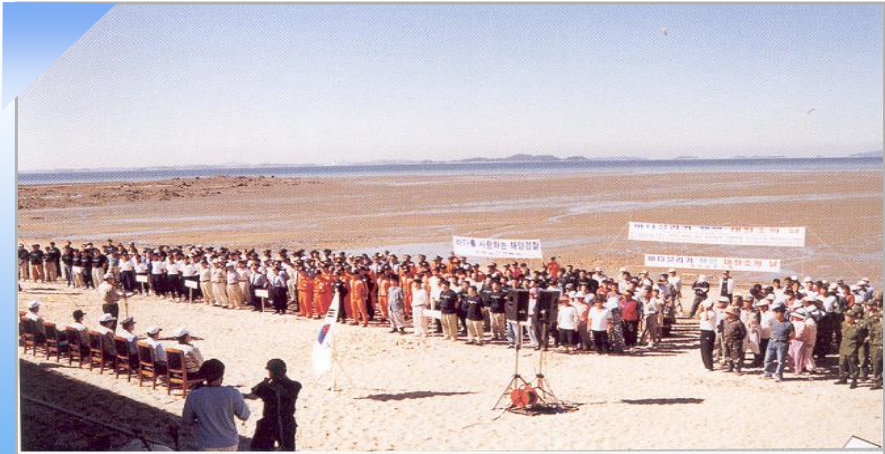
❖ 사회·시민단체 및 기업의 자율참여 확대를 통하여 해양환경 보전에 대한 공감대를 사회전반으로 확산시키고 주인의식을 함양하는 계기를 마련 (인력과 예산부족 등 행정기관의 한계를 보완, 효율성 제고)

연안 정화활동 내실화	참여범위 확대(해양수산관련 기관,단체 중심 → 각종 사회, 시민단체까지 모두 망라)
	참여인원 확대 (참여단체 구성원 중심 → 구성원의 가족까지 동참 유도)
	정화활동 정례화 (부정기적 → 매월 1회 실시)
1사 1연안 가꾸기 운동 전개	사회적 기여 차원의 기업 참여를 적극 유도
	기업 이미지 향상 등으로 참여기업 확대 전망

성공적으로 정착될 경우 책임관리가 가능하게 되어

연안 환경이 크게 개선될 것으로 기대

사회단체 및 주민 참여사례



각종 사회·시민단체 자율참여

스킨스쿠버 동호회



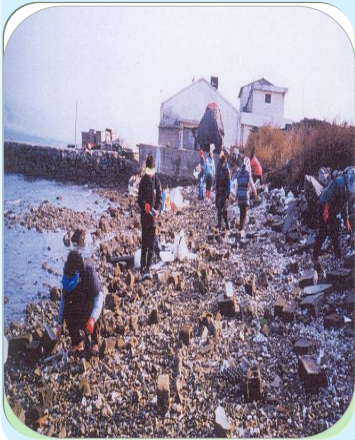
해병대 전우회



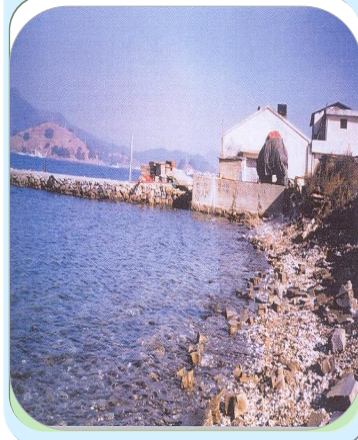


수거된 쓰레기 재활용 분류작업 모습

지역주민 참여



주민참여 후 깨끗하게
정화된 모습



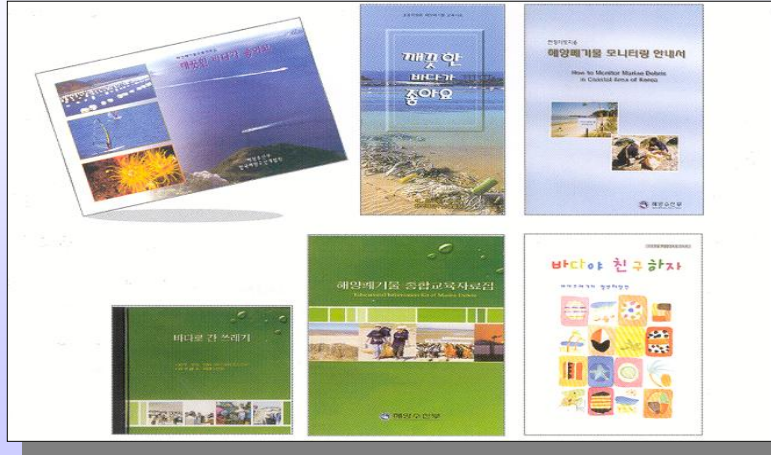
6. 주민의식 계도

❖ 해양환경의 보존과 오염 방지를 위하여는 바다를 소중하게 생각하고 깨끗하게 가꾸려는 주민의 의지와 노력, 실천이 그 무엇보다도 중요 (지속적인 계도를 통하여 주민 의식전환 및 공감대 형성 필요)

홍 보	시 기	연 중
	대 상	관련업계 종사자, 사회단체, 학교, 지역주민 등
	방 법	각종 언론매체(TV,신문 등) 활용 중점 보도 홍보물 제작, 배포, 이벤트행사 개최, 반상회때 공지 등
	내 용	해양오염실태, 해양환경 보전의 중요성 및 필요성 등

교 육	시 기	연1회 이상		
	대 상	관련업계 종사자, 사회단체, 학교, 지역주민 등		
	방 법	마을 지도자	전문기관 위탁교육 실시	
		일반인	민방위교육 및 반상회때 병행 실시	
		학 생	현장학습 및 체험활동 실시	
내 용	해양환경 보전의 이론 및 실제, 생활속 실천방법 등			
명예해양 환경감시원 확대 지정·운영	대 상	해안가 마을 거주 주민 (어촌계장, 이장 등 지역 지도자급)		
	주요임무	해양환경오염행위 현장상주 감시 지역주민 의식전환 계도, 바다 살리기 운동 전개 등		
	기대효과	해양환경오염행위 근절, 주민 자율정화 확대 등		

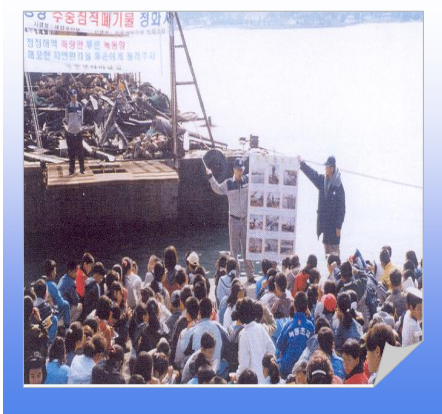
홍보물 제작 배포



해양환경 보전 교육 실시



현장학습 실시 사례



V. 앞으로 개선방향

해양환경보전 관리의 사후처리 전 단계인 수거 중심에서	⇒	사전예방 체제로
육상을 배제한 해양환경 관리 중심에서	⇒	육상과 연계, 종합적으로 관리
행정기관 주도에서	⇒	민간 자율참여 확대
단기간 내 실행 불가능한 대형 프로젝트 위주에서	⇒	주변의 생활속 작은 것부터 실천하는 것으로
폐기물 수거 등 하드웨어 중심에서	⇒	이용자 의식전환을 위한 홍보· 교육 강화 등 소프트웨어

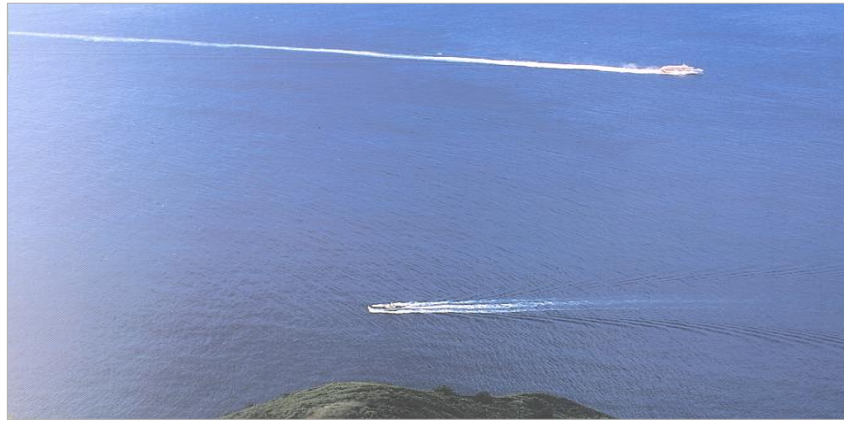
VI. 해양폐기물을 줄일 수 있는 10가지 실천방법

- 해양폐기물을 줄일 수 있는 방법을 하나하나 생각해보고 실천에 옮겨 봅시다.

1	선박에서 발생한 쓰레기는	바다에 버리지 말고 육지로 반입하여 처리합시다
2	어선의 조업과정에서 수거된 폐기물은	바다에 버리지 않고 육지로 가져와 처리합니다
3	조업과정에서 분실한 그물과 같은 어구 등은	위치를 기록하여 관리를 할 수 있게 합시다
4	어구 수리나 수산물을 다듬는 과정에서 생긴 부산물 등 쓰레기는	한데 모아 처리합시다
5	해수욕장 등 해변에서 생긴 쓰레기는	지정된 장소에 버리거나 처리 봉투를 사용하여 처리합시다

6	해안지방에서는	쓰레기를 바닷가에서 태우거나 버리지 않도록 합시다
7	강 · 하천에	쓰레기를 함부로 버리지 않아야 바다로 유입되는 쓰레기가 줄어듭니다
8	바닷가 횃집 등 접객업소에서는	음식쓰레기 등을 바다에 버리지 않도록 합시다
9	지역주민 또는 시민, 환경 단체는	인근 지역의 해양정화 활동에 참여 합시다
10	우리 모두는	스스로 환경 지킴이가 되어 해양폐기물의 불법, 무단 투기를 감시하도록 합시다

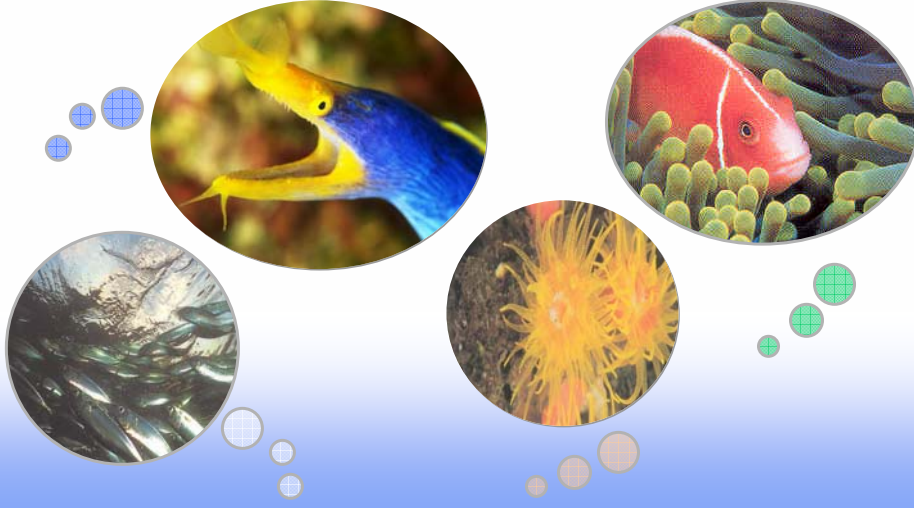
우리의 작은 실천이
깨끗한 바다를 만듭니다



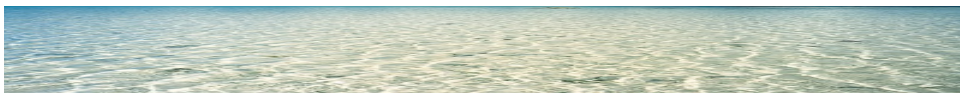
우리의 작은 실천이
건강한 바다를 만듭니다



우리의 작은 실천이
아름다운 바다를 만듭니다



우리의 작은 실천이
풍요로운 바다를 만듭니다



Ⅶ. 맺음말

한번 오염된 바다는 원상복구가 불가능하거나 회복이 가능하더라도 막대한 노력과 비용, 시간이 필요합니다.

현재와 미래의 세대가 해양이 주는 수많은 혜택과 경제적 번영을 다 함께 누릴 수 있도록 하기 위하여는

맑고 깨끗하고 건강한 바다를 지키고 가꾸어 나가려는 의식의 전환과 함께 해양환경 보전에 대한 깊은 관심을 가지고 해양폐기물의 배출을 줄이려는 우리의 작은 노력부터 시작된다는 점을 깊이 되새겨야 하겠습니다.

다음 세대를 위하여 우리의
바다를 지키고 가꾸어 나갑시다





What is the Yellow Sea Like?

Dr. Kim Woong Seo

Korea Ocean Research and Development Institute

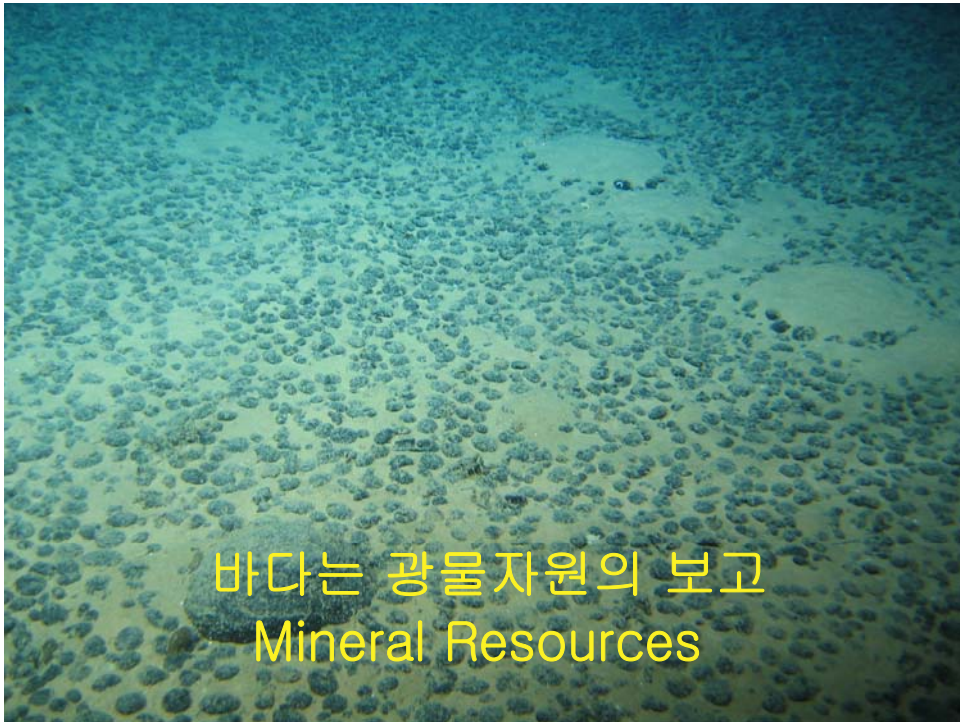
서해(Yellow Sea)는 어떤 바다?

2008. 8. 19

한국해양연구원
김용서

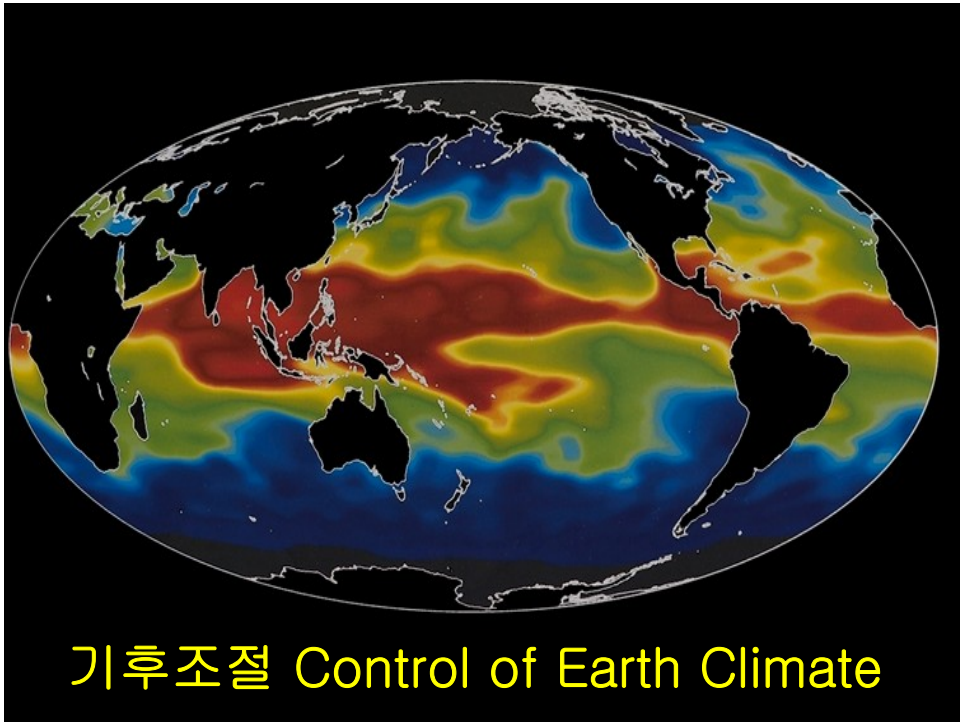


바다는 식량자원의 보고
Marine Living Resources

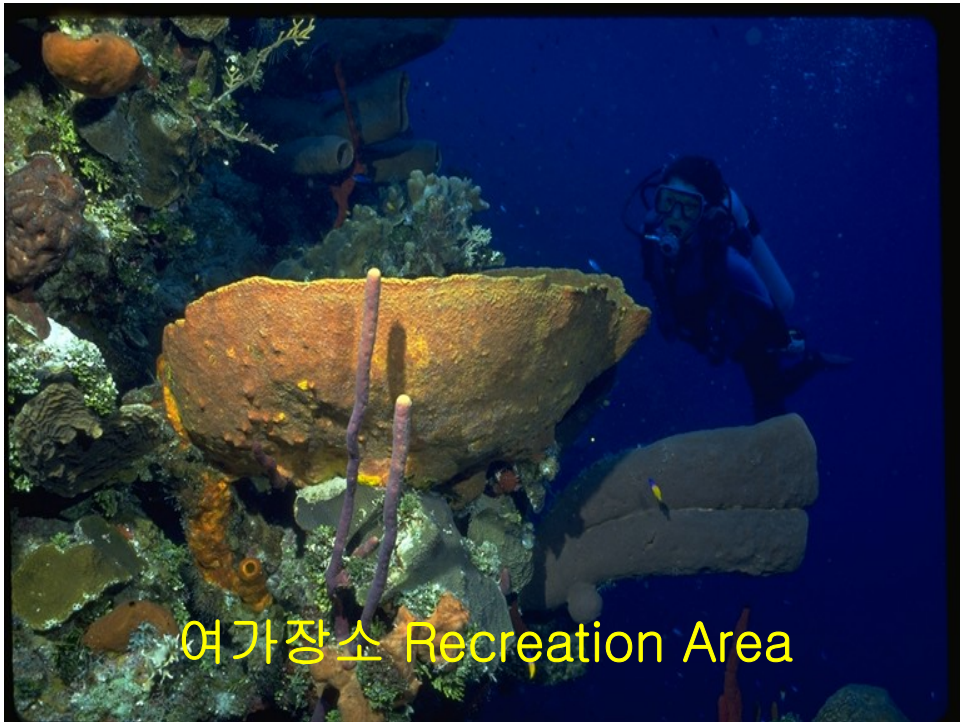




유용물질의 보고
Bioactive Materials from the Sea



기후조절 Control of Earth Climate



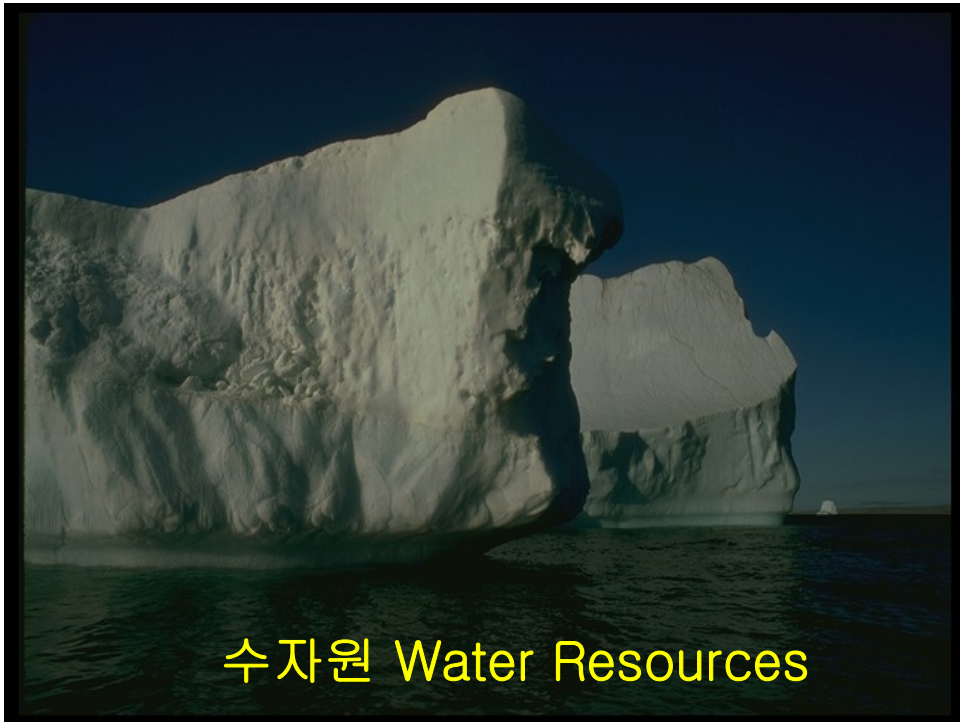
여가장소 Recreation Area



생활공간 Living Space



오염물질 제거
Recycling of waste materials



수자원 Water Resources



바다의 고속도로 Highway in the Sea

서해는 얼마나 넓을까?

Size of the Yellow Sea

남북으로 약 1,000 km

동서로 약 700 km

면적은 38만 km²

깊이는 20-80m, 평균 깊이는 44m





경기만의 섬 (다도해) Many Islands

서해의 조석간만의 차는 평균 4m이고,
가장 큰 차이는 인천 근처에서 약 8m
High Tidal Ranges

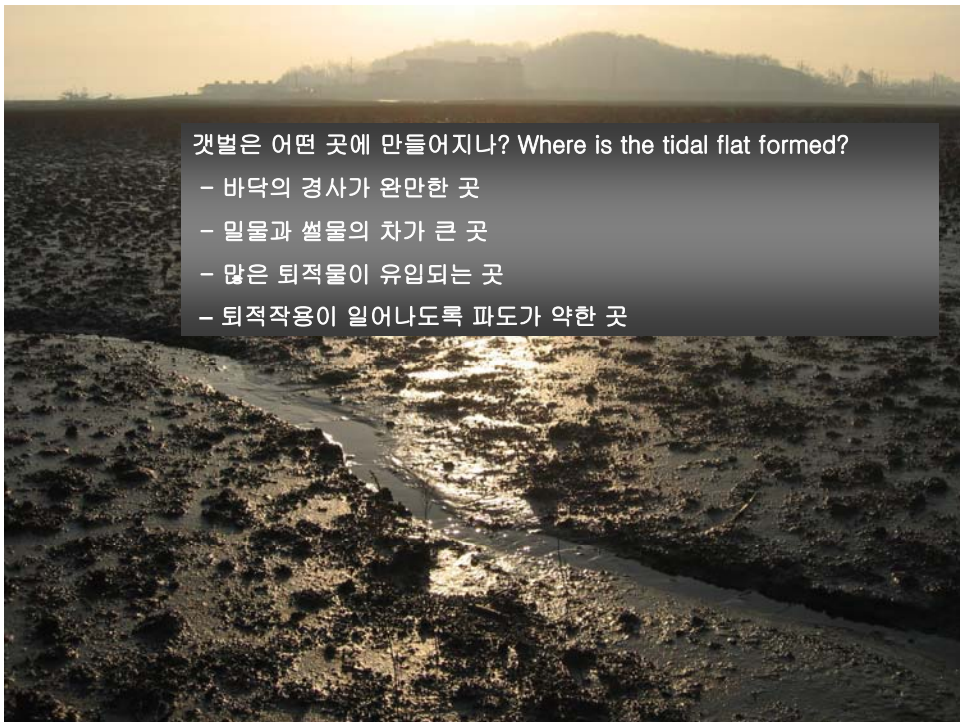




갯벌이란? What is tidal flat?

조류에 의해 운반된 모래나 점토의 미세입자가 파도가 잔잔한 해역에 오랫동안 쌓여 생기는 평탄한 지역

- 밀물 때 바닷물에 잠겨있으나 썰물 때 노출됨



갯벌은 어떤 곳에 만들어지나? Where is the tidal flat formed?

- 바닥의 경사가 완만한 곳
- 밀물과 썰물의 차가 큰 곳
- 많은 퇴적물이 유입되는 곳
- 퇴적작용이 일어나도록 파도가 약한 곳



갯벌의 종류 Types of Tidal flats

- 펄갯벌; 진흙이 주성분
- 모래갯벌; 모래가 주성분
- 혼합갯벌; 모래와 펄이 섞여있음
- 자갈갯벌; 크고 작은 자갈이 주성분



갯벌의 역할

Role of Tidal Flats

- 해양생물의 서식, 산란지
- 오염물질 정화기능
- 자연재해 방지 및 기후조절

Where is tidal flats?

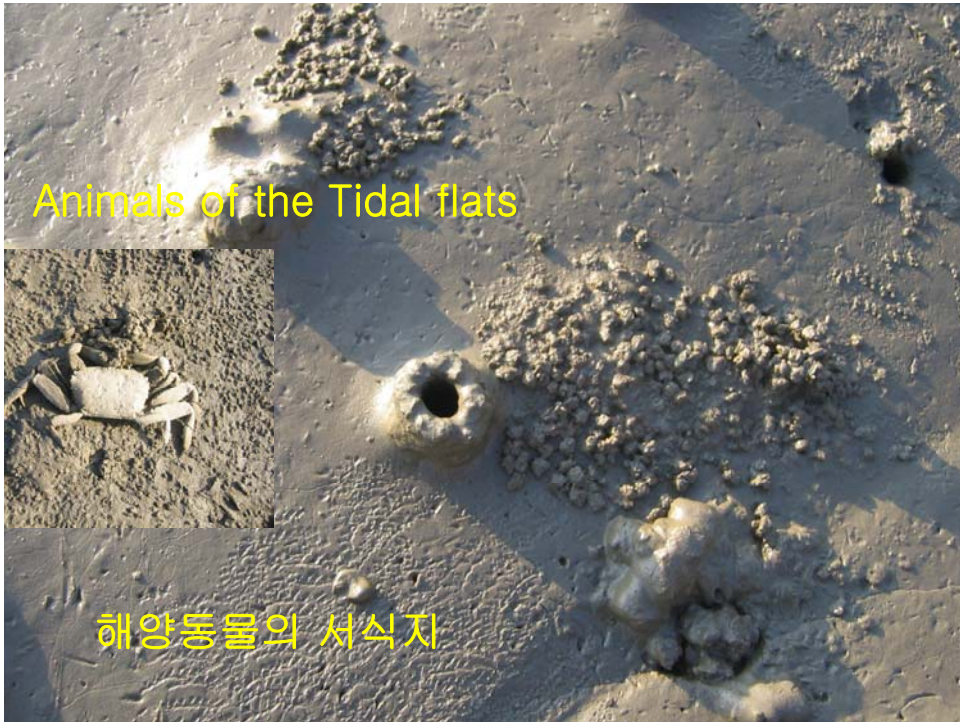


갯벌에 사는 식물

Plants of the tidal flats



칠면초, 통통마디, 나문재, 갈대 - 염생식물
 갯벌생물의 서식처,
 갯벌을 깨끗하게 청소,
 다른 생물의 먹이





소금 생산 (태안 염천)
Producing Salt



백령도 두무진
Rocky shore of Baekryung Is.

태안 신두리 사구
Sand dune in Taean



태안 유류유출사고
Oil spill accident in Taean





서해 바다 여행을 마치며...

Thank you



Regional Co-operation to Mitigate Oil Spill Disaster

Dr. Oh Jeong-Hwan

Marine Environmental Emergency Preparedness and Response Regional Activity Centre

Northwest Pacific Action Plan

NOWPAP MERRAC

Northwest Pacific Action Plan
Marine Environmental Emergency Preparedness and Response
Regional Activity Centre
Website - <http://merrac.nowpap.org>



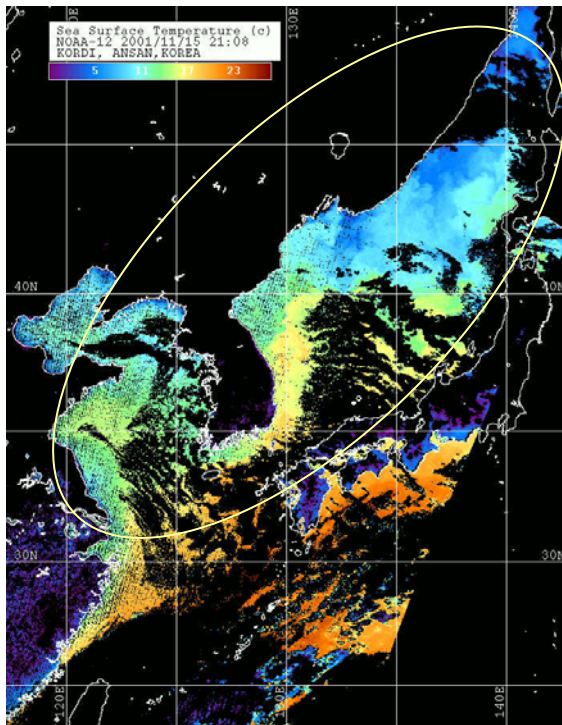
Regional Co-operation to Mitigate Oil Spill Disaster

Jeong-Hwan OH,
Seong-Gil KANG, Hyon-Jeong NOH, Chang-Gu KANG

NOWPAP MERRAC

Contents

- 1. Background for regional co-operation**
- 2. MERRAC Mission**
- 3. Major Activities of MERRAC**
- 4. NOWPAP Regional Oil Spill Contingency Plan**
- 5. MERRAC Activities on Herbei Spirit Incident**
- 6. Conclusion and Future activities**



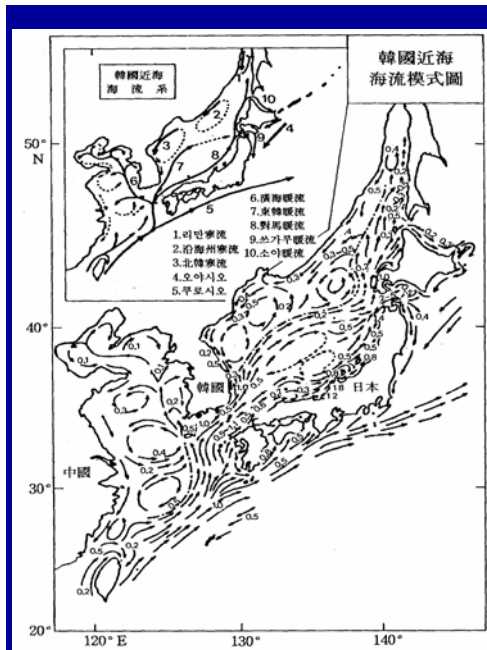
1. Background

The Northwest Pacific

- Semi-closed seas
- Bordering 5 countries
- Rapid industrialization
- High population density
- Complicate political issues
- Economic > Environment
- Different economic status
- Low knowledge on environmental information
- Low common interest on marine environments



Degradation of Marine Environments




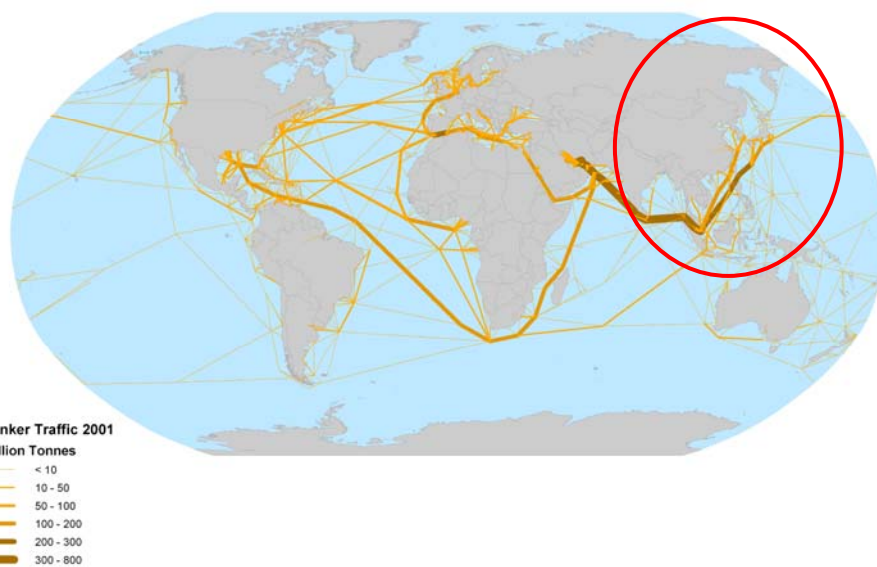
The geography, circulation pattern, and ecology in the NW Pacific show that :

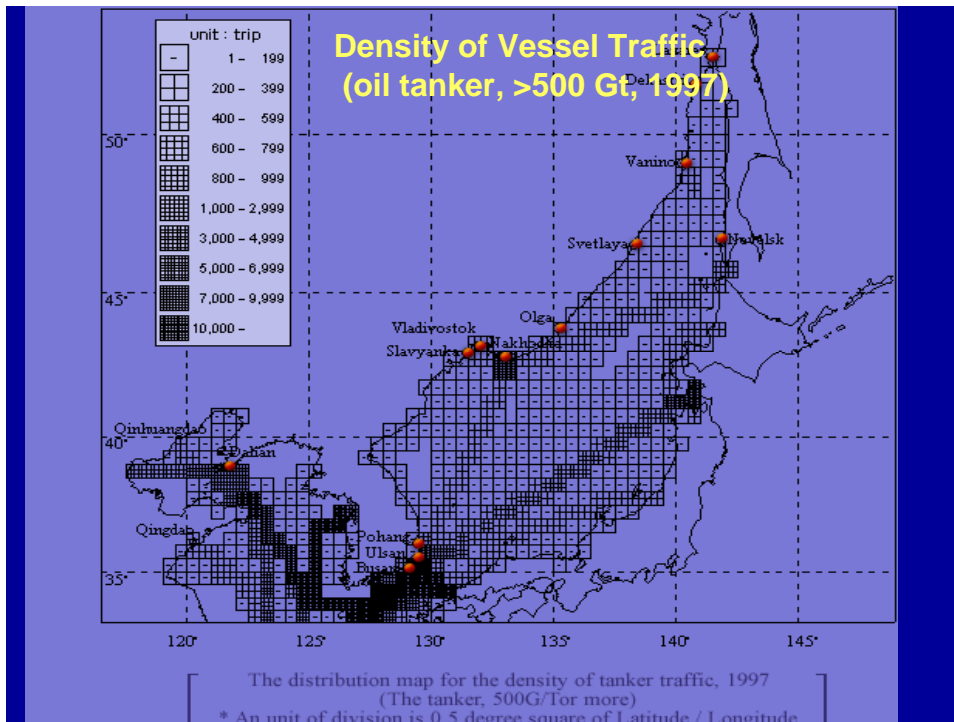
“ This region should be regarded and managed as one complete system”

Current Circulation in NW Pacific (Uda, 1933)

Environmental Threats in NW Pacific

<p>Pollution</p>	<ul style="list-style-type: none"> -Microbiological -Eutrophication -Chemical -Suspended solids -Spills (oil and HNS) -Solid wastes -Thermal -Radio nuclide 	
<p>Habitat and community modification</p>	<ul style="list-style-type: none"> -Exotic species (e.g., by Ballast waters) -Loss of ecosystems -Modification of ecosystems or ecotones, including community structure and/or species composition 	
<p>Unsustainable exploitation of fisheries and other living Resources</p>	<ul style="list-style-type: none"> -Over-exploitation -Excessive by-catch and discards -Destructive fishing practices -Decreased viability of stock through pollution and disease -Impact on biological and genetic diversity 	
<p>Global Changes</p>	<ul style="list-style-type: none"> -Changes in hydrological cycle -Sea level change -Increased UV-b radiation as a result of ozone depletion -Changes in ocean CO2 source/sink function 	





Statistics on Oil Spill Accidents in NOWPAP Sea Area ('90-'05)

Category	No. of Cases
Major Oil Spills (>1,000 tons)	19
Intermediate Oil Spills (50~1,000)	132
Small Oil Spills (<50)	Several thousands



Kill by Oil Spill,
by Richard Mock (1991)



Sea Prince accident

Nakhodka accident

Regional Sea	Risk Category	Level of Preparedness	Priority ranking
North-east Pacific	Low	Low	0
South-east Pacific	Low	Low	0
Upper South-west Atlantic	Medium	Medium	0
Wider Caribbean	Medium	Low	+1
West & Central Africa	Medium	Low	+1
Eastern Africa	Medium	Low	+1
Red Sea & Gulf of Aden	Medium	Low	+1
Gulf Area	Medium	Low	+1
Mediterranean	High	Medium	+1
Black Sea	High	Low	+2
Caspian	Medium	Low	+1
Baltic	Medium	High	-1
North-east Atlantic	High	High	0
South Asian Seas	Medium	Low	+1
East Asian Seas	High	Medium	+1
South Pacific	Low	Low	0
North-west Pacific	High	Medium	+1
Arctic	Low	Medium	-1
Antarctic	Low	Low	0

Example of Sea-based Accident in Korea

Date : 2004. 5.26

Place: Kyungnam Namhaegun, South Sea of Korea

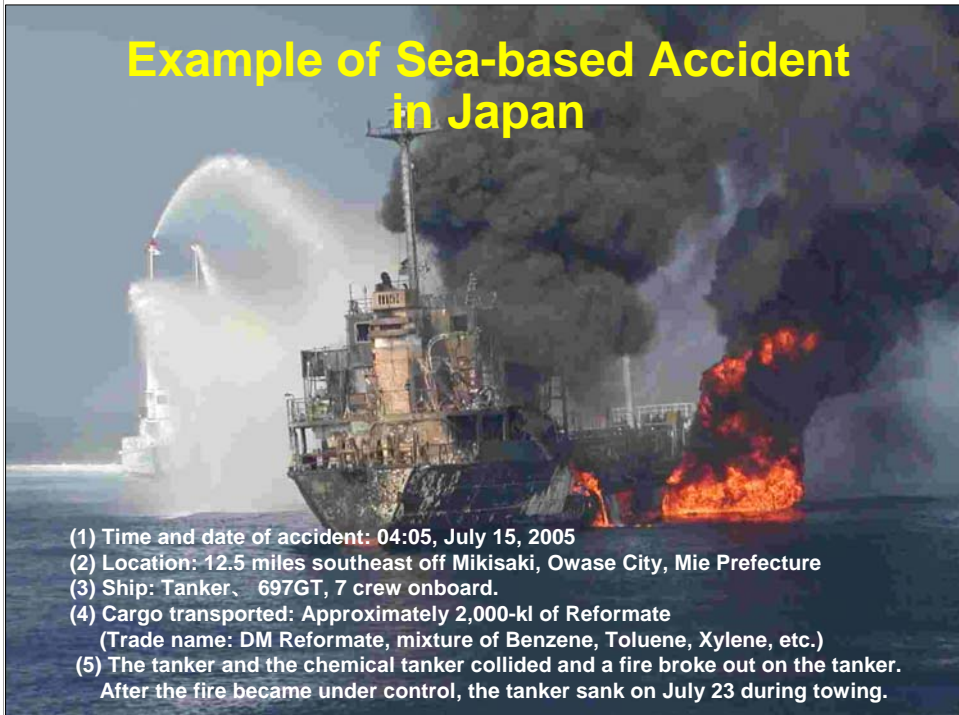
Vessel Name: Morning Express (56,285ton, Tanker, Panama)

Chemicals : Naphtha 1,200kl



HNS accident (Firecracker, '06.3)

Example of Sea-based Accident in Japan



- (1) Time and date of accident: 04:05, July 15, 2005
- (2) Location: 12.5 miles southeast off Mikisaki, Owase City, Mie Prefecture
- (3) Ship: Tanker, 697GT, 7 crew onboard.
- (4) Cargo transported: Approximately 2,000-kl of Reformate
(Trade name: DM Reformate, mixture of Benzene, Toluene, Xylene, etc.)
- (5) The tanker and the chemical tanker collided and a fire broke out on the tanker.
After the fire became under control, the tanker sank on July 23 during towing.



Marine Litter

Common Consensus

“It is clear that the uncontrolled degradation of the region's marine environment requires a more effective management system, and that there is an need to vitalize action-oriented programmes for management and problem-solving at the regional level”

Work together !

UNEP's 18 Regional Seas Programmes - 140 Countries



Regional Seas Conventions and Action Plans

- Mediterranean - Barcelona Convention, 1976. Athens
- Wider Caribbean - Cartagena Convention, 1983. Kingston.
- West and Central Africa - Abidjan Convention, 1981.
- East Africa - Nairobi Convention, 1985.
- ROPME - Kuwait Regional Convention - 1978.
- Red Sea and the Gulf of Aden (PERSGA) - Jeddah Convention, 1982.
- South Asian Seas Programme (SACEP) - 1995. Colombo.
- East Asian Seas Action Plan (EAS) - 1981. Bangkok.
- NorthWest Pacific Action Plan (NOWPAP) - 1994. Toyama and Busan

Main Objectives of RS Conventions and Action Plans

1. Facilitating **Monitoring and Assessment** of the marine and coastal environment - including their present conditions and trends
2. Achieving **Integrated Management and Sustainable Development** of Marine and coastal areas and associated river basins.
3. Developing (on national and regional levels) appropriate **Technical, Institutional, Administrative and Legal Measures** for improved protection of the coastal and marine environment

Principal Activities

- Land Based Sources and Activities
- Marine Based Pollution - Oil and chemical spills, Preparedness and Response, litter
- Integrated management (coastal and River basin)
- Regional implementation of global conventions, programmes and initiatives - Biodiversity, Atmosphere, Chemicals
- Assessment through research and monitoring
- Data and Information management
- Liability and compensation
- Civil Society and Private sector, Education and Outreach

The Northwest Pacific Action Plan (NOWPAP)

- One of UNEP's Regional Seas Programmes
- Adopted in 1994
- Participating States : 4 countries + [DPRK]
- Objectives : “ the wise use, development and management of the coastal and marine environment so as to obtain the utmost long-term benefits for the human populations of the region, while protecting human health, ecological integrity and the region's sustainability for future generations”

“ The Plan adopted in 1994 is a non-legally binding document ”

The Northwest Pacific Action Plan (NOWPAP)

- Institutional Mechanism : NOWPAP IGM, RCU + 4 RACs

DINRAC, Beijing – Data and Information Network Regional Activity Center,
to support the implementation of NOWPAP 1;

POMRAC, Vladivostok - Pollution Monitoring Regional Activity Center,
to support the implementation of NOWPAP 3;

CEARAC, Toyama, Japan - Special Monitoring and Coastal Environmental
Assessment Regional Activity Center,
to support the implementation of NOWPAP 3;

MERRAC, Daejeon, R. Korea - Marine Environmental Emergency
Preparedness and Response Regional Activity Center,
to support the implementation of NOWPAP 4;

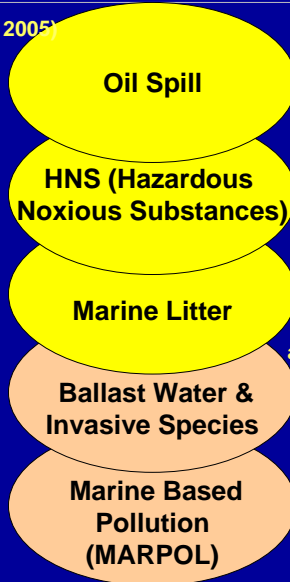
2. MERRAC Mission

to coordinate regional activities relating to development of effective measures for regional cooperation in marine pollution prevention and response in the NOWPAP region, with supports from NOWPAP RCU, UNEP and IMO.



MERRAC activity

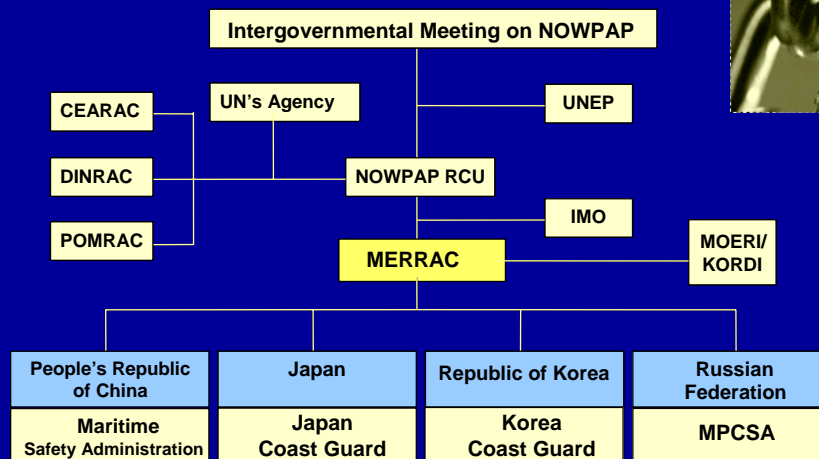
(adopted by the 10th NOWPAP IGM, December 2005)



at later stage

marine pollution
Prevention, and response

Institutional arrangement of MERRAC



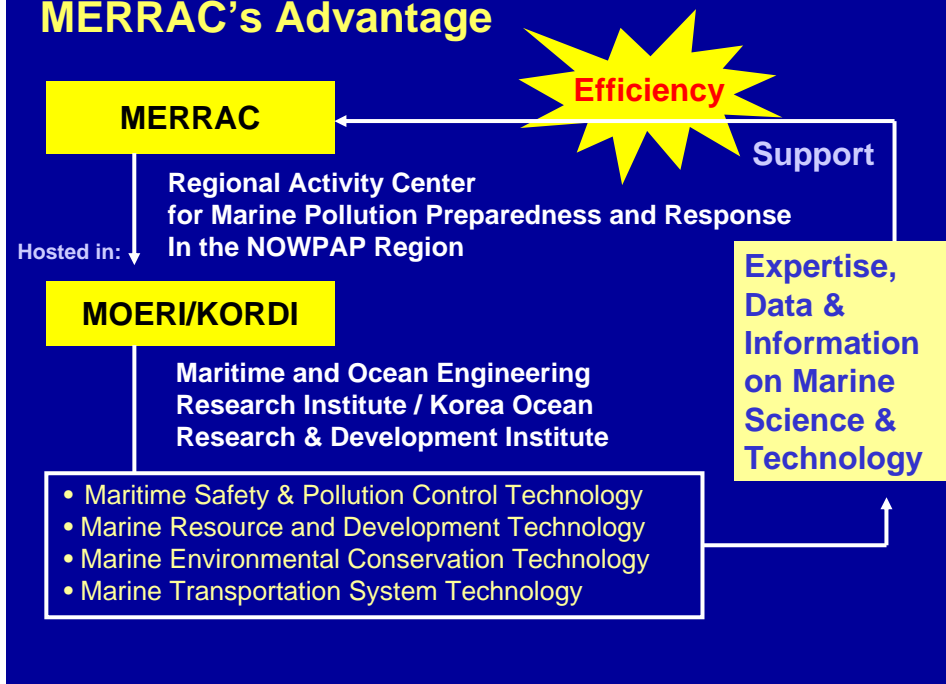
“MERRAC is operating the system of National Focal Point, who is nominated by each country and is responsible for the marine pollution preparedness and response in the respective NOWPAP Members”

Organization of the MERRAC Focal Points Meeting (each year, MERRAC)



The 11th NOWPAP MERRAC Focal Points Meeting
(MERRAC, Daejeon, 10-13 June 2008, organized by MERRAC, RCU & IMO)

MERRAC's Advantage



3. Major Activities of MERRAC

<p>NOWPAP MERRAC</p> <hr/> <p>Northwest Pacific Action Plan Marine Environmental Emergency Preparedness and Response Regional Activity Centre</p> <p>P.O. Box 23, Yuseong, Daejeon, 305-600, Republic of Korea Tel : (+82-42) 868-7281, FAX : (+82-42) 868-7738 E-mail : nowpap@kriso.re.kr Website : http://merrac.nowpap.org</p> <p>MEMORANDUM OF UNDERSTANDING(MOU) ON REGIONAL CO-OPERATION REGARDING PREPAREDNESS AND RESPONSE TO OIL SPILLS IN THE MARINE ENVIRONMENT OF THE NORTHWEST PACIFIC REGION</p> <p>&</p> <p>NOWPAP REGIONAL OIL SPILL CONTINGENCY PLAN</p> <p><i>Note from MERRAC</i></p> <p>The Plan & MOU were adopted by the 8th Intergovernmental Meeting of NOWPAP (UNEP/IMO/NOWPAP/MERRAC IG.8/6/1).</p>	<h2>1) Oil Spill Issue</h2> <ul style="list-style-type: none">• Developed the Draft Plan and its MoU• To provide a framework under which NOWPAP Members can co-operate at the operational level in responding to oil spill incidents (an operational mechanism for mutual assistance)• Adopted in 2003 by China, Japan, Korea & Russia within the framework of Northwest Pacific Action Plan (NOWPAP)
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“Presentation Ceremony of Signatures for MoU for NOWPAP Regional Oil Spill Contingency Plan”



Signature Pages of MoU signed by NOWPAP Members

China

The Memorandum of Understanding is signed at Beijing on October 28, 2004 by the following representatives of respective NOWPAP Members.

For the People's Republic of China

Name and title Zhang Chunxian, Minister of Communications

Japan

The Memorandum of Understanding is signed at Tokyo on 19 October 2004 by the following representatives of respective NOWPAP Members.

For Japan

Name and title Kazuo Kitagawa, Minister of Ministry of Land, Infrastructure and Transport

Korea

The Memorandum of Understanding is signed at Seoul on 05 Oct. 2004 by the following representatives of respective NOWPAP Members.

For the Republic of Korea

Name and title Seung-Woo Chang, Minister of Ministry of Maritime Affairs and Fisheries

Russia

The Memorandum of Understanding is signed at Moscow on 29 October 2004 by the following representative of respective NOWPAP Members.

For the Russian Federation (signature)

Name and title Levitin Igor, Minister of Transport of the Russian Federation

MoU for the Plan

- adopted in 8th IGM in 2003
- signed at ministerial level

1) MoU is

the confirmation of political will of the countries to develop regional co-operation;
to formally adopt the regional contingency plan, and;
to agree to implement in case of joint operation the operational procedure set-up in the Plan

- This is the **first agreement** actually signed under NOWPAP, and it clearly demonstrates a spirit of **co-operation for the protection** of the precious and delicate **marine and coastal environments** in the NOWPAP region.
- By this, the four countries of the NOWPAP region are in a **better state of preparedness to respond to oil spills**, as each of them may request assistance from the other three NOWPAP members in cases of large oil spill emergencies.
- **MERRAC** acts as the **Secretariat** responsible for the **administration and co-ordination of the Plan** in co-operation with national competent authorities of NOWPAP Members

2) Competent National Authorities Meeting (CNA Meeting)

- ◆ **To discuss questions related to**
 - the implementation of the plan
 - response to actual incidents
 - organisation of training courses and exercises
 - other relevant matters

- ◆ **CNA Meeting** should be held in conjunction with the MERRAC Focal Points Meeting
 - as agreed at 7th NOWPAP MERRAC Focal Points Meeting (2004)
 - Preliminary CNA Meeting in Qingdao, China, Nov. 2004

Competent National Authorities (CNA) Meeting for NOWPAP Regional Oil Contingency Plan



Preliminary CNA Meeting for NOWPAP Regional Oil Spill Contingency Plan
(Qingdao, China, 15 - 18 Nov. 2004)

Revision to the Plan

- ◆ Changes to the Plan should be made by the NOWPAP MERRAC Focal Points Meeting
- ◆ MERRAC up-to-date the Changes of the detailed national information and notify MERRAC Focal Points

Joint training and exercise

- ◆ NOWPAP Members should conduct joint training courses and joint exercises
- ◆ CNA Meeting discuss joint training and exercise programmes for the purpose of testing the Plan
- ◆ NOWPAP Regional OPRC training course (IMO Level 2) held in Korea 2002 and Japan 2003

Joint NOWPAP Exercise

(Rescue of Vessel in Emergency & Offshore Oil Spill Response)



1st NOWPAP Joint Exercise
(Sakhalin, Russia, 10 - 12 May 2006)



**NOWPAP Regional OPRC Training Course
(IMO Level 2 Course)
(Incheon, Republic of Korea, 28 Oct. – 1 Nov. 2002)**



**NOWPAP Regional OPRC Training Course
(IMO Level 2)
(Shimonoseki, Japan, 10 - 14 Nov. 2003, hosted by Japan)**

Publication of MERRAC Technical Reports

NOWPAP MERRAC Northwest Pacific Action Plan Marine Environmental Emergency Preparedness and Response Regional Activity Centre P.O. Box 23, Yulsong, Daejeon, 305-600 Republic of Korea Tel: (+82-42) 866-7201; Fax: (+82-42) 866-7738 E-mail: nowpap@merrac.or.kr Website: http://merrac.nowpap.org	NOWPAP MERRAC Northwest Pacific Action Plan Marine Environmental Emergency Preparedness and Response Regional Activity Centre P.O. Box 23, Yulsong, Daejeon, 305-600 Republic of Korea Tel: (+82-42) 866-7201; Fax: (+82-42) 866-7738 E-mail: nowpap@merrac.or.kr Website: http://merrac.nowpap.org	NOWPAP MERRAC Northwest Pacific Action Plan Marine Environmental Emergency Preparedness and Response Regional Activity Centre P.O. Box 23, Yulsong, Daejeon, 305-600 Republic of Korea Tel: (+82-42) 866-7201; Fax: (+82-42) 866-7738 E-mail: nowpap@merrac.or.kr Website: http://merrac.nowpap.org
Sensitivity Mapping	Guideline for Shoreline Clean-up	Guideline for the Use of Dispersants
		

◆ To provide **appropriate technical measures and/or tools** required for implementing regional co-operation on marine pollution preparedness and response

3) HNS Issue

- as one of new MERRAC activities
- 9th MERRAC FPM discussed future regional activities related to HNS issue and their priorities, and then firstly agreed to
 - 1) develop **HNS National Report** to be used as a basic background for further co-operative activities of MERRAC on HNS issues
 - 2) organize an Expert meeting to **develop HNS RCP**

2006 NOWPAP MERRAC Expert Meeting
(Yuzhno-Sakhalinsk, Russian Federation, 7 - 9 Nov. 2006)

- in order to develop the NOWPAP Regional HNS Spill Contingency Plan based upon the decision of the 9th NOWPAP MERRAC Focal Points Meeting



Main Achievements of Expert Meeting

- finalized the draft texts of the NOWPAP Regional Oil and HNS Spill Contingency Plan and the associated MoU
- agreed to submit these to the 10th NOWPAP MERRAC Focal Points Meeting
- identify the necessary future work for the further development of an effective regional co-operation system relating to the HNS issue as follows:
 - Update of the existing Annexes to the Plan
 - Development of new Annex to the Plan
 - Routine Tasks, Specific Projects and/or relevant activities

4) Marine Litter Issue

The 1st NOWPAP Workshop on Marine Litter

8-9 June 2006
Song-Da Get-Pearl Tower, Incheon, the Republic of Korea

UNEP  IMO 



Organized by
Northwest Pacific Action Plan (NOWPAP)
Marine Environmental Emergency Preparedness and Response Regional Activity Centre (MERRAC)

Sponsored by
 Korean Ministry of Maritime Affairs and Fisheries (MOMAF),  Incheon Metropolitan City, Republic of Korea

Supported by
NOWPAP Regional Coordinating Unit (RCU)
United Nations Environment Programme (UNEP)
International Maritime Organisation (IMO)



WHAT IS SEA-BASED MARINE LITTER?

Marine litter can be defined as any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. Basically, human's activities on land are the major source of the litter found in the ocean. A significant proportion of marine litter originates from sea-based activities such as commercial fishing, cruise line operations, commercial shipping, military vessel operations, offshore platforms and other facilities.

- Bait containers • Bleach/cleaner bottles
- Buoys/floats • Crab/fish traps • Crates
- Fishing lines • Fishing lures/light sticks • Fishing nets
- Various sized light bulbs/tubes • Oil/tube bottles
- Pallets • Plastic sheeting/tarps • Ropes
- Strapping bands



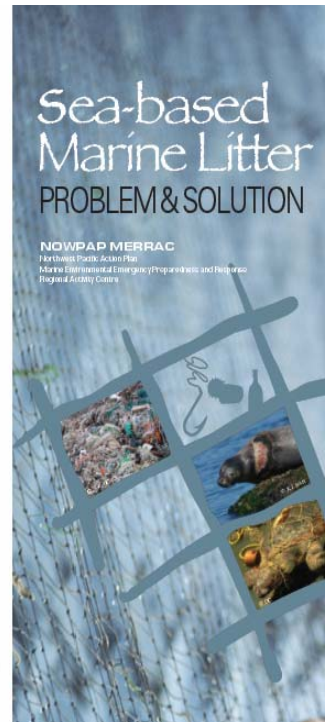
The ocean is fundamentally important to ecology, economy and environment. Our future depends on the oceans. It is necessary to change people's behaviour in order to preserve the marine and coastal environment. Small consistent changes will bring big improvement.

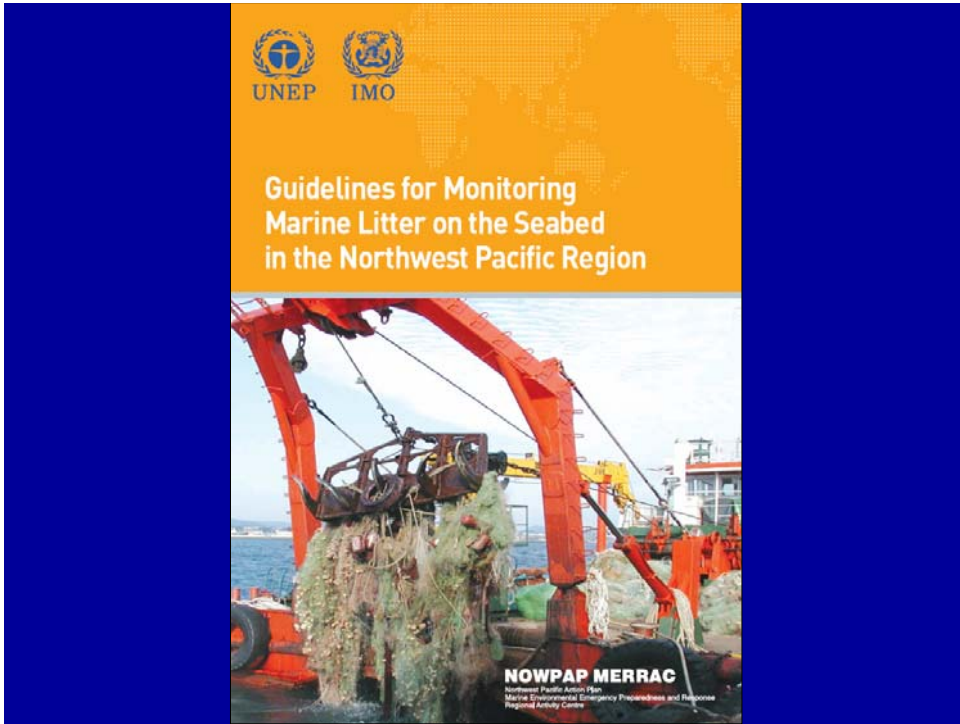


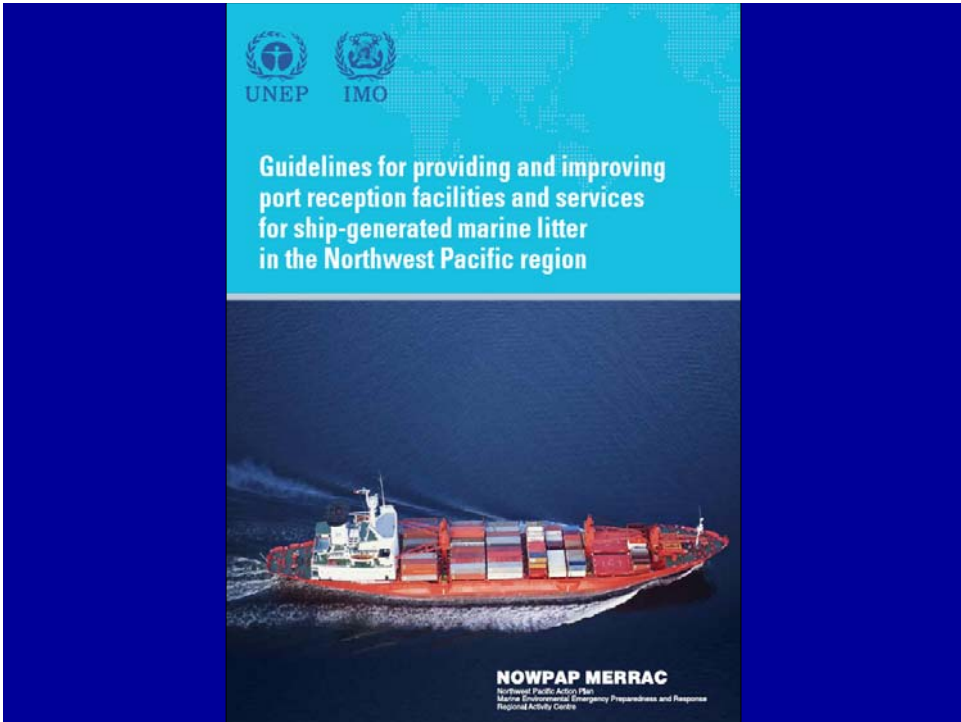
NOWPAP MERRAC

Northwest Pacific Action Plan
Marine Environmental Emergency Preparedness and Response
Regional Activity Centre

PO. Box 29, Yusong, Daejeon 305-600 Republic of Korea
TEL: +82-42-868-7281 FAX: +82-42-868-7280 E-mail: nowpap@merrac.or.kr
<http://merrac.nowpap.org>







4. NOWPAP Regional Oil Spill Contingency Plan



1) History- Regional Contingency Plan and Its MoU

- ◆ **NOWPAP adopted by the 1st IGM (1994)**
 - As one area of priority activities-- “Development of Effective Measures for Regional Co-operation in Marine Pollution Preparedness and Response”
- ◆ **OPRC 1990** - accepted by NOWPAP Members after experience of major oil spill such as the Sea Prince (1995), Nakhodka (1997), etc.
- ◆ **Informal meetings** in 1995 & 1996- regarding the establishment a regional forum for regional co-operation on marine pollution preparedness and response

- ◆ **2nd IGM (1996) approved**
 - NOWPAP Members establish a Forum meeting, which has the goals and objectives:
 - (i) Exchange of Information on marine pollution preparedness and response
 - (ii) Development of a **Regional Contingency Plan (Plan)**
 - (iii) Development of its Memorandum of Understanding (MoU)
- ◆ **4th IGM (1999) approved**
 - **MERRAC**, “Marine Environmental Emergency Preparedness and Response **Regional Activity Centre**” was established as one of four RACs

- ◆ **Development of the Plan**
 - through 5 MERRAC Focal Points Meetings and 2 Informal Expert meeting
 - Finally 5th NOWPAP MERRAC Focal Points Meeting (2002) agreed to forward the texts of the Plan and MoU to the IGM for its approval.
- ◆ **8th IGM (2003) finally adopted** the Plan and its MoU
- ◆ During intersessional period, the MoU for Plan was signed individually by each Members at ministerial level
- ◆ November, 2004 “Ceremony for Presentation of Signatures for MoU for Plan

<p>NOWPAP MERRAC</p> <hr/> <p>Northwest Pacific Action Plan Marine Environmental Emergency Preparedness and Response Regional Activity Centre</p> <p>P.O. Box 23, Yuseong, Daejeon, 305-600, Republic of Korea Tel : (+82-42) 868-7281, FAX : (+82-42) 868-7738 E-mail : nowpap@kriso.re.kr Website : http://merrac.nowpap.org</p> <p>MEMORANDUM OF UNDERSTANDING(MOU) ON REGIONAL CO-OPERATION REGARDING PREPAREDNESS AND RESPONSE TO OIL SPILLS IN THE MARINE ENVIRONMENT OF THE NORTHWEST PACIFIC REGION</p> <p>&</p> <p>NOWPAP REGIONAL OIL SPILL CONTINGENCY PLAN</p> <p style="text-align: center;"><small>Note from MERRAC</small></p> <p><small>The Plan & MOU were adopted by the 8th Intergovernmental Meeting of NOWPAP (UNEP/IMO/NOWPAP/MERRAC IG.8/6/1).</small></p>	<h2 style="margin: 0;">The Plan -</h2> <ul style="list-style-type: none"> • Adopted in 2003 by China, Japan, Korea & Russia within the framework of Northwest Pacific Action Plan (NOWPAP) • To provide a framework under which NOWPAP Members can co-operate at the operational level in responding to oil spill incidents (an operational mechanism for mutual assistance)
---	--

Ceremony for Presentation of Signatures for MoU for Plan” in Nov. 2004



Relationship among OPRC, RCP & NCP

OPRC 90

- Umbrella
for the Plan

**NOWPAP Regional
Oil Spill Contingency Plan**

**National Contingency Plans
(China, Japan, Korea, Russia)**

- Base for the Plan

2) MERRAC

acts as the **Secretariat** responsible for the **administration and co-ordination of the Plan** in co-operation with national competent authorities of NOWPAP Members

Designation of National Authorities and points of contact

- ◆ Each NOWPAP Members should designate the following
 - **Competent National Authority** or Authorities with responsibility for oil pollution preparedness and response
 - **National Operational Contact Point** or Points, which shall be responsible for the receipt and transmission of oil pollution reports
 - **Assistance Decision authority** entitled to act on behalf of the Member to request assistance or to decide to render the assistance requested.

Exchange of information

- ◆ **NOWPAP Members should exchange information**
 - Competent National Authorities, Operational Contact Points and Assistance Decision Authority
 - sources of oil spills and vulnerable resources
 - inventory of pollution response equipment and products
 - directory of experts, trained personnel and Strike Teams
 - rules concerning the use of dispersants
 - logistic support available within the Member
 - NCPs of the NOWPAP Members
 - maps showing the main environmentally sensitive areas
- ◆ **This information is maintained by MERRAC and is provided to the Members**

3) Response Elements and Planning for the implementation of Plan



Lead Role

- ◆ **The lead role** in the implementation of the Plan
 - will be assumed by the NOWPAP Member whose Action Area has been affected or is likely to be affected by pollution incident
 - should be transferred from one NOWPAP Member to another only by agreement between the Members concerned.
- ◆ **Lead Member** (taking the lead role) should
 - activate the Plan
 - ask for assistance within the framework of the Plan
 - designate the **Lead On-Scene Co-ordinator (LOSC)**
 - assess and forecast the situation
 - report the result to other NOWPAP Members

- ◆ **Lead On-Scene Coordinator (LOSC)**
 - appointed by the Lead Member
 - exercise Operational Coordination of JROs in order to combat the pollution and to mitigate its consequences
- ◆ **National On-Scene Coordinator (NOSC)**
 - nominated by assisting NOWPAP Members
 - exercise Operational Control over response activities including control of personnel (strike teams), equipment
- ◆ **Joint Emergency Response Centre**
 - set up by the Lead Member
 - serve as the base of the LOSC and main communications centre
- ◆ **Support Teams**
 - composed of the representatives of various relevant organizations
 - be advisory be advisory as well as to provide operational support

◆ **Communications Arrangements**

- established by the NOWPAP Members in accordance with chapter 5 and Annex 2
- English language should be used
- confirmed by written documents, e.g. fax or e-mail

◆ **Response Planning**

- in accordance with the provisions of the NCP of NOWPAP Member of Action Area

◆ **Response Strategy**

- The planning of specific operations is the responsibility of the Lead Member in accordance with its NCP
- refer to the following outline:
 - . Assessment of the severity of the accident
 - . Selection of appropriate response methods
 - . Evaluation of available and required response resources
 - . Activation of the Plan and request for assistance
 - . Termination of response operations

4) Response Operations during the Activation of the Plan



◆ **Response Phase**

- For the purpose of the Plan, co-operation in pollution response operations has been divided into four distinct phases:
 - . Phase I – Notification
 - . Phase II – Evaluation and activation of the Plan
 - . Phase III – Joint Response Operation at sea
 - . Phase IV – Joint Response Operation on shoreline

◆ **Phase I. Notification**

- in accordance with the provisions of the NCP of each Member
- in the form of a **NOWPAP POLREP (Annex 4)**, if a NOWPAP Member become aware of a major pollution incident regardless of the need for the activation of the Plan
- National Operational Contact Points make further notification within the Member

POLREP (Initial Information Format)

AA. Date and Time of Incident
BB. Position(Latitude, Longitude) (True Bearing, Distance From a Landmark)
CC. Brief Description of Incident
DD. Ship's Particulars (1) (Ship's Name /Port of Registry /Owner /Agent) (2) (Ship's Type /G.T/Draft) (3) (Number of Crew /Nationality) (4) (Type of Cargo /Amount /Owner) (5) (Type and Quantity of Cargo /Fuel Oil) (6) (P&I /Other Insurance)
EE. Brief Description of Pollution (1) (Type of Spilled Oil) : (2) (Estimate of the Quantity) :
FF. Brief Details of Weather and Sea Conditions (time, date, month) (1) (Weather) : windy and cloudy (2) (Wind Direction /Velocity) : (3) (Current /Wave Height /Swell) : (4) Atmospheric /Water Temperature) : (5) (Visibility) :
GG. Others

POLREP (Midterm Information Format)

AA. Date and Time of Information
BB. Situation of Spill (1) (Type /Quantity of Spilled Oil) (2) (Continuity of Sill) (3) (Spreading /Drifting of spilled Oil)
CC. Brief Description of Weather and Sea Condition (1) (Weather) (2) (Wind Direction /Velocity) (3) (Current /Wave Height) (4) (Atmospheric /Wave Temperature) (5) (Visibility)
DD. Brief Description of Cleanup Operation
EE. Others

◆ Phase II. Evaluation and activation of the Plan

- NOWPAP Member should **assess the pollution** by the spill and decide whether or not to activate its NCP and the Plan
- Lead Member should not activate the Plan without **first activation its NCP**
- **Surveillance of spill movement and behaviour** by aircraft or vessels (Annex 5)
- **Forecasting Oil Movement:**
 - . Gether information about wind, tides, current, type of oil
 - . Using a suitable computer program
- **Requests for assistance** within the framework of the Plan
 - . Following the activation of the Plan
 - . Through Assistance Decision Authorities
 - . Using the standard form in the NOWPAP POLREP (Annex 4)
 - . Immediately acknowledge receipt

◆ **Phase III. Joint Response Operation at Sea**

- should be conducted in accordance with the procedures described in the NCP of the NOWPAP Member whose Action Area is affected

◆ **Phase IV. Joint Response Operation on shoreline**

- **oil dispersants, in-situ burning or bioremediation** should be used in accordance with the provisions of the NCP of the NOWPAP Member concerned

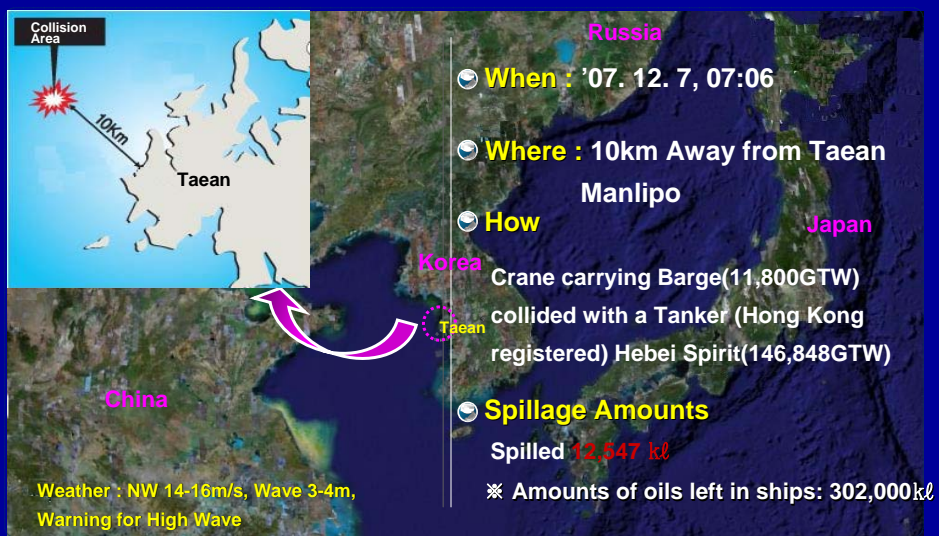
◆ **Termination of Joint Response Operation and deactivation of the Plan**

- The lead member will authorize the LOSC to terminate the JROs **when**:
 - . to a point where the benefits of further counter pollution measures would not be justified by their cost
 - . The response capabilities and resources of the Lead Member are sufficient for finalising them
 - . The pollutant does not further threaten their interests
- **Following the deactivation of the Plan**
 - . All equipment which took part in the JROs be returned to its owners clean and in working order
 - . Each assisting Member should prepare a report of the part they played in the JROs.

5. MERRAC activities on Hebei Spirit Oil Spill Incident



Incident outline



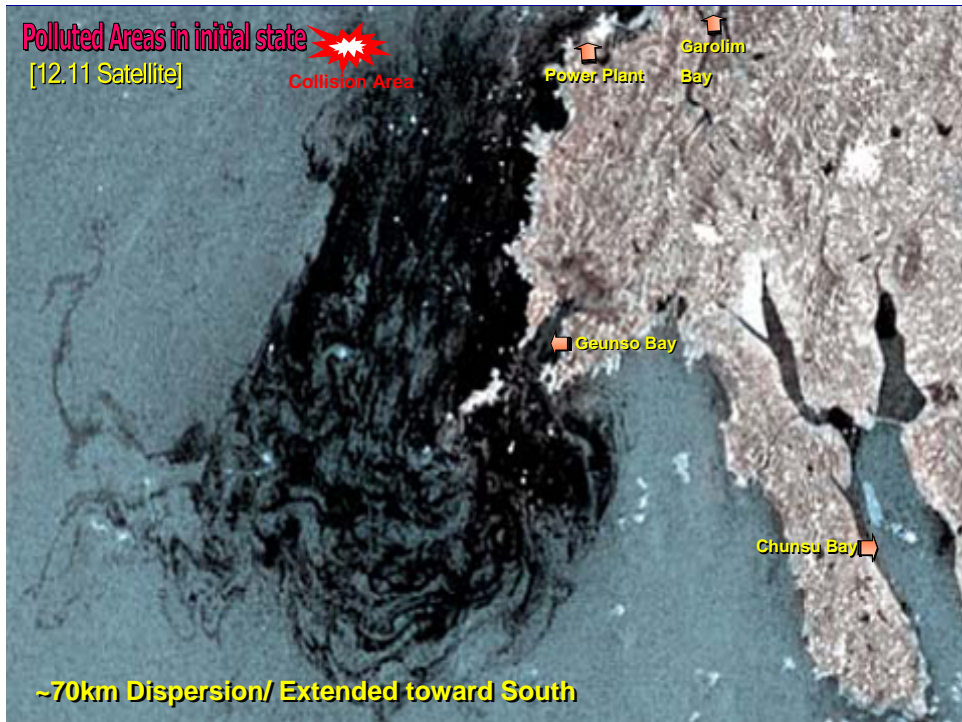
Spillage

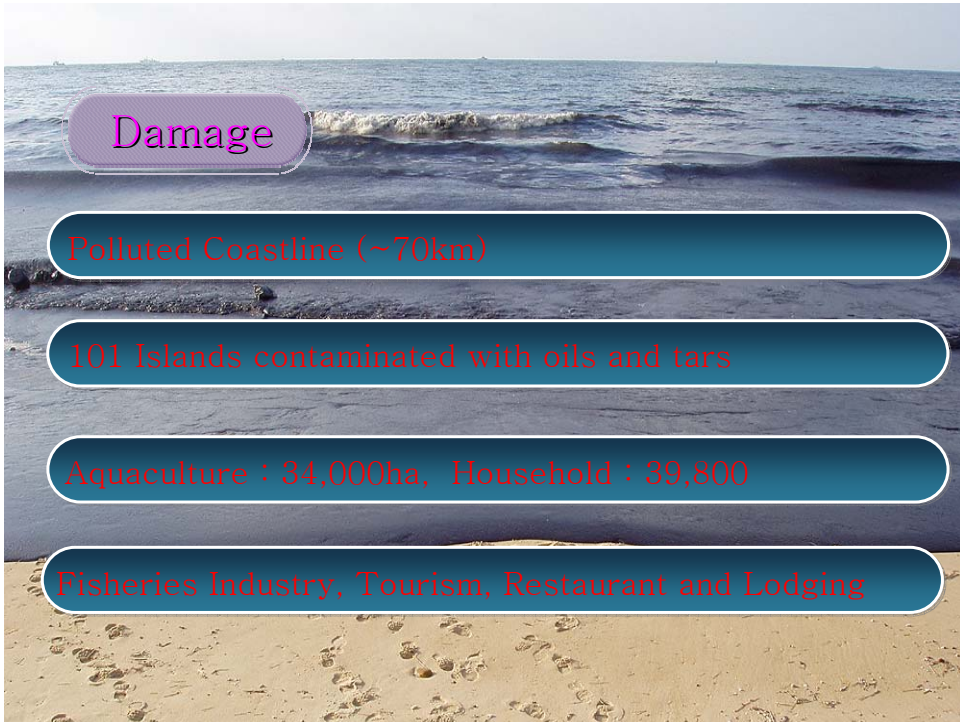
3 Punctures on Left Side (No. 1 • 3 • 5)

Tank No. 5 200 x 160cm No. 3 160 x 10cm No. 1 30 x 3cm



1993 Built Single Hull Tanker





Mobilization and Removal Wastes

Mobilization

Sum of each daily counted amounts '08. 5. 20

Personals	Vessels	Helico- pter	Heavy Machinery		
			Excavator	Cleaners	Tractor etc.
1,999,623 (1,140,648)	18,283	318	4,475	7,217	13,204
Total 24,896					

Removal

'08. 5. 20

Total		Offshore		Inland	
Oil Wastes (kl)	Oil Attached Wastes(tons)	Oil Wastes	Attached Oil Wastes	Oil Wastes	Attached Oil Wastes
4,175	31,652	2,360	1,034	1,815	30,618

Reports and communications between NOWPAP Members

- Inform the oil spill incident by POLREP
 - ▶ Initial information of incident (12.7)
 - ▶ midterm information (12.8 / 12.9)
- Activation/Deactivation of the Plan
 - ▶ Activation of NOWPAP Regional Contingency Plan (12.10)
 - inform the LOSC, NOSC, NOCP, JERC
 - ▶ Deactivation of NOWPAP Regional Contingency Plan (1.14)
- Upload the general information to MERRAC website

Assistance of mobilization of response resources

- Ask the available amount (kg) of sorbents, its cost and transportation method (12.10)
 - ▶ China: 65 tons of sorbents are available (12.11)
 - ▶ Japan: 1 tons of sorbents are available (12.10)
 - ▶ Russia: available sorbent information (12.11)
- As the request of the Korean Government, NOWPAP members provided the sorbents
 - ▶ China: About 56 tons of the sorbents were shipped
 - New Golden Bridge 5: Incheon port from Qingdao port (12. 15)
 - Haibaio 24: Daesan port from Shanghai port (12. 16)
 - ▶ Japan: 10 tons of sorbents provided free of charge via air and dispatched the 7 experts for technical advice

Assistance at the incident area

- MERRAC staff was dispatched to the incident area
 - ▶ to provide the technical assistance to the Korean Government related to oil spill response operation (Dr. Jeong-Hwan OH, 12. 10-13)
 - ▶ to provide technical comments with assisting experts from UN/EC (Dr. Seong-Gil Kang, 12. 16-20)

6. Conclusion and Future activities

- Firstly, activated the NOWPAP Regional Contingency Plan
- Based upon the Plan, NOWPAP members co-operated to response the oil spill
- More effective and practical co-operation
 - . NOWPAP Joint Exercise (2 Sep. 2008, Qingdao, China and Korea)
 - . Table top exercise
 - . Communication exercise (2 times/year)



Environmental Youth Leadership

Dr. Park Jeung Sook

Regional Coordinating Unit

Northwest Pacific Action Plan



Environmental Youth Leadership

A collage of images including a sunset, a coastal landscape, a suspension bridge at night, a group of diverse children, and a forest stream. A decorative green leaf graphic is at the bottom right.

Dr. Jeung Sook PARK
Northwest Pacific Action Plan (NOWPAP)



1945 2005

The logo for the UN's 60th anniversary, featuring a large number "60" and the UN emblem.

peace, justice, human rights,
international law, humanitarian
assistance and development

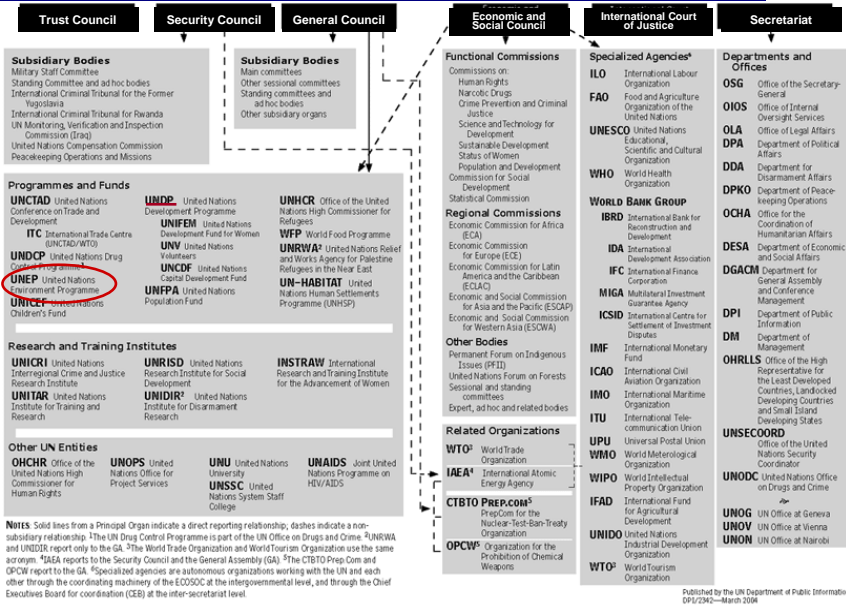
Peace and Security

The UN is working to make the world a better place



Northwest Pacific Action Plan

United Nations System: Principal Organs



Northwest Pacific Action Plan

United Nations Environment Programme

The voice for the environment



Mission

To provide leadership and encourage partnership
 in caring for the environment by inspiring,
 informing and enabling nations and peoples
 to improve their quality of life
 without compromising that of future generations

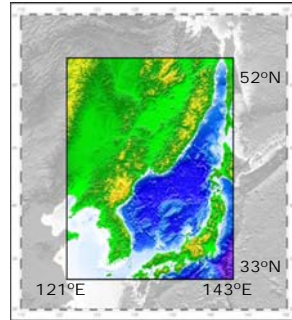
What UNEP does

Assessing global, regional and national environmental conditions and trends	Developing international agreements and national environmental instruments
Strengthening institutions for the wise management of the environment	Integrating economic development and environmental protection
Facilitating the transfer of knowledge and technology for sustainable development	Encouraging new partnerships and mind-sets within civil society and the private sector

- . 1972 UNEP established by UN General Assembly
- . 1973 Convention on International Trade in Endangered Species (CITES)
- . 1975 Mediterranean Action Plan (First UNEP-brokered Regional Seas agreement)
- . 1979 Bonn Convention on Migratory Species
- . 1985 Vienna Convention for the Protection of the Ozone Layer
- . 1987 Montreal Protocol on Substances that Deplete the Ozone Layer
- . 1988 Intergovernmental Panel on Climate Change (IPCC)
- . 1989 Basel Convention on the Transboundary Movement of Hazardous Wastes
- . 1992 Convention on Biological Diversity
- . 1995 Global Programme of Action launched to protect marine environment from land-based sources of Pollution
- . 1997 Nairobi Declaration redefines and strengthens UNEP's role and mandate
- . 1998 Rotterdam Convention on Prior Informed Consent*
- . 2000 Cartagena Protocol on Biosafety adopted to address issue of genetically modified organisms
- . 2000 Malmo Declaration (First Global Ministerial Forum on the Environment called for strengthened international environmental governance)
- . 2000 **Millennium Declaration (environmental sustainability as one of eight MDGs)**
- . 2002 Stockholm Convention on Persistent Organic Pollutants
- . 2002 World Summit on Sustainable Development
- . 2004 Bali Strategic Plan for Technology Support and Capacity Building
- . 2005 **Millennium Ecosystem Assessment highlights the importance of ecosystems to human well-being and the extent of ecosystem decline**
- . 2005 World Summit outcomes documents highlights key role of environment in Sustainable Development



Action Plan for Protection, Management and Development of Marine and Coastal Environment of Northwest Pacific Region



UNEP Regional Seas Programme



Regional Activity Centres (RACs)

- CEARAC** Harmful Algal Blooms and Remote Sensing
- MERRAC** Oil and HNS Spills
- DINRAC** Data and Information
- POMRAC** Pollution Monitoring

NOWPAP Marine Litter Activity 2006-2007



UN Millennium Development Goals (MDG)

By the year 2015, all 191 United Nations Member States have pledged to meet these goals



1 Eradicate extreme poverty and hunger

2 Achieve universal primary education

3 Promote gender equality and empower women

4 Reduce child mortality

5 Improvement of maternal health

6 Combat HIV/AIDS, malaria and other diseases

7 Ensure environmental sustainability

8 Development of global partnership for development



Extreme poverty and hunger



Poverty and primary education



What is environment ?

The natural world of land, sea, air, plants and animals

The sum of the total of the elements, factors and conditions in the surroundings which may have an impact on the development, action or survival of an organism or group of organisms

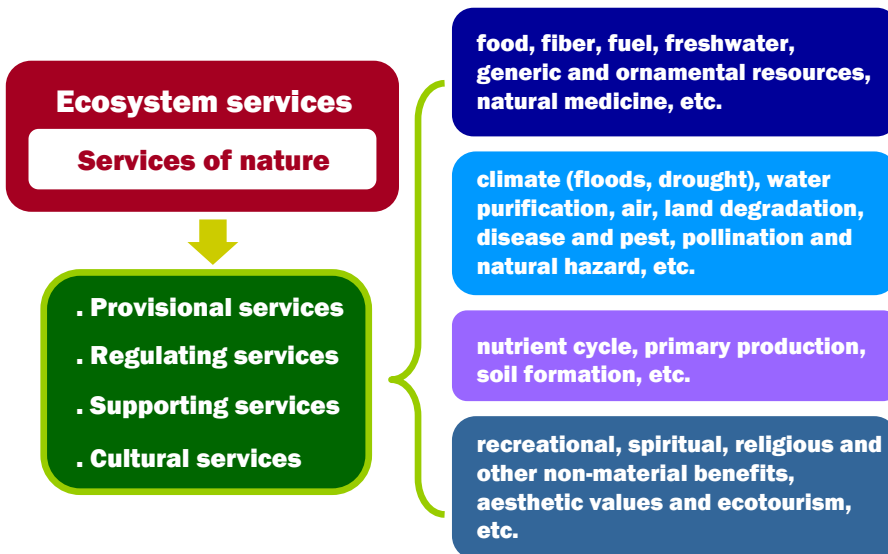


Millennium Ecosystem Assessment

www.millenniumassessment.org | Strengthening Capacity to Manage Ecosystems Sustainably for Human Well-Being

a dynamic complex of plant, animal and microorganism, communities and the nonliving environment interacting as a functional unit

healthy ecosystem







China: Earthquake (May 2008)



2008 Our Summer



It may be easier than you think

Climate Change



10 Things to help our climate

1 Change a light

Replacing one regular light bulb with a compact fluorescent light bulb (save 150 pounds of CO₂ a year)

2 Drive less

Walk, bike, carpool or take mass transit more often (save one pound of CO₂ for every mile you don't drive)



10 Things to help our climate

3 Recycle more

Recycling just half of your household waste (save 2,400 pounds of CO₂ per year)

4 Check your tyres

Keeping your tyres inflated properly can improve gas mileage by more than 3% (Every gallon of gasoline saved keeps 20 pounds of CO₂ out of the atmosphere!)



10 Things to help our climate

5 Use less hot water

A lot of energy to heat water. Use less hot water by installing a low flow showerhead (save 350 pounds of CO₂ per year) and washing your clothes in cold or warm water (save 500 pounds of CO₂ per year).

6 Avoid products with a lot of packing

Cut down your garbage by 10% (save 1,200 pounds of CO₂)



10 Things to help our climate

7 Adjust your thermostat

Moving your thermostat just 2 degrees in winter and up 2 degrees in summer (save about 2,000 pounds of CO₂ a year with this simple adjustment)

8 Plant a tree

A single tree will absorb one ton of carbon dioxide over its lifetime

10 Things to help our climate




9 Turn off electronic devices

Simply turning off your television, DVD player, stereo and computer when you're not using them (save thousands of pounds of CO₂ a year)

10 Spread the word

Encourage your family and friends to live environmentally-friendly

Easier ways to be good to the globe

-  Take your own coffee cup to work instead of using disposables, or buy a washable cup your coffee shop will refill
 -  Buy recycled paper, including stationery and greeting cards printed on recycled paper
 -  Walk or ride your bike to do errands; most vehicles' fuel efficiency is lower on short trips
-

Thank you very much!



Annex III

Youth Programme Beach Cleanup Result

Prepared by

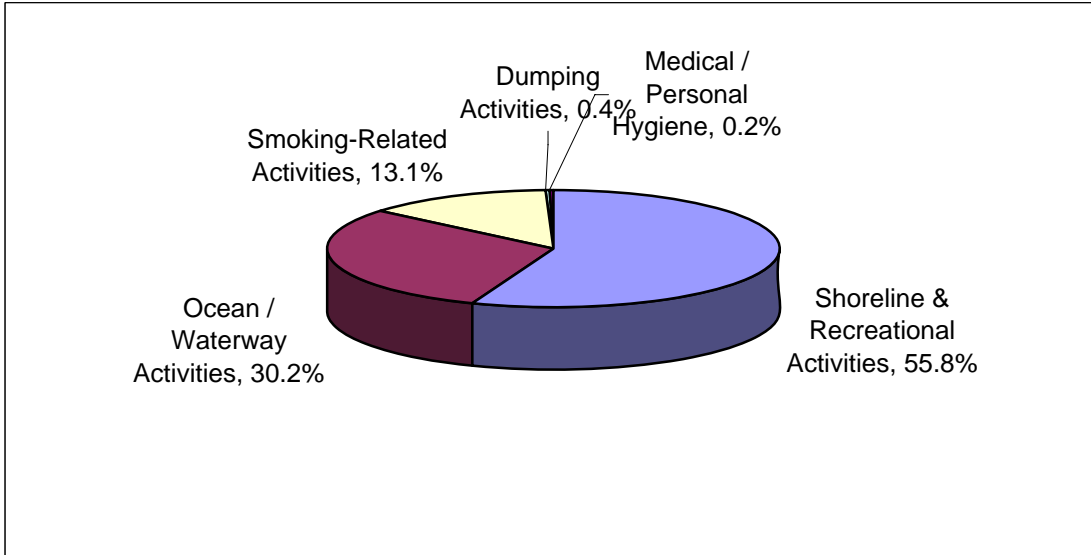
Mr. Lee Jong Myoung

Korea Marine Rescue Center

Clean up Site Information	
Type of Cleanup	Beach
Locaton of Cleanup	Gosapo beach, Buan-gun, Chungnam, ROK
Date	21-8-08
Time	10:00~11:00
Number of Participants	27
Distance Cleaned	0.1km
Number of Trash Bags Filed	6
Total Estimated Weight Clected	100kg

Debris Items	A	B	C	D	Total
Bags	14	43	7	22	86
Balloons	8	2	2		12
Beverage Bottles (plastic) 2 liter or less	15				15
Beverage Bottles (glass)	1	2	4		7
Beverage Cans					0
Caps/Lids	20	4	6	6	36
Clothing/Shoes	6	11	13	0	30
Cups, plates, etc		9	2	5	16
Food Wrappers	8	11	10	2	31
Pull Tabs					0
Six-Pack Holders					0
Shotgun Shells					0
Straws/Stirrers	5	2	1	1	9
Toys	11	5	6		22
Shoreline & Recreational Activities					264
Bait Containers					0
Bleach/Cleaner					0
Buoys/Floats	1		12		13
Crab/Lobster/Fish Traps				1	1
Crates	7		1		8
Fishing Line					0
Fishing Lures/Light Sticks					0
Fishing Nets		10		3	13
Light Bulbs	1		1		2
Oil/Lube Bottles					0
Pallets					0
Plastic Sheeting	2	32	3		37
Rope	35		13	6	54
Strapping Bands	10	4	1		15
Ocean/Waterway Activities					143
Cigarettes/Cigarette Filters	10	42	2	5	59
Cigarette Lighters	1				1
Cigar Tips					0
Tobacco Packaging			2		2
Smoking-Related Activities					62
Appliances					0
Batteries					0
Building Materials			1		1
Car/Car Parts				1	1
55-Gallon Drums					0
Tires					0
Dumping Activities					2
Condoms		1			1
Diapers					0
Syringes					0
Tampons					0
Medical/Personal Hygiene	0	1	0	0	1
Totals	155	179	87	52	473

Sources of Debris	Number of Debris Items	Percentage of Total
Shoreline & Recreational Activities	264	55.8%
Ocean / Waterway Activities	143	30.2%
Smoking-Related Activities	62	13.1%
Dumping Activities	2	0.4%
Medical / Personal Hygiene	1	0.2%
Totals	473	100.0%



Top 10 Debris	
Bags	86
Cigarettes/Cigarette Filters	59
Rope	54
Plastic Sheeting	37
Caps/Lids	36
Food Wrappers	31
Clothing/Shoes	30
Toys	22
Cups, plates, etc	16
Beverage Bottles (plastic) 2 liter or less	15
Strapping Bands	15

ITEMS COLLECTED

Please pick up **all** debris that you find. Only record information for the **items listed below**.

Keep a count of your items using tick marks and enter the item total in the box.

Example: 8 Beverage Cans ~~||||~~ |||

SHORELINE AND RECREATIONAL ACTIVITIES

(Debris from fast food, beach-goers, sports/games, festivals, litter from streets/storm drains, etc.)

14	Bags (paper or plastic) 		Cups, Plates, Forks, Knives, Spoons
1	Balloons /	8	Food Wrappers/Containers
15	Beverage Bottles (plastic) 2 liters or less 		Pull Tabs
1	Beverage Bottles (glass) /		6-Pack Holders
	Beverage Cans		Shotgun Shells/Wadding
20	Caps, Lids 	5	Straws, Stirrers
6	Clothing, Shoes /	11	Toys

OCEAN/WATERWAY ACTIVITIES

(Debris from recreational/commercial fishing and boat/vessel operations)

	Bait Containers/Packaging		Fishing Nets
	Bleach/Cleaner Bottles	1	Light Bulbs/Tubes /
1	Buoys/Floats /		Oil/Lube Bottles
	Crab/Lobster/Fish Traps		Pallets
1	Crates 	2	Plastic Sheeting/Tarps /
	Fishing Line	35	Rope
	Fishing Lures/Light Sticks	10	Strapping Bands

SMOKING-RELATED ACTIVITIES

10	Cigarettes/Cigarette Filters
1	Cigarette Lighters /
	Cigar Tips
	Tobacco Packaging/Wrappers

DUMPING ACTIVITIES

	Appliances (refrigerators, washers, etc.)
	Batteries
	Building Materials
	Cars/Car Parts
	55-Gal. Drums
	Tires

MEDICAL/PERSONAL HYGIENE

	Condoms
	Diapers
	Syringes
	Tampons/Tampon Applicators

DEBRIS ITEMS OF LOCAL CONCERN

(Identify and count 3 other items found that concern you)

3	wood Fishing tool
1	Cosmetic /
1	glasses / 12 Fire-flash tool
8	Food

ITEMS COLLECTED

Please pick up **all** debris that you find. Only record information for the **items listed below**.

Keep a count of your items using tick marks and enter the item total in the box.

Example: **8** Beverage Cans ~~|||||~~ |||

SHORELINE AND RECREATIONAL ACTIVITIES

(Debris from fast food, beach-goers, sports/games, festivals, litter from streets/storm drains, etc.)

43	Bags (paper or plastic) 	9	Cups, Plates, Forks, Knives, Spoons
2	Balloons	11	Food Wrappers/Containers
	Beverage Bottles (plastic) 2 liters or less _____		Pull Tabs _____
2	Beverage Bottles (glass)		6-Pack Holders _____
	Beverage Cans _____		Shotgun Shells/Wadding _____
4	Caps, Lids	2	Straws, Stirrers
11	Clothing, Shoes 	5	Toys

OCEAN/WATERWAY ACTIVITIES

(Debris from recreational/commercial fishing and boat/vessel operations)

	Bait Containers/Packaging _____	10	Fishing Nets
	Bleach/Cleaner Bottles _____		Light Bulbs/Tubes _____
	Buoys/Floats _____		Oil/Lube Bottles _____
	Crab/Lobster/Fish Traps _____		Pallets _____
	Crates _____	32	Plastic Sheet/Tarps
	Fishing Line _____		Rope _____
	Fishing Lures/Light Sticks _____	4	Strapping Bands

SMOKING-RELATED ACTIVITIES

42	Cigarettes/Cigarette Filters
	Cigarette Lighters _____
	Cigar Tips _____
	Tobacco Packaging/Wrappers _____

DUMPING ACTIVITIES

	Appliances (refrigerators, washers, etc.) _____
	Batteries _____
	Building Materials _____
	Cars/Car Parts _____
	55-Gal. Drums _____
	Tires _____

MEDICAL/PERSONAL HYGIENE

	Condoms
	Diapers _____
	Syringes _____
	Tampons/Tampon Applicators _____

DEBRIS ITEMS OF LOCAL CONCERN

(Identify and count 3 other items found that concern you)

	被焚烧的塑料
	iPhone 手机碎片
	iron: 1



iron: 1

ITEMS COLLECTED

Please pick up **all** debris that you find. Only record information for the **items listed below**.

Keep a count of your items using tick marks and enter the item total in the box.

Example: **8** Beverage Cans |||||

SHORELINE AND RECREATIONAL ACTIVITIES

(Debris from fast food, beach-goers, sports/games, festivals, litter from streets/storm drains, etc.)

7	Bags (paper or plastic) <u> </u>	2	Cups, Plates, Forks, Knives, Spoons <u> </u>
2	Balloons <u> </u>	10	Food Wrappers/Containers <u> </u>
	Beverage Bottles (plastic) 2 liters or less		
			Pull Tabs
4	Beverage Bottles (glass) <u> </u>		6-Pack Holders
	Beverage Cans		Shotgun Shells/Wadding
6	Caps, Lids <u> </u>	1	Straws, Stirrers <u> </u>
13	Clothing, Shoes <u> </u>	6	Toys <u> </u>

OCEAN/WATERWAY ACTIVITIES

(Debris from recreational/commercial fishing and boat/vessel operations)

	Bait Containers/Packaging		Fishing Nets
	Bleach/Cleaner Bottles	1	Light Bulbs/Tubes <u> </u>
12	Buoys/Floats <u> </u>		Oil/Lube Bottles
	Crab/Lobster/Fish Traps		Pallets
1	Crates <u> </u>	3	Plastic Sheeting/Tarps <u> </u>
	Fishing Line	13	Rope <u> </u>
	Fishing Lures/Light Sticks	1	Strapping Bands <u> </u>

SMOKING-RELATED ACTIVITIES

2	Cigarettes/Cigarette Filters <u> </u>
	Cigarette Lighters
	Cigar Tips
2	Tobacco Packaging/Wrappers <u> </u>

DUMPING ACTIVITIES

	Appliances (refrigerators, washers, etc.)
	Batteries
1	Building Materials <u> </u>
	Cars/Car Parts
	55-Gal. Drums
	Tires

MEDICAL/PERSONAL HYGIENE

	Condoms
	Diapers
	Syringes
	Tampons/Tampon Applicators

DEBRIS ITEMS OF LOCAL CONCERN

(Identify and count 3 other items found that concern you)

1	상판 <u> </u>
1	파이프 <u> </u>
1	도기 <u> </u>

ITEMS COLLECTED

Please pick up all debris that you find. Only record information for the items listed below.

Keep a count of your items using tick marks and enter the item total in the box.

Example: 8 Beverage Cans ||||| III

SHORELINE AND RECREATIONAL ACTIVITIES

(Debris from fast food, beach-goers, sports/games, festivals, litter from streets/storm drains, etc.)

27	Bags (paper or plastic) <u> III</u>	5	Cups, Plates, Forks, Knives, Spoons <u> </u>
	Balloons <u> </u>	2	Food Wrappers/Containers <u> </u>
	Beverage Bottles (plastic) 2 liters or less <u> </u>		Pull Tabs <u> </u>
	Beverage Bottles (glass) <u> </u>		6-Pack Holders <u> </u>
	Beverage Cans <u> </u>		Shotgun Shells/Wadding <u> </u>
6	Caps, Lids <u> </u>	1	Straws, Stirrers <u> </u>
	Clothing, Shoes <u> </u>		Toys <u> </u>

OCEAN/WATERWAY ACTIVITIES

(Debris from recreational/commercial fishing and boat/vessel operations)

	Bait Containers/Packaging <u> </u>	3	Fishing Nets <u> </u>
	Bleach/Cleaner Bottles <u> </u>		Light Bulbs/Tubes <u> </u>
	Buoys/Floats <u> </u>		Oil/Lube Bottles <u> </u>
1	Crab/Lobster/Fish Traps <u> </u>		Pallets <u> </u>
	Crates <u> </u>		Plastic Sheeting/Tarps <u> </u>
	Fishing Line <u> </u>	6	Rope <u> </u>
	Fishing Lures/Light Sticks <u> </u>		Strapping Bands <u> </u>

SMOKING-RELATED ACTIVITIES

5	Cigarettes/Cigarette Filters <u> </u>
	Cigarette Lighters <u> </u>
	Cigar Tips <u> </u>
	Tobacco Packaging/Wrappers <u> </u>

DUMPING ACTIVITIES

	Appliances (refrigerators, washers, etc.) <u> </u>
	Batteries <u> </u>
	Building Materials <u> </u>
1	Cars/Car Parts <u> </u>
	55-Gal. Drums <u> </u>
	Tires <u> </u>

MEDICAL/PERSONAL HYGIENE

	Condoms <u> </u>
	Diapers <u> </u>
	Syringes <u> </u>
	Tampons/Tampon Applicators <u> </u>

DEBRIS ITEMS OF LOCAL CONCERN

(Identify and count 3 other items found that concern you)

	handkerchiefs <u> </u>		plastic bag <u> </u>
	water glasses <u> </u>		plastic <u> </u>
	ice cream stick <u> </u>		nobby <u> </u>
	sponge <u> </u>		paper <u> </u>
	pad <u> </u>		medic <u> </u>
	pad <u> </u>		glove <u> </u>
	pad <u> </u>		rice paddy <u> </u>

Annex IV
Group Presentation Materials

개별의 신권

지키기 위해

우리가 해야 할 일

陈茜

陈茜
Chen Qian

1. 개별의 중요성

- 개별은 해당 생물의 서식지이며 신권입니다.
- 개별은 독립생활을 전파시켜 줍니다.
- 자연재해를 방지하고 기후를 조절합니다.
- 이밖에 열저 등로도 이용이 가능하고, 일반적인 농지보다 3배 이상의 경제적 가치를 지님.

2. 개별이 오명되는 원인

- 생활 쓰레기
- 생활 하수
- 공장 폐수
- 무분별한 개발

로득

张宇彤

3. 우리가 해야 할 일

· 생활쓰레기 : 적게 버리고, 많이 재활용

↳ 세계수질오염 : 많은 세계 수생으로 바다에 부영양화가 일어나 저조행상이 일어난다.

· 공업폐수 : 하천의 수질로 불법적으로 배출되는 공업폐수를 단속하는 것은 힘들므로 국가나 단계를에서 좌를 하더라도 적극적으로 협조하라

· 관광 : 개별지역으로 관광을 가게 되면 자연환경을 너무 훼손시키지 않는 수 있는 관광을 하자

4. 결론

· 중요한 것은 개별에 대해 잘 아는 것 뿐만 아니라 우리 위치에서 할 수 있는 일을 실천하는 것이다.
많은 개별의 중요성을 우리의 자녀들에게도 가르쳐 주어야 할 것이다.

北京
Beijing
베이징



Yellow

I 围海造田

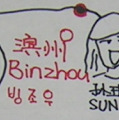
1. 人均占有率
2. 减轻环境压力

♥ 垃圾利用

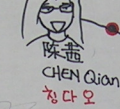
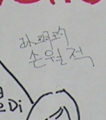
II 经济利用

1. 养殖业
2. 第三产业

王济 Park Jin Sung
朱春奇 Raphael 白根盛
罗振 Luo Kan



梅元 Min Yuan
Tao Y2



青岛 Qingdao



Sea

I 간척.
1. 더 많은 토지를 얻을 수 있다.
2. 쓰레기를 이용하자.

서울 Seoul
II 경제적이용.
1. 양식.
2. 제3산업.



부안 부안 Buon

滩涂의 이용
갯벌의 이용

B TEAM.

경제 발전과 바다오염

经济发展与海洋环境污染

Economic development & Sea pollution

정의

定义

Significance

바다가 도시에 미치는 영향

海洋对城市影响

Sea effect the city

인간이 바다에 미치는 영향

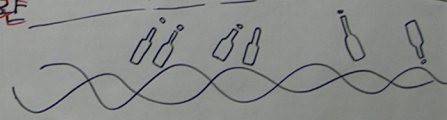
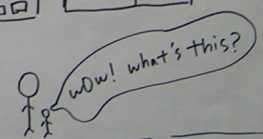
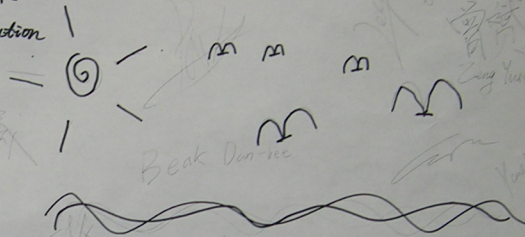
海洋受人类影响

Human beings effect the sea

바다 환경보호를 위한 인간의 의식전환

人类观念改变

Opinions are changing



백지영
Park Jin-Young
Raphael
白提亞

이희준
Lee Hee-jun
Monkey

김민준
Kim Min-jun
Midnight

이희준
Lee Hee-jun
Weiran

이희준
Lee Hee-jun

张宇升 邱高

Beak Dan-ye

Beak Dan-ye

1992

"바다의

파괴와 보존"

1. 바다의 파괴

* 해상 기름유출 사고

* 바다 개발로 인한 피해사례

2. 바다의 보존

* 각종 오염원 투입금지

* 대청도 수질을 깨끗이 할 수 있는 방법

3. 도사를 하며 느낀 점

- 바다를 가까이에 두고 살면서도 바다의 중요성을 잘 몰랐었는데 이번 프로젝트에 참가하면서 바다의 파괴에 대한 심각성과 그에 따른 바다의 보존방법을 알 수 있었습니다.

감사합니다!!

박진성
Baek Jin Sung
Raphael
白振星



양민우
Yang Minwoo



牛春埈
Choo Chunjun

王帝
Wang Di

이재현
Lee Jaehyun

이재현
BENK DUNN

이재현
손원적

Monkey
손원적

陈茜
Chen Qian

罗冠
Luo Guan

张宇彤
Zhang Yutong

이재현

이재현

이재현

이재현

