



# *Benefits and Challenges of MPAs Network*

*June 15~16, 2016*

*NEAMPAN Workshop 2016 on “Sharing Experiences in MPA Management”  
& 2<sup>nd</sup> Steering Committee*

**Jungho NAM**



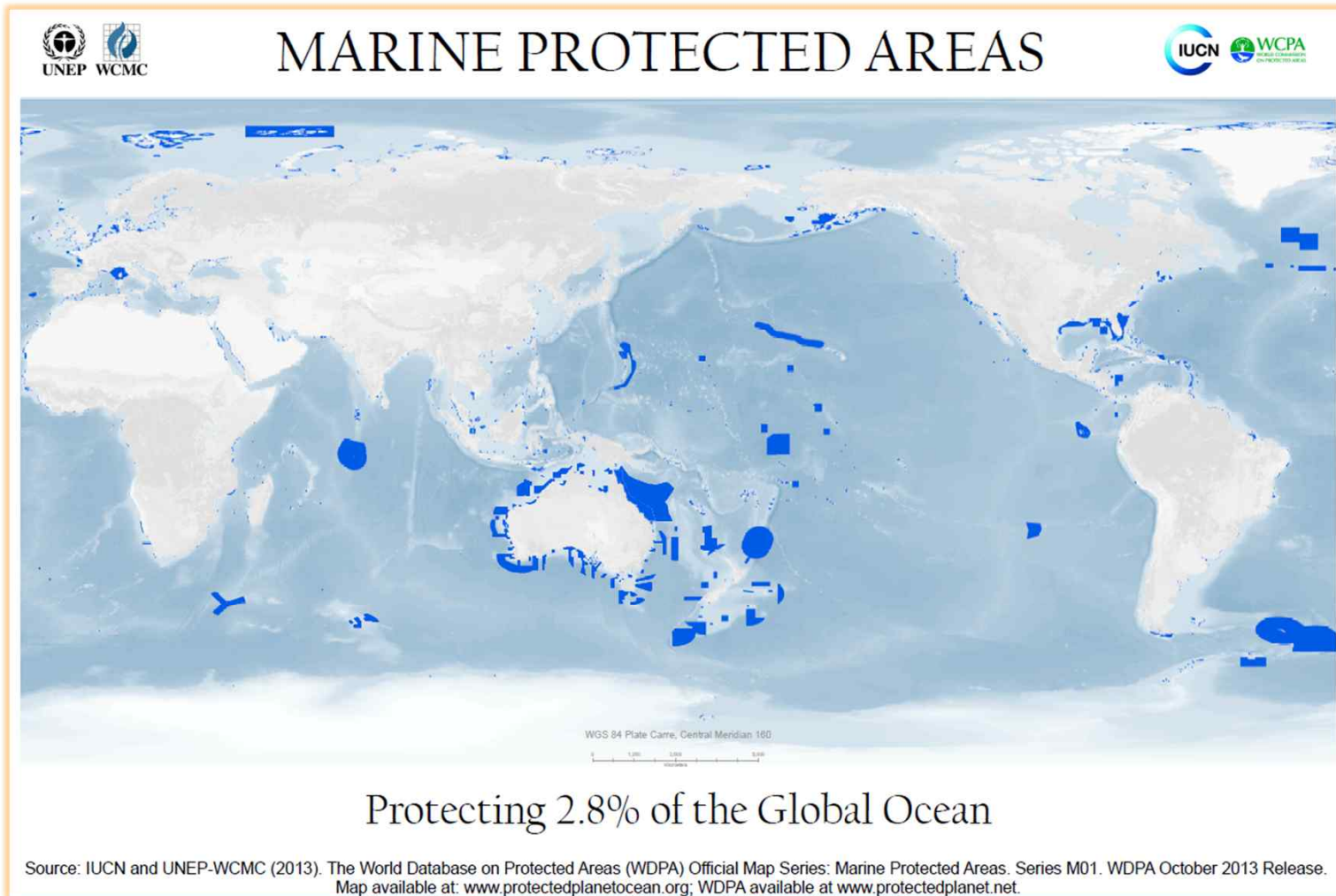
# *Communication Outline*

**Benefits of MPA Network**

**Challenges toward Outcome-based MPA Network**

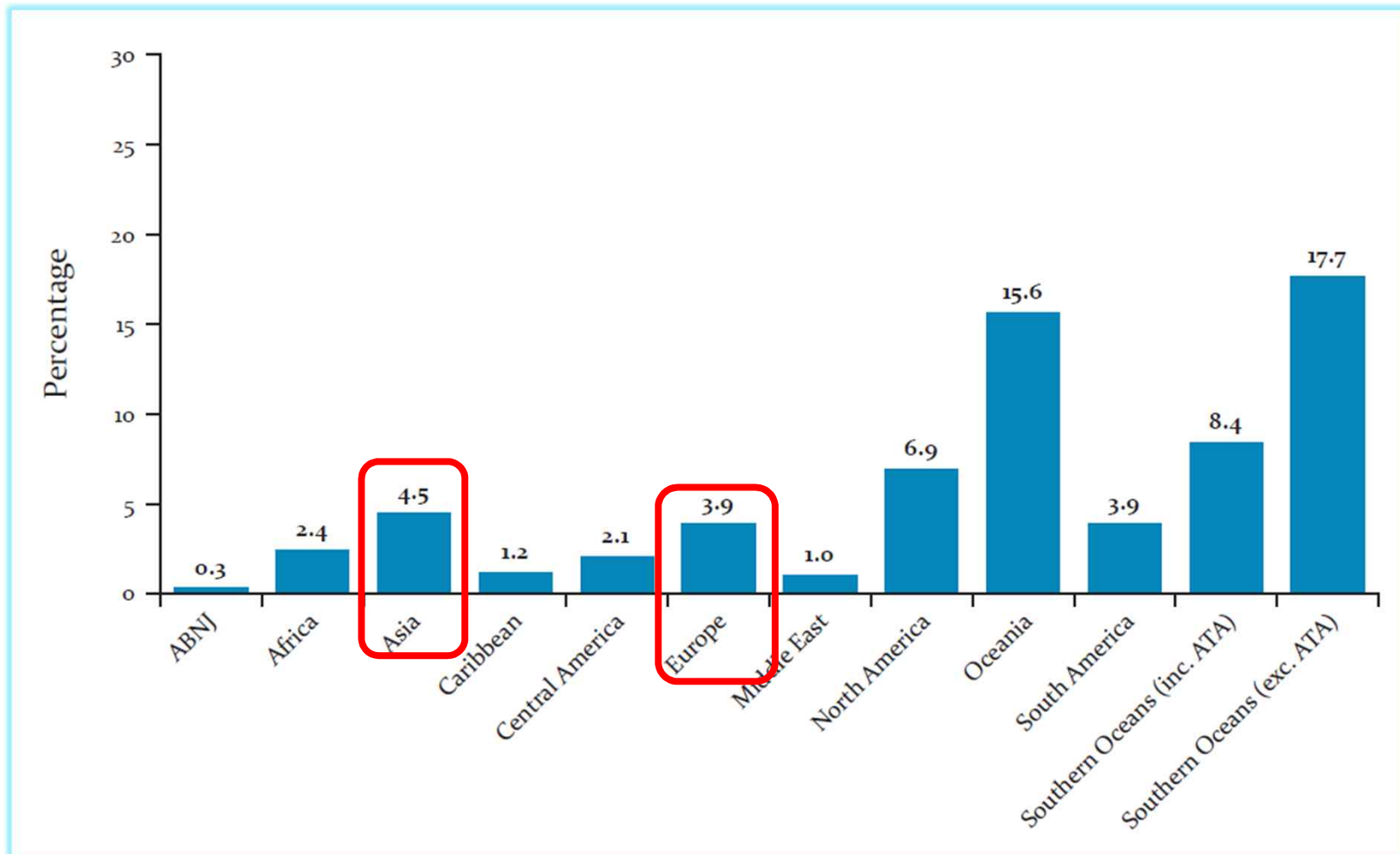
# **Benefits of MPA Network**

# *Global Landscape of MPAs*



2.2% at WDPA in 2012 (IUCN and UNEP-WCMC, 2012)  
9.7% of the territorial seas  
4.65 in Exclusive Economic Zones  
0.14% in the High Seas

## Percentage of Marine Protected Area (0~200 nm)



UNEP-WCMC, 2014

## *Rarely Studied on Benefits of MPA Network*

### **Benefits of MPA vs MPA Network**

Benefits of MPAs are well known, but Benefits of their Network, not yet in terms of concrete and scientific evidence

**£6.3 billion - £10 billion**  
- the estimated benefits  
of a network of Marine  
Protected Areas in  
Scottish waters over 20  
years.

(Gonzalez-Alvarez et al., 2012)

# *Network Types and Proposed Benefits*

## Types of MPA Network

### **Social Network**

National / Regional / Global levels

formed by communication and sharing of results and coordination of administration and planning

### **Ecological Network**

National / Regional / Global levels

formed by ensuring that natural connections between and within sites enhance ecological functions and benefit of one or more MPAs

### **Management-based Network**

National / Regional Levels

formed by creating consistency and efficiency in areas such as enforcement, monitoring and awareness building

(White et al, 2005)

### **Human Network**

National / Regional / Global levels

formed by sharing of experiences and information/data, and building collective actions on common issues

## Network Types and Proposed Benefits

### Benefits and network types

- Minimize the duplication of efforts and resources (**Social / Human / Mgt networks**)
- Ensuring the protection an ecosystems or species that cannot be adequately protected on one country, such as migratory species (**Ecological / Mgt networks**)
- Ensuring that transboundary protected areas are given adequate attention (**Ecological network**)
- Sharing effective conservation approaches across similar sites in different regions (**Social / Human networks**)
- Developing collaboration between neighboring countries to address common challenges and issues (**Social / Human / Ecological networks**)
- Strengthening capacity by sharing experiences and lessons learned, new technologies and management strategies, and by increasing access to relevant information (**Social /Mgt / Human networks**)



# Addressing ‘Paper Parks’ Issue by “Network”

Addressing a critical issue in MPAs, Paper Parks  
( less than 3 Key Features of NEOLI)

**N**o-take

Edgar et al., 2014, Nature

**E**nforced well

**O**ld (> 10 years)

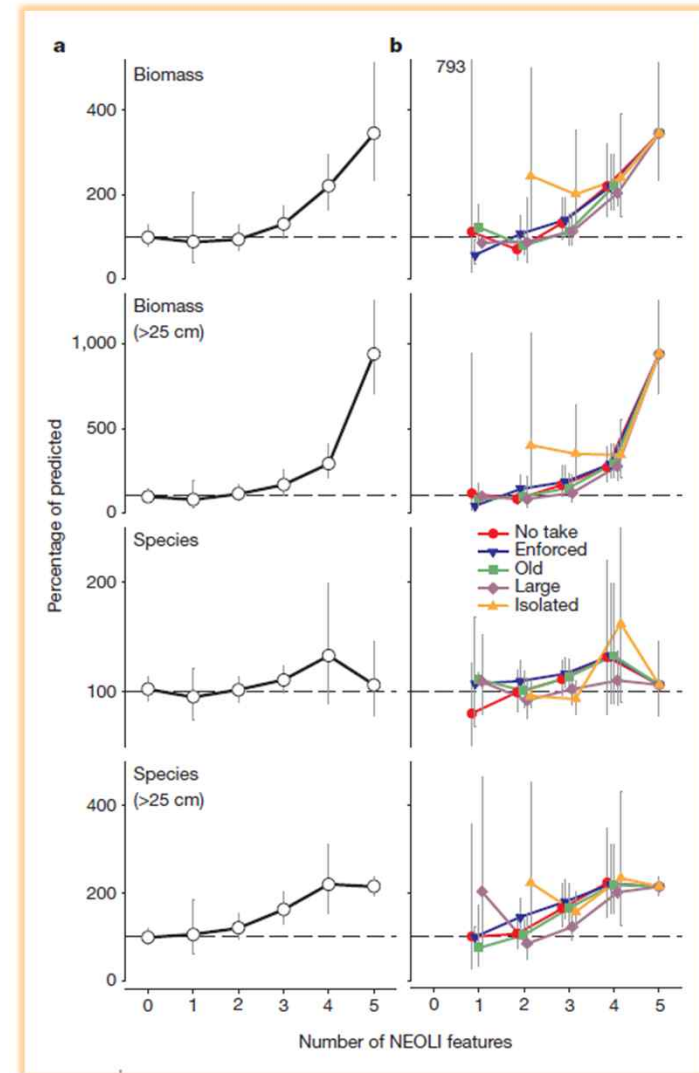
**L**arge (> 100 km<sup>2</sup>) : small one is more vulnerable

**I**solated

59% of MPAs, only one or two features  
“not ecologically distinguishable from fished sites”

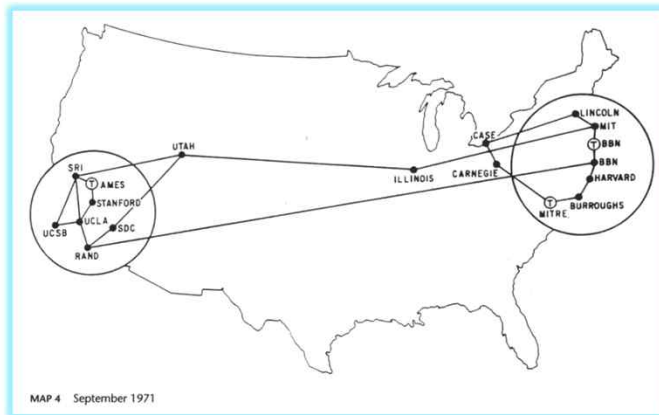
Small size of MPAs driven by political, economic  
and social constraints

→ less contribution to living organisms (fish,  
invertebrate, algae etc)(IUCN)



# Putting “Risk, Resilience and ES” into Benefits Framework

Revisiting the Network in 1969 and the Miracle of Kobe in 1995



## SOCIAL CAPITAL AND DISASTER RECOVERY: A COMPARATIVE CASE STUDY OF KOBE AND GUJARAT EARTHQUAKE

Yuko Nakagawa<sup>1</sup> and Rajib Shaw<sup>2</sup>

### SUMMARY

Although earthquake disasters are often termed as a 'natural' disaster, a critical analysis reveals that most of them are in fact man-made, and caused by the human activities that are related to poor construction practices in both developed and developing countries. Damage scenarios of recent earthquakes show ample examples in support of this statement. While risk perception is an important issue in pre-disaster mitigation initiatives, social capital is considered as an important element in post-disaster recovery processes.

Social Capital generally refers to the trust, networks and norms of a group, which influences its social, political and economic performance. Social Capital is used as an indicator to understand the recovery process, comparing the Kobe and Gujarat Earthquake of 1995 and 2001 respectively.

## Putting “Risk, Resilience and ES” into Benefits Framework

Living along **uncertainty, complexity, and vulnerability** driven by climate change and its consequences to human activities

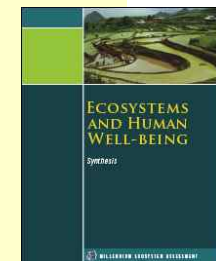
**Ecological risks, declining biodiversity** caused by impacts of climate change and less concern on marine ecosystem

**The risks lead to Weakened Resilience → unhealthy marine ecosystem**

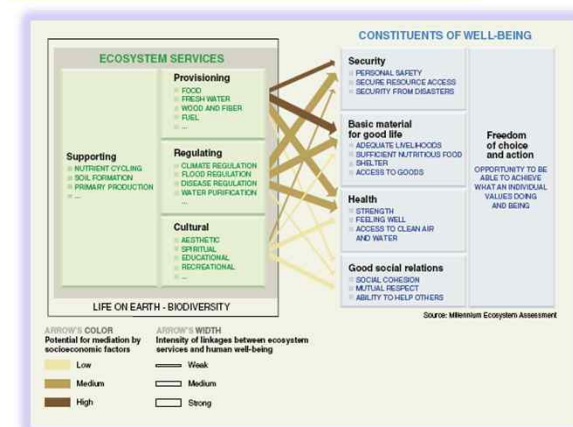
**Biodiversity : Global > Regional > National > Local**

Biodiversity cannot be secured by efforts of single MPA or individual country  
Conservation at larger scale, more effective and efficient in reducing the risks and enhancing resilience

Declining biodiversity → unsustainable **Ecosystem Service** → negative impacts on **Human Well-being**



**Bottom line** is to enjoy **sustainable ecosystem services** by securing social and natural capitals through sharing (experiences, information, knowledge and wisdom) & communicating and collective action on common issues



**Challenges toward  
Outcome-based MPA Network**

## *Before getting on the vessel*

Several lessons on how to effectively assist with improving MPA effectiveness and forming MPA networks are:

1. Most MPAs, once planned and operating, will need to **strengthen their management body through a community level intervention** that helps the management body develop and implement a MPA management plan together with the local MPA authority. This MPA plan may ultimately amend the ordinance that established the MPA with refined rules.
2. **Areas of connectivity** will have to be identified.
3. The project will need to **identify partners** working in the area and coordinate work accordingly. Assisting groups will build a strategic plan, and agree on common objectives that are consistent, and develop an **implementation plan for the network**.
4. **Common goals and objectives**, based on individual site priorities, will have to be identified for the network.
5. **Priority resource management issues**, based on individual site priorities, will have to be identified for the network.
6. **Cross-cutting management strategies** that are applicable to all MPAs in the network will have to be identified.
7. Each MPA that will ultimately be part of an effective network will require some level of assistance in some portion of its planning and implementation process. Successful MPAs will need assistance to help them become sustainable in their own right.
8. **Sharing of resources and contributions** can synergize to produce cost-effectiveness and biomass accumulation.

(White et al., 2005)

**MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN  
UNDP/GEF PROJECT ON "REDUCING ENVIRONMENTAL STRESS IN  
THE YELLOW SEA LARGE MARINE ECOSYSTEM"  
AND**

**KOREA MARITIME INSTITUTE  
ON  
CO-OPERATION IN PROMOTING CONSERVATION AND SUSTAINABLE USE OF  
MARINE AND COASTAL ENVIRONMENT IN THE YELLOW SEA**

Following the exchanging of project information and discussing potential areas and mechanisms for co-operation in promoting protection of marine and coastal environment in the Yellow Sea, the UNDP/GEF Project "*Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem*" (YSLME) and Korea Maritime Institute (KMI),

**Recognising:**

The Global Environment Facility, through the United Nations Development Programme as implementing agency, is supporting the Project, "*Reduce Environmental Stress in the Yellow Sea Large Marine Ecosystem*";

The long-term objective of the YSLME aims at: 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;

The Medium-term objectives of the YSLME are:

- Enhancing national capacities in protection of marine environment and sustainable use of marine and coastal resources;
- Strengthening regional co-operation in marine environment protection and management through establishment of regional mechanisms established in the Yellow Sea, and co-operative spirit enhanced by the project; and
- Facilitating cross-sector co-operation and co-ordination of relevant national institutions dealing with marine environmental management.

**Also Recognising:**

KMI is a government-affiliated research institute under the Prime Minister's Office of the Republic of Korea, focusing on developing national marine policies on marine affairs and fisheries. Major functions of KMI are as follows:



# Challenge 1 : more concerted efforts for successful cases at national level

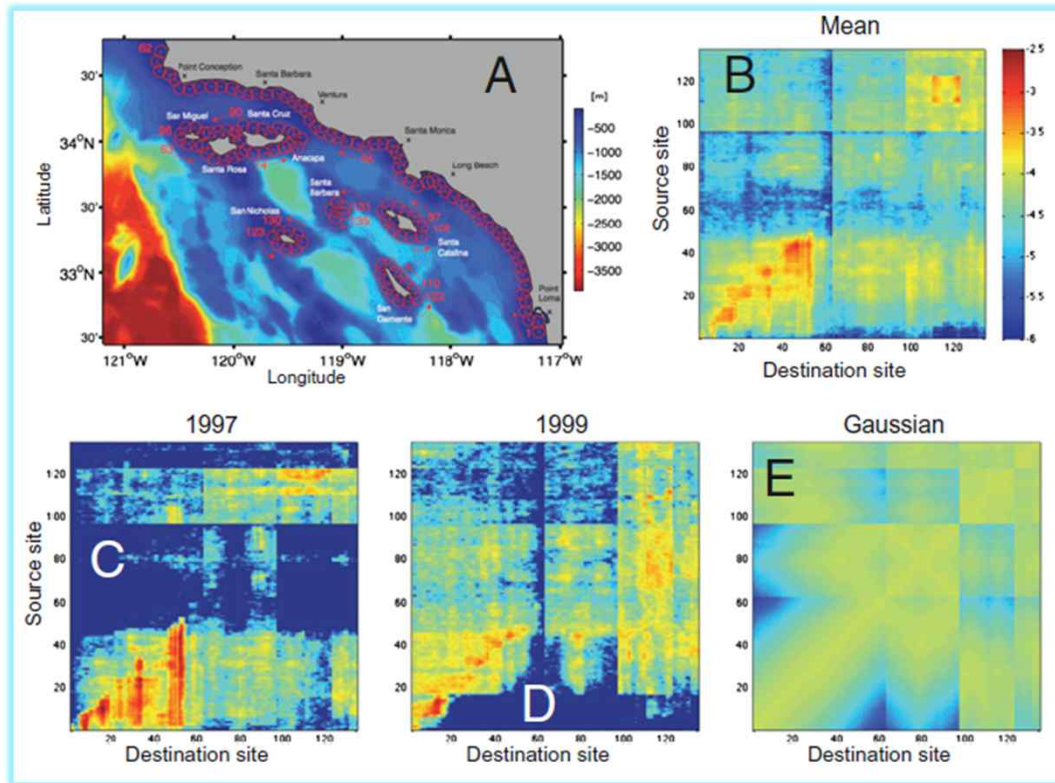


<http://mini2012.tistory.com/entry/%EC%88%9C%EC%B2%9C%EB%A7%8C>  
Photo by Jeokwoon



Lee, 2016

## *Challenge 2 : Best Application of Spatial Information in MPA Network Design at National or Sub-nation Levels*



Modelling for sheephead larval dispersal dynamics

Spatial information → Better management and **economic benefits, probably > 10%**



## Challenge 3 : Strategic planning for successful MPA Network

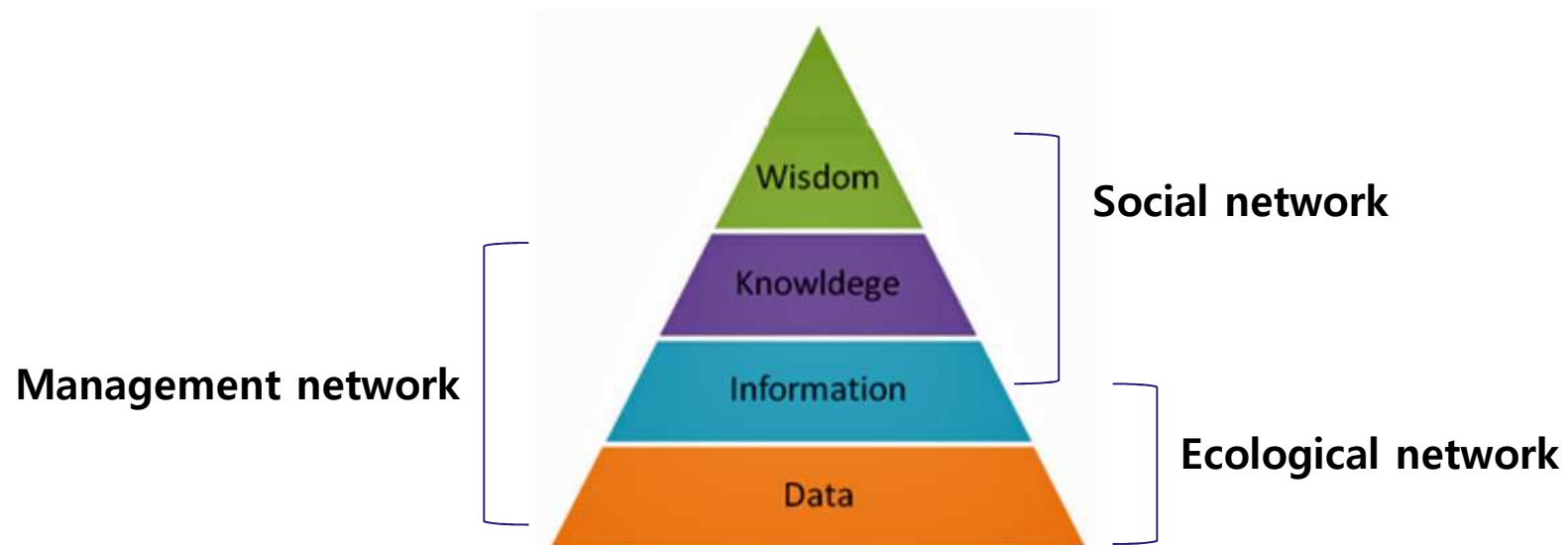
- Re-arrangement of MPA sites
- Involvement of more partners, especially local stakeholders
- Establishment of participatory decision making for planning
- Identifying specific issues
- Setting Common goals and objectives including target species
- Activities of each sector based on thematic issues

IUCN CATEGORY		MAIN OBJECTIVE OR PURPOSE
IA	Strict Nature Reserve	Strictly protected areas to protect biodiversity and possibly geological / geomorphological features. Human visitation, use and impacts are strictly controlled and limited to ensure preservation of the conservation values. These areas can serve as indispensable reference areas for scientific research and monitoring.
IB	Wilderness Area	Large or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.
II	National Park	Large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, to provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.
III	Natural Monument	Set aside to protect a specific natural monument, which can be a landform, sea mount, submarine caverns, geological feature such as caves or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.
IV	Habitat/Species Management Area	Protect particular species or habitats and management reflects this priority. Regular, active interventions often needed to address the requirements of particular species or to maintain habitats.
V	Protected Landscape/ Seascape	Where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value; and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.
VI	Managed Resource Protected Area	Large, with much of the area in a natural condition and where a proportion is under sustainable natural resource management. Exploitation is a main aim of the area.

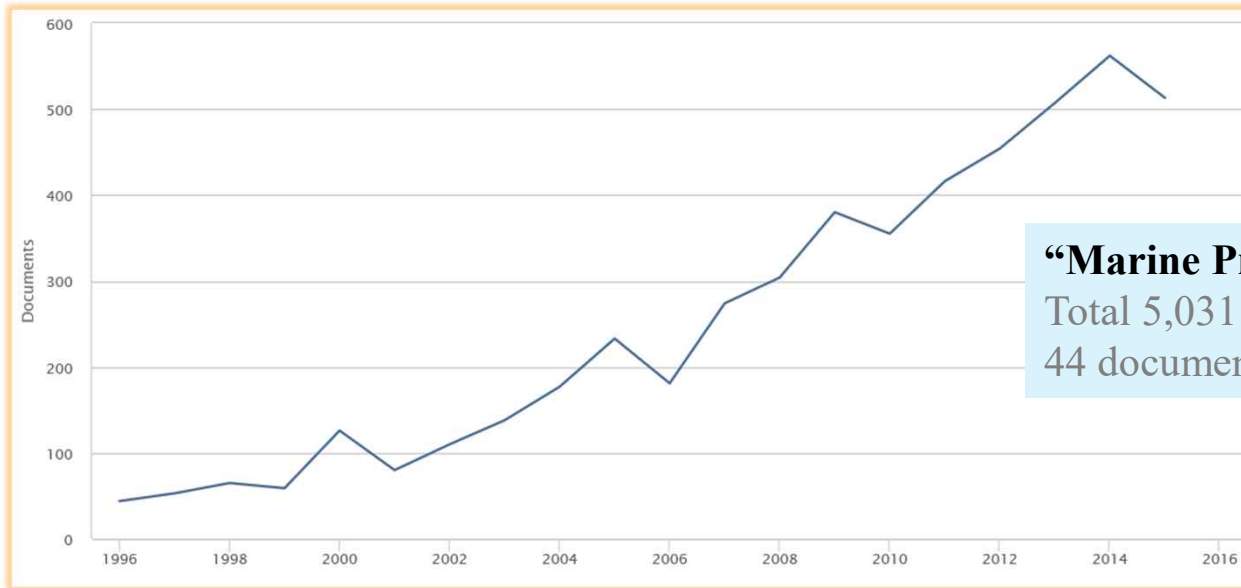
(IUCN 1994; Wells and Day 2004; WCPA 2008)

## *Challenge 4 : Multi-dimensional networking*

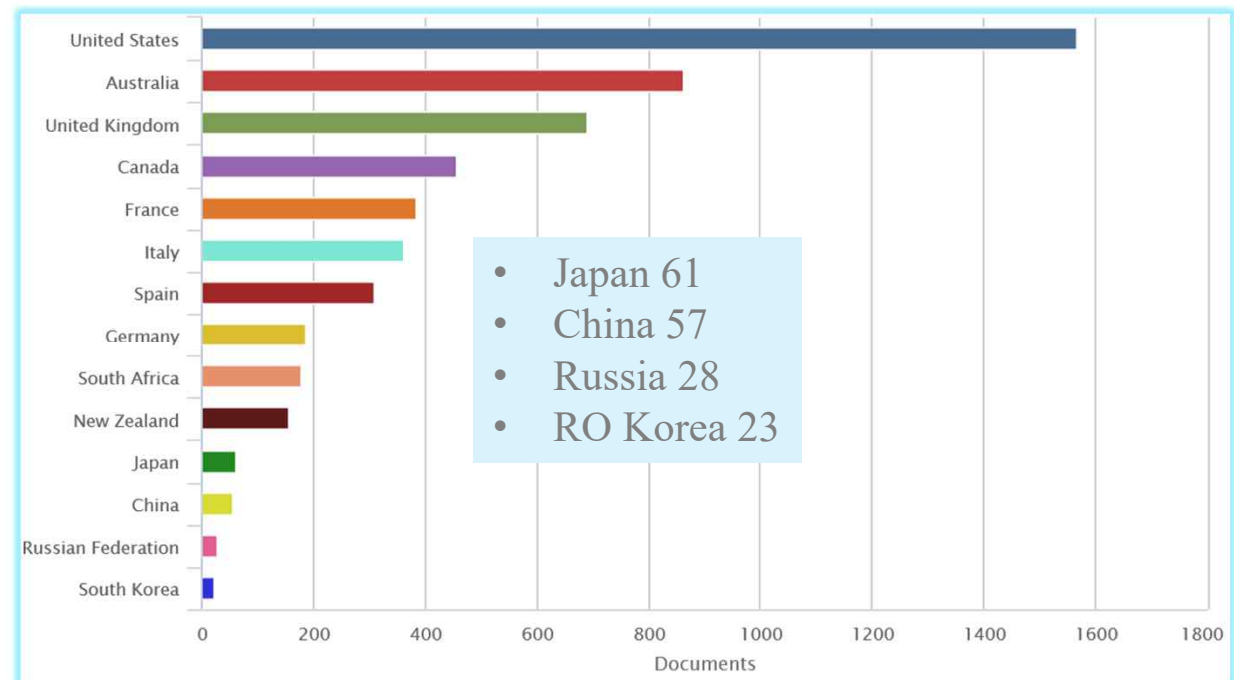
- More focus to make **local stakeholders' networking** viable such as fishermen, farmers, and local managers
- Setting up of **sub-regional network** based on ecological network (spotted seals, migratory birds etc.)
- **Issue-based networking** : economy (tourism, resources utilization), researches (monitoring, survey), restoration technology, social capital etc
- **Twins networking** in terms of ecological duplication and similar regulation
- **International networking** on common habitats or management



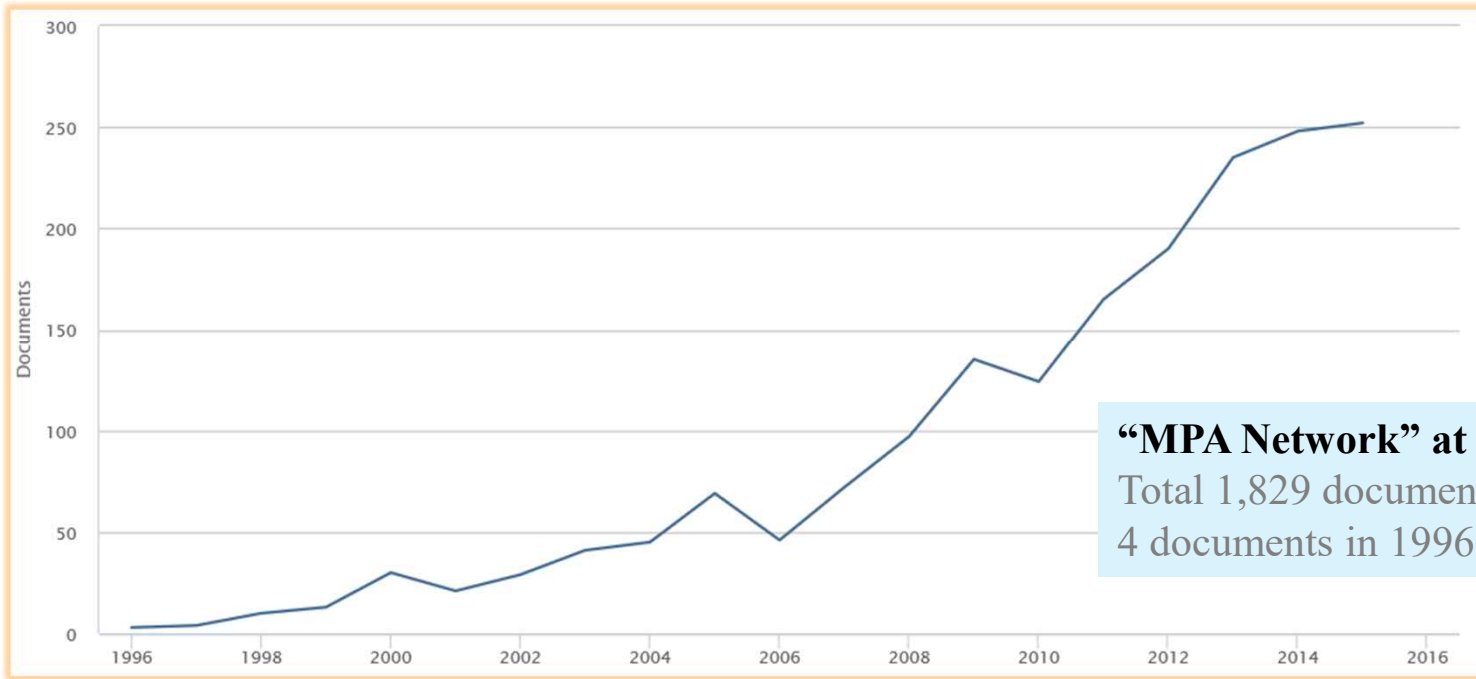
## Challenge 5 : Strengthening Knowledge-base



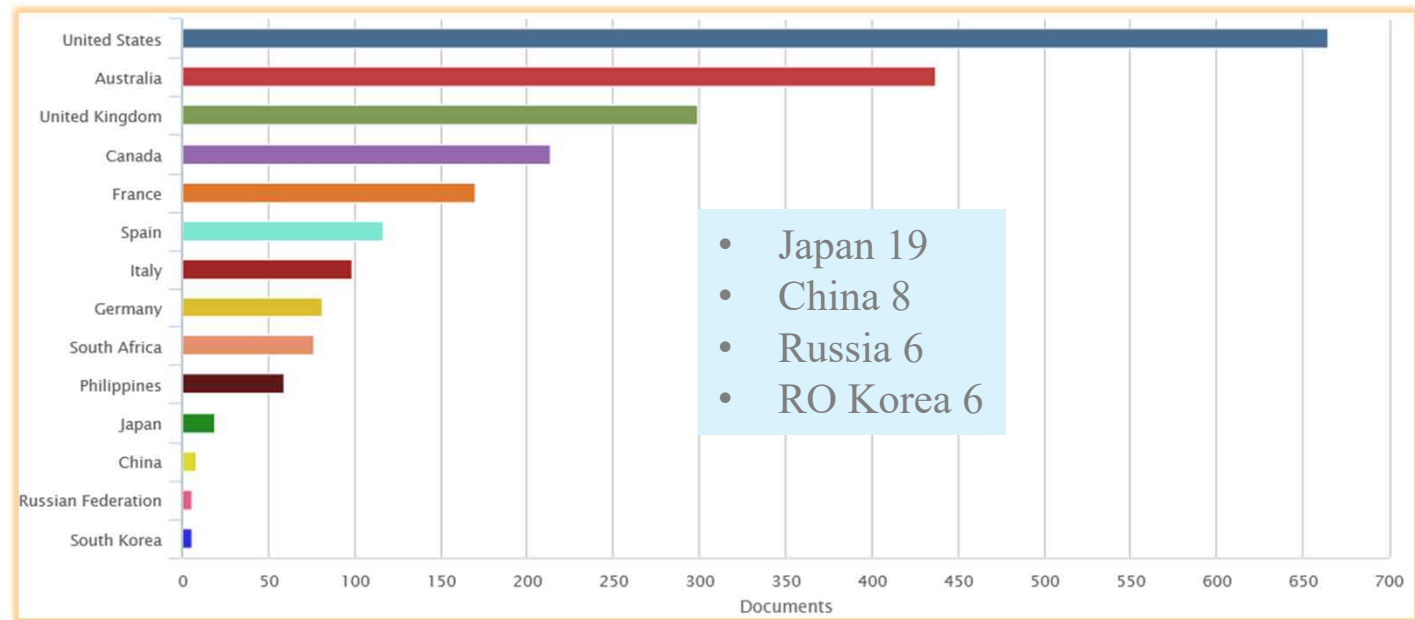
**“Marine Protected Area” at SCOPUS**  
Total 5,031 documents from 1996~2015  
44 documents in 1995 → 513 in 2015



- Japan 61
- China 57
- Russia 28
- RO Korea 23



**“MPA Network” at SCOPUS**  
 Total 1,829 documents  
 4 documents in 1996 → 252 in 2015



- Japan 19
- China 8
- Russia 6
- RO Korea 6

*Thank you for listening*