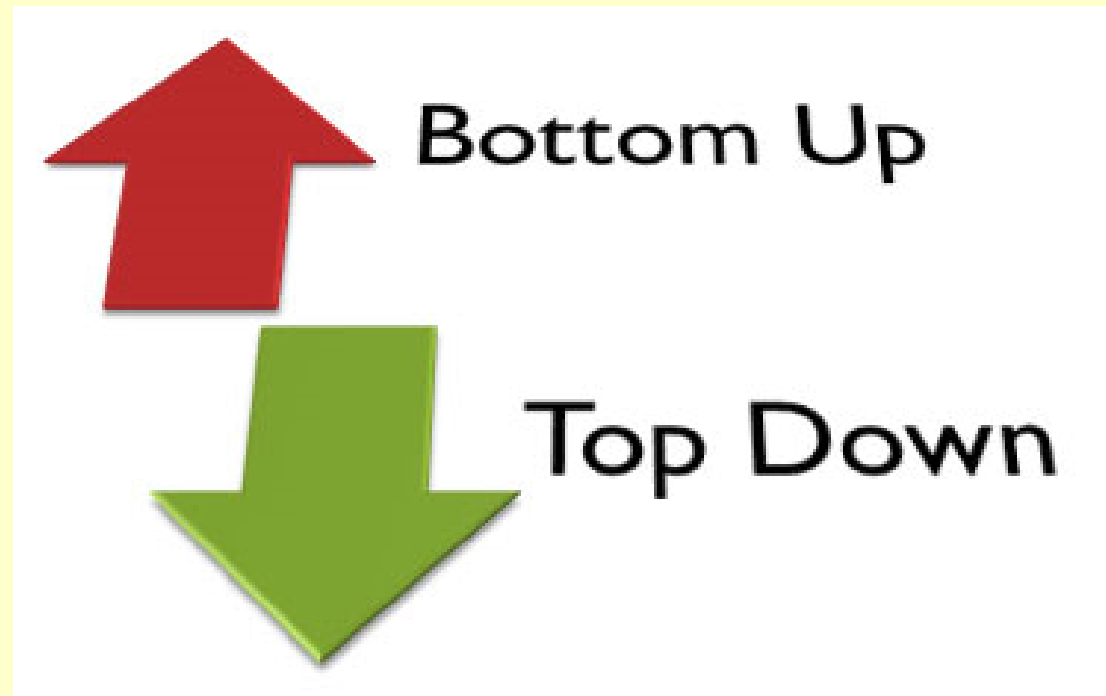


# Regionalised Marine Spatial Planning



# TOP DOWN: Global Targets

*"By 2010, terrestrially and 2012 in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area system is established"*

*CBD COP VII, Decision 7.28*

*"At least 10% of each of the world's ecological regions effectively conserved".*

*CBD COP VII Decision 7.30*

# TOP DOWN: Criteria for Effectiveness

**Representativity:** viable MPA system requires establishing protections for all biological processes and structures

**Adequacy:** ensuring that sites are of effective size, shape and location to ensure viability of the species

**Resilience:** resistance of all parts of the system to natural disasters, such as a tsunamis or hurricanes

**Connectivity:** ensuring the linkage between individuals / populations / species in time and space

# BOTTOM UP: Data

Provides Knowledge for Regionalisation / Prioritization:

Species Distributions

Habitat Classifications

Processes

Models

(Lourie & Vincent 2004)

# BOTTOM UP: Socio-Political Support

Tools / Data to address points listed above

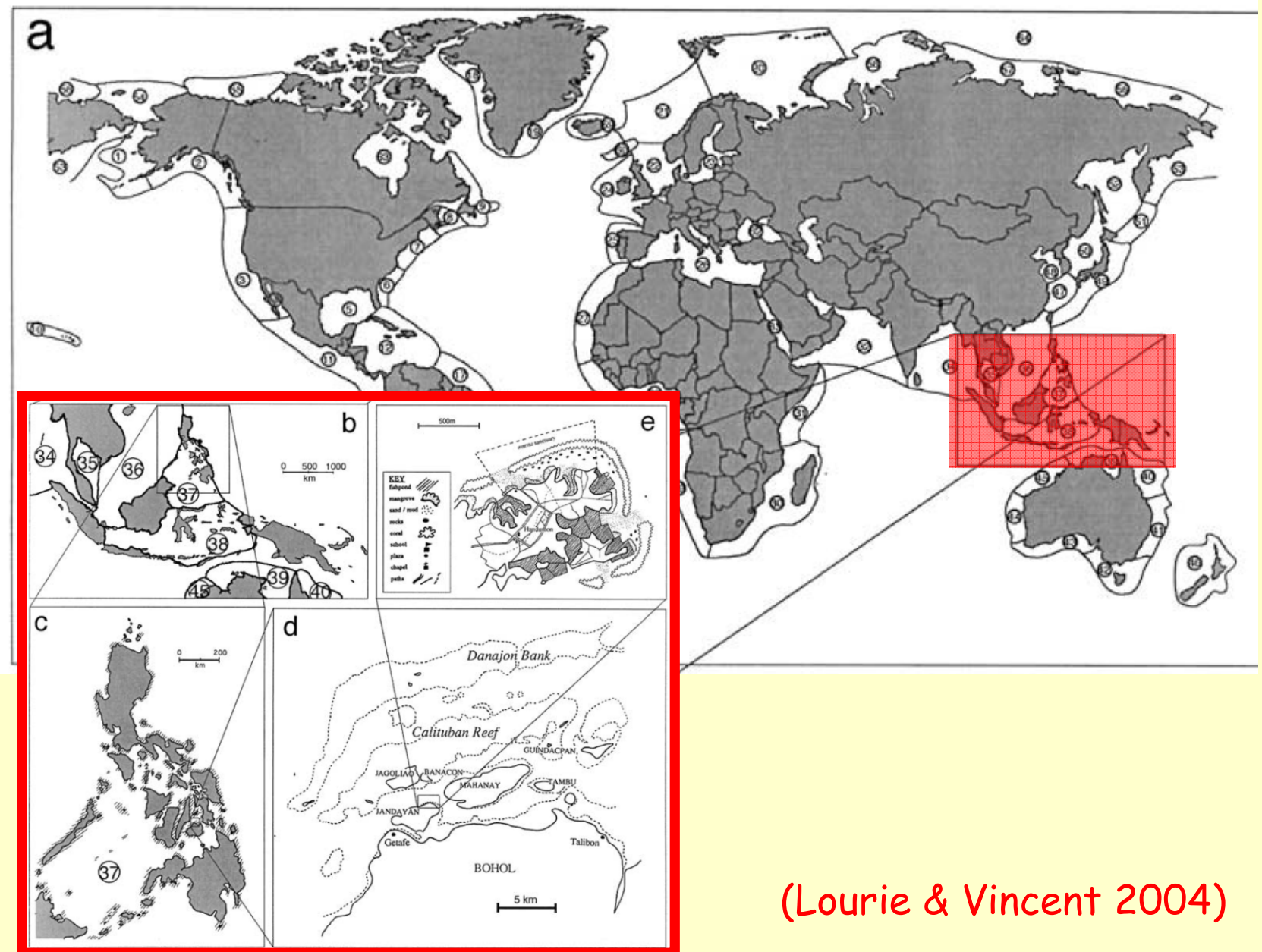
Interface with local users and communities

(Charles & Wilson 2008)

## Local Traditional Ecological Knowledge



# Biogeography: Nested Hierachy



# Phases of Priority Setting for Biodiversity

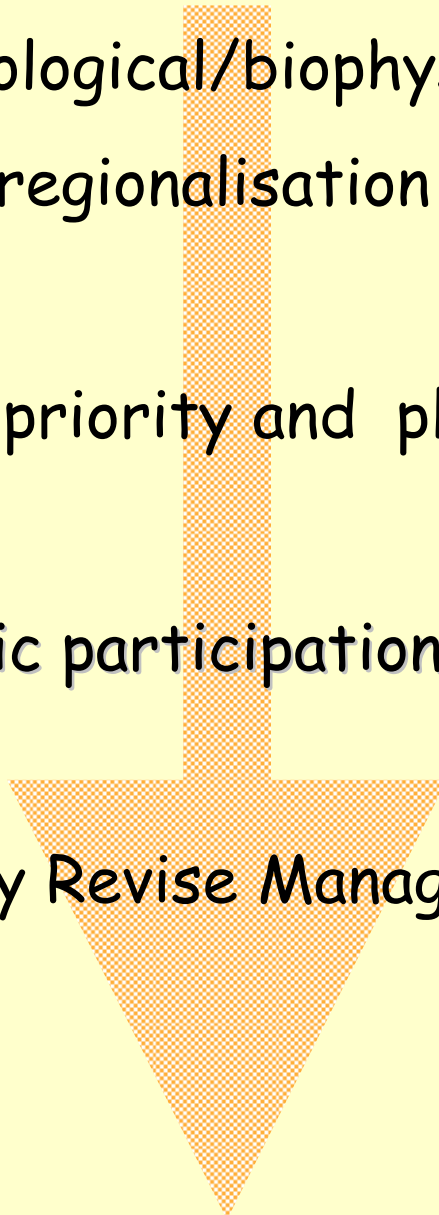
Collation of data (ecological/biophysical/socio-economic)

Bioregionalisation Map

Development of priority and planning principles

Engagement of public participation (*call for public input*)

Periodically Revise Management Plan



# Reef and Non Reef Bioregions in the Great Barrier Reef World Heritage Area

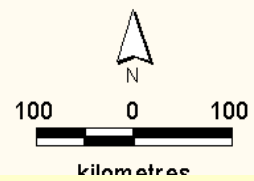


- Insufficient information to determine bioregion type
- ?Y Far North Offshelf
  - ?Z2 Offshore Old Trough
  - ?Z7 Far North Outer Reefs
  - ?ZZ1 Cap Bunk Reefs
  - ?ZZ4 Outer Central Reefs
  - ?ZZ5 Central Offshelf
  - ?ZZ6 Central Reefs
  - ?ZZ8 Southern Embayment

**Caution**  
 The bioregions shown on this map were defined by marine experts who, together have over 220 years of experience in the GBR region and who used the best available data and regional analysis as collected by GBRMPA in 1999. As new information and expertise are developed it is expected that the boundaries of these bioregions can be improved and updated. In this way these bioregions are not definitive or a complete description of the marine diversity within the GBR WHA.

- Non reef bioregions
- NA1 Coastal Strip - Coral Sand
  - NA2 Coastal Strip - Mid
  - NA3 High Northern Coastal Strip
  - NA4 Inshore Terrigenous Sands
  - NB1 Inshore Muddy Lagoons
  - NB2 Inshore Lagoons
  - NB3 Inner Shelf Seagrass
  - NB4 Inner Shelf - Calcareous
  - NB5 Inner Mid Shelf Lagoons
  - NB6 Inner Shelf Lagoons - Coastal Islands
  - NB7 Mid Shelf Lagoons
  - NB8 Capricorn Bunker Lagoons
  - NC Mid Shelf Inner Reef - Seagrass
  - ND Mid Shelf Inner Reef
  - NE Outer Shelf Lagoons
  - NF Halmédia Banks - Some Coral
  - NH Mid Shelf Sandy Reefs
  - NI Halmédia Banks
  - NJ Princess Charlotte Bay Outer Shelf
  - NK Princess Charlotte Bay
  - NL1 Outer Shelf Algae and Seagrass
  - NL2 Outer Shelf Seagrass
  - NL3 Outer Shelf Inner Reef - Central
  - NL4 Outer Shelf Inner Reef - Southern
  - N5 Swales Inner Reef
  - NN Mid Shelf Seagrass
  - NN Capricorn Bunker Banks
  - NO Capricorn Trough
  - NP Eastern Plateau
  - NQ Steep Slope
  - NR Queensland Trough
  - NS Intermediate Broad Slope
  - NT Pelagic Platform
  - NU Trenches

- Reef bioregions
- RA1 Detached Reefs
  - RA2 Outer Barrier Reefs
  - RA3 Outer Shelf Reefs
  - RA4 Strong Tidal Outer Shelf Reefs
  - RB1 Far Northern Outer Mid Shelf Reefs
  - RC1 Torres Strait Inshore Mid Shelf Reefs
  - RC2 Far Northern Protected Mid Shelf Reefs
  - RD1 Capricorn Bunker Outer Reefs
  - RD2 Capricorn Bunker Mid Shelf Reefs
  - RE Far Northern Open Lagoon Reefs
  - RE1 Coastal Far Northern Reefs
  - RE2 Coastal Northern Reefs
  - RE3 Coastal Central Reefs
  - RE4 Coastal Southern Reefs
  - RE5 Coastal Strong Tidal Reefs
  - RE6 Inland Reefs
  - RE7 Tidal Mud Flats
  - RE8 Coastal Southern Fringing Reefs
  - RF1 Northern Open Lagoon
  - RF2 Central Open Lagoon
  - RF3 Southern Open Lagoon
  - RG1 Protected Mid Shelf Reefs
  - RG2 Exposed Mid Shelf Reefs
  - RH Strong Tidal Mid Shelf Reefs
  - RHC High Continental Islands
  - RHL Lead Line Reefs
  - RJ High Tidal Island Fringing Reefs
  - RK Inner Mid Strong Tidal Reefs
  - RBA-M Swains Mid Reefs
  - RBA-N Coral Sea Swains - Northern Reefs



# Bioregionalisation Mapping

Critical to identify "ecologically" distinct regions, supporting distinct communities, and physical / biological structures

- Depth Domains
- Physiographic Features
- Fronts and Water Masses
- Transition Zones

# Main factors for GBRMP Rezoning Success

The successful outcome relied heavily on:

Using best available science knowledge

High level of public participation; and

Consequent socio-political support



# A "Middle of the road" Perspective Where Top-Down Meets Bottom-Up

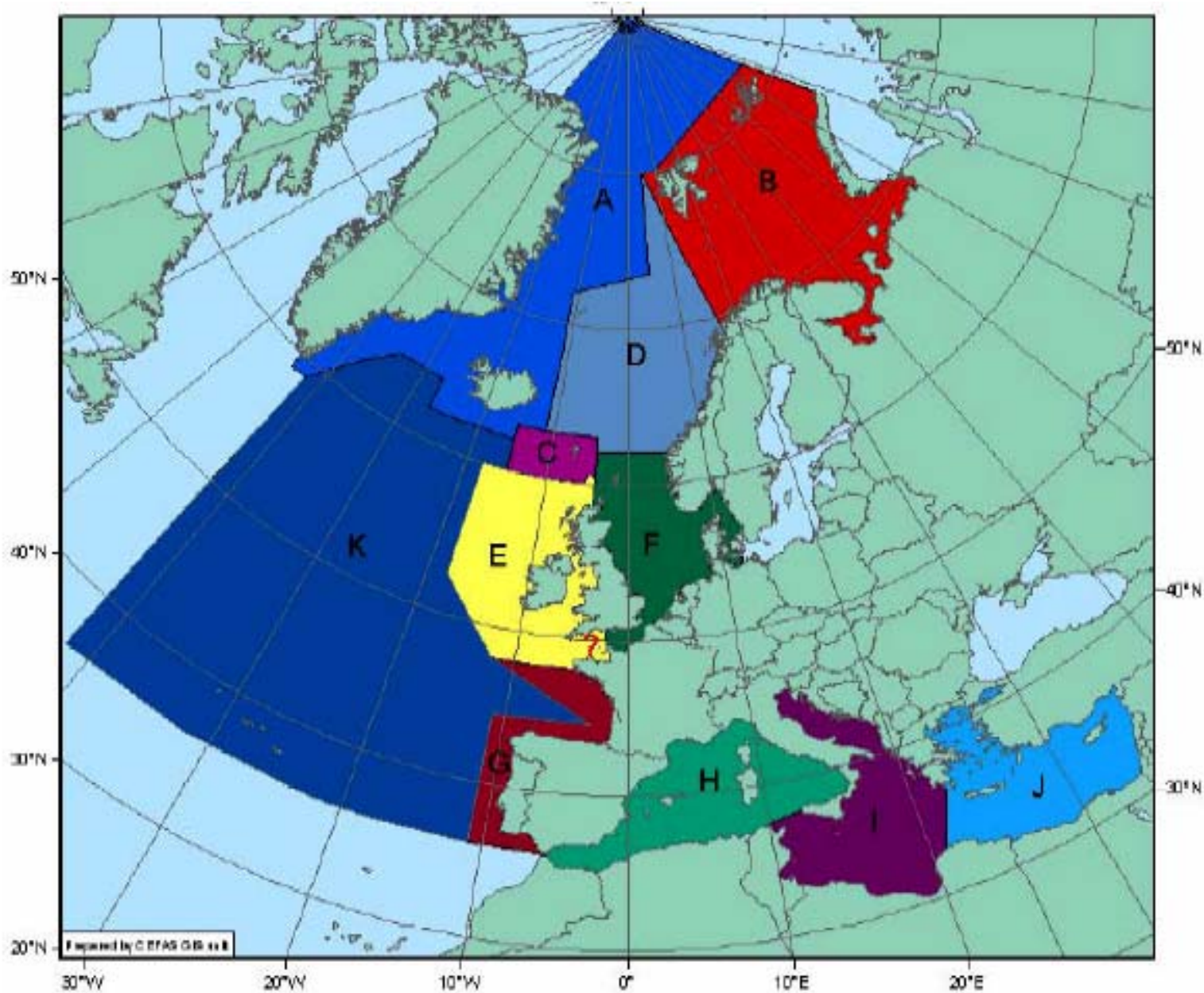
## Lessons from Recent European Experience with Marine Spatial Planning

Fanny DOUVERE  
Charles N. EHLER

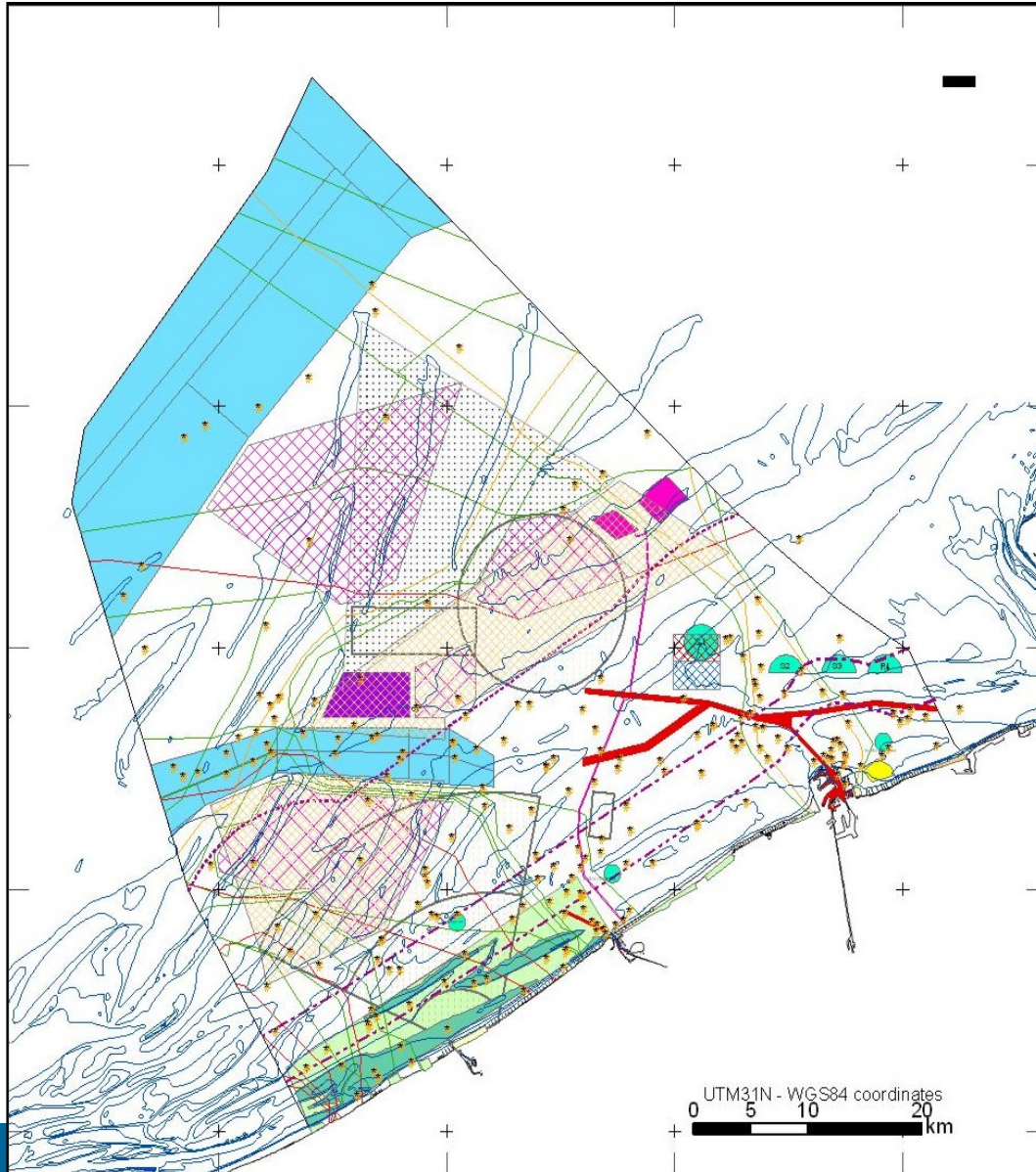
UNESCO

Man and the Biosphere Programme and  
Intergovernmental Oceanographic Commission  
Paris, France

# DEFINING THE MANAGEMENT UNIT



# MARINE SPATIAL PLANNING IN BELGIUM



## MASTER PLAN, 2004

### PHASE 1:

- Zones for Sand and Gravel
- Zones for Offshore Wind Energy

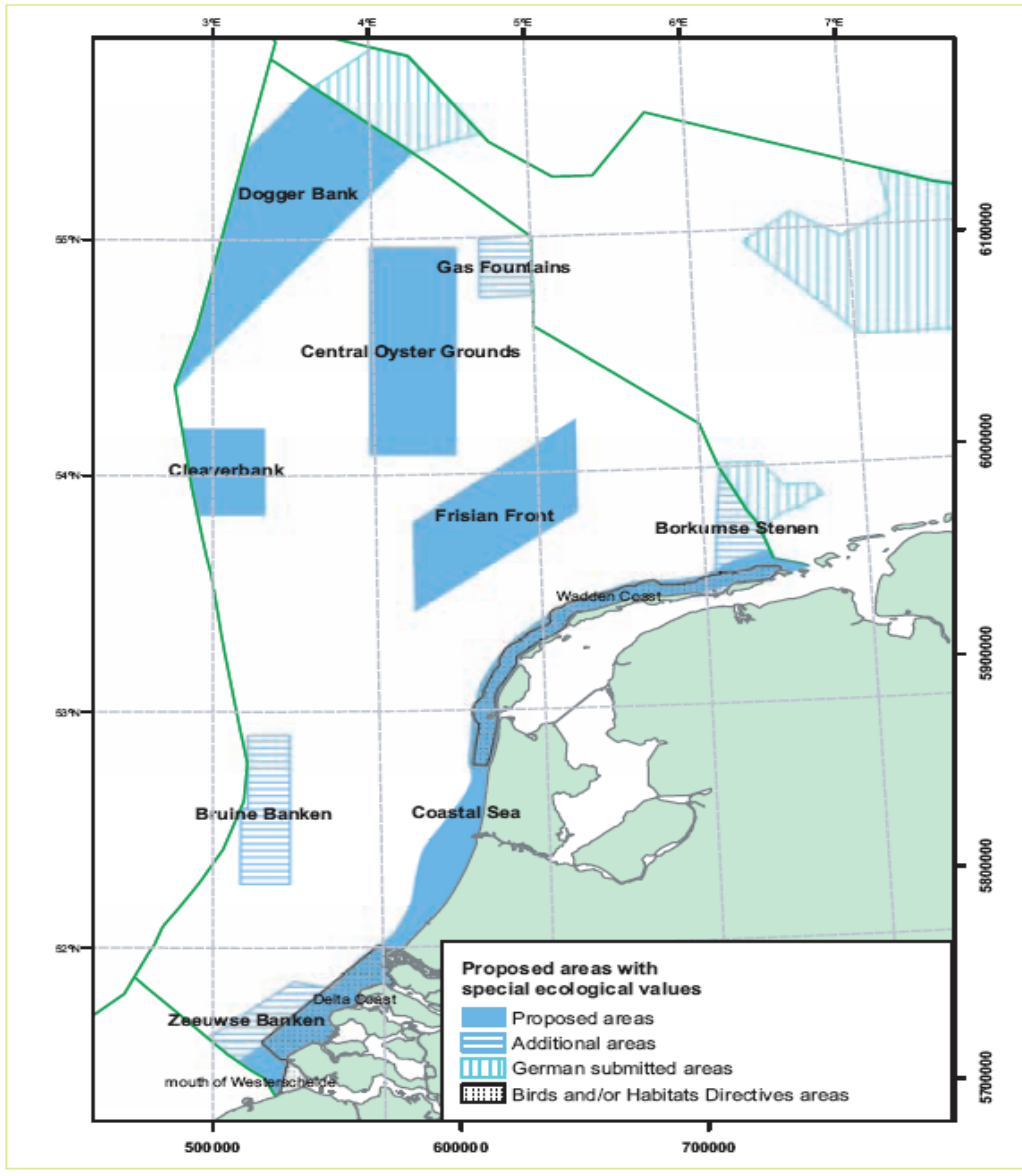
### PHASE 2:

- Bird Directive Zones
- Habitat Directive zones

# MARINE SPATIAL PLANING IN THE NETHERLANDS

## INTEGRATED MANAGEMENT PLAN, 2005-2015

- Economic effective use of marine resources
- MSP key tool for achieving this objective



# LESSONS FROM EUROPEAN EXPERIENCE WITH MARINE SPATIAL PLANNING

## BENEFITS

- Significant Reduction of Conflicts among Users
- Maximum Benefits from Sea Use by Encouraging Activities to Take Place Where They Bring Most Value and Do Not Devalue Other Activities
- Nature Conservation through Marine Protected Areas
- Reduced Costs of Regulation, Planning, and Management

## CURRENT GAPS

- Need for Comprehensive Legal Framework
- Need for Continuity
- Need to Link Integrated Coastal Management, Water Resource Management, and Sea Use Management
- Need for International and Regional cooperation
- Need for Stakeholder Participation

# Global Conservation Priorities

## REVIEW

(Brooks et al. 2006)

## Global Biodiversity Conservation Priorities

T. M. Brooks,<sup>1,2,3\*</sup> R. A. Mittermeier,<sup>1</sup> G. A. B. da Fonseca,<sup>1,4</sup> J. Gerlach,<sup>5,6</sup> M. Hoffmann,<sup>1</sup>  
J. F. Lamoreux,<sup>3</sup> C. G. Mittermeier,<sup>1</sup> J. D. Pilgrim,<sup>7</sup> A. S. L. Rodrigues<sup>5</sup>

The location of and threats to biodiversity are distributed unevenly, so prioritization is essential to minimize biodiversity loss. To address this need, biodiversity conservation organizations have proposed nine templates of global priorities over the past decade. Here, we review the concepts, methods, results, impacts, and challenges of these prioritizations of conservation practice within the theoretical irreplaceability/vulnerability framework of systematic conservation planning. Most of the templates prioritize highly irreplaceable regions; some are reactive (prioritizing high vulnerability), and others are proactive (prioritizing low vulnerability). We hope this synthesis improves understanding of these prioritization approaches and that it results in more efficient allocation of geographically flexible conservation funding.

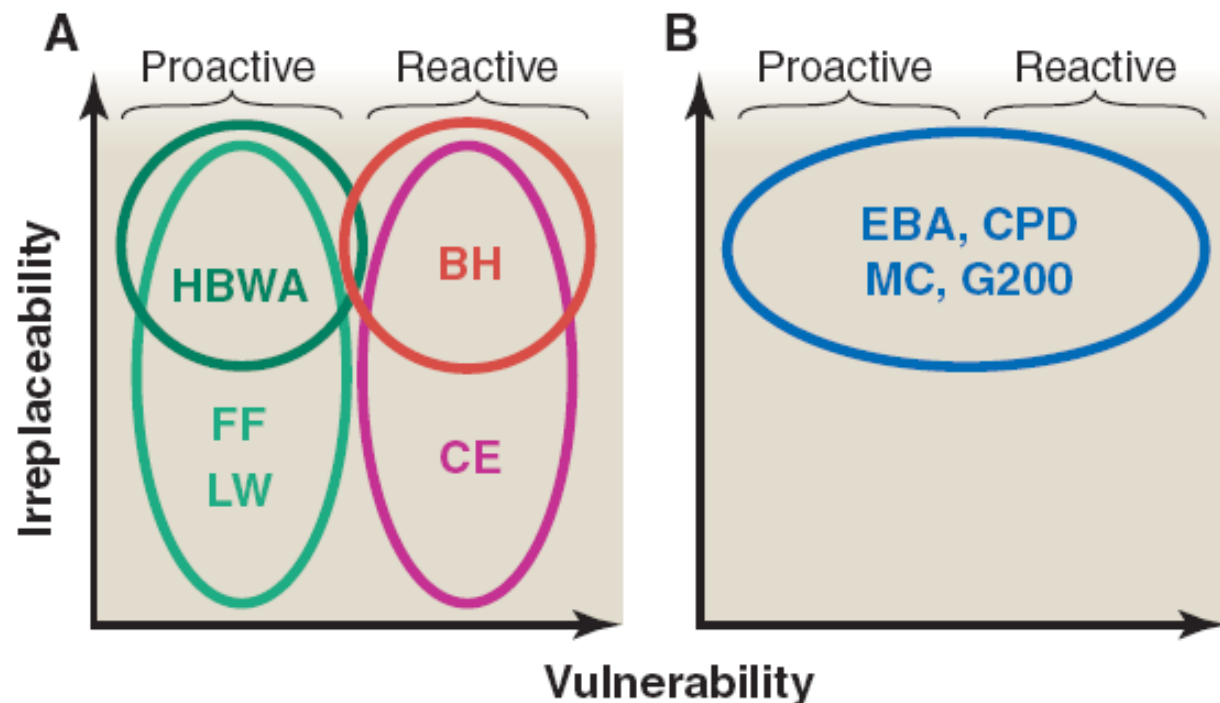
Review of 9  
approaches

Two Metrics:

“Irreplaceability”

“Vulnerability”

# Global Conservation Priorities



**Fig. 1.** Global biodiversity conservation priority templates placed within the conceptual framework of irreplaceability and vulnerability. Template names are spelled out in the Fig. 2 legend. **(A)** Purely reactive (prioritizing low vulnerability) and purely proactive (prioritizing high vulnerability) approaches. **(B)** Approaches that do not incorporate vulnerability as a criterion (all prioritize high irreplaceability).

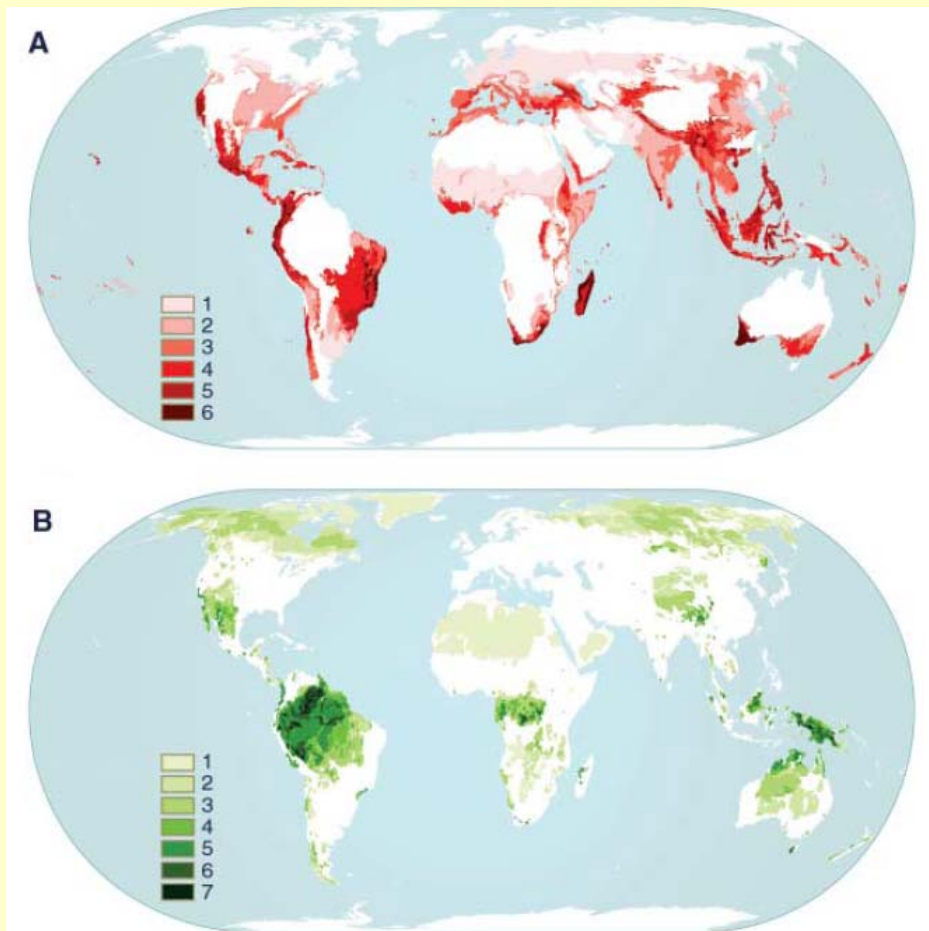
(Brooks et al. 2006)

**Target High "Irreplaceability":**  
Ensures targets will be met, maximizes outcome per investment

**Target High "Vulnerability":**  
Protect imperiled ecosystems

**Target Low "Vulnerability":**  
Protect more undamaged ecosystems proactively

# Global Conservation Priorities



REACTIVE -  
prioritize  
vulnerability

PROACTIVE -  
prioritize  
irreplaceability

**Fig. 3.** Mapping the overlay of approaches prioritizing reactive and proactive conservation. (A) Reactive approaches, corresponding to the right-hand side of Fig. 1A, which prioritize regions of high threat, and those that do not incorporate vulnerability as a criterion (Fig. 1B); the latter are only mapped where they overlap with the former. (B) Proactive approaches, corresponding to the left-hand side of Fig. 1A, which prioritize regions of low threat, and those that do not incorporate vulnerability as a criterion (Fig. 1B); again, the latter are only mapped where they overlap with the former. Shading denotes the number of global biodiversity conservation prioritization templates that prioritize the shaded region,

(Brooks et al. 2006)

# Hot Areas for Marine Conservation

*Aquatic systems feature poorly in existing conservation templates. Only one conservation prioritization explicitly incorporates aquatic systems (coral reefs)*

*Most measurement of irreplaceability is species based, raising concern that phylogenetic diversity may slip through the net of global conservation priorities*

*That global conservation priority regions capture phylogenetic history does not necessarily mean that they represent evolutionary process (e.g., transition zones)*

*A final dimension that will prove important to assess in the context of global conservation prioritization concerns ecosystem services (e.g., climate, fisheries, diseases)*

(Brooks et al. 2006)

# Space: The Final Frontier



# Lessons learned about the role of science

1. Don't wait for 'perfect science' or you will never start.
2. The value of a robust regionalisation as a basis of spatial planning.
3. Having a clear and transparent set of operating principles is critical.
4. The operating principles are based on the best available advice, but can always be improved.

# Lessons learned about political support

1. The boundaries between science and policy are constantly being renegotiated in political process.
2. It may be necessary to concede one or more particular aspects to achieve the overall outcome.
3. The more that legislators and politicians are involved (the more they are aware of the planning process), and the greater the community 'buy-in' to the final outcome, the more supportive the politicians will be.