



# Characteristics and Characteristic Drivers of Marine Protected Areas in the Mediterranean

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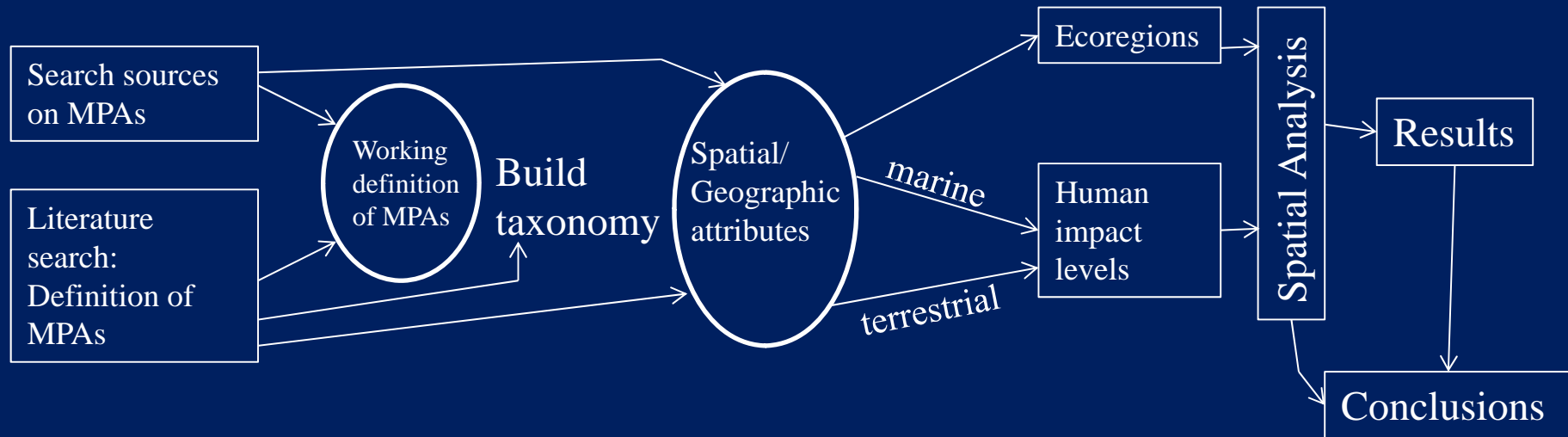


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# Designation and Management of Marine Reserve Networks (DEMARN)

- Part I— Spatial analysis and characterization of MPAs of the Mediterranean Sea
- Part II— Relationship between “conservation identity” and propensity for marine conservation
- Part III— Use of the decision support tools (DST) for MPA management and zoning

# PART I - Workflow



Countries, eco-regions, jurisdictions;

Levels of governance, IUCN protection categories, protection levels;

Areas of intense human impact and activity

# PART I – Spatial Analysis

What is an MPA? How many are there?

Study	Sponsors/source	No. of MPAs
Coll et al. 2011	Institut de Ciències del Mar, Spain	105
Abdulla et al. 2008	IUCN, WWF, MedPAN	94
Mouillot et al. 2011	Université Montpellier, France	100
Brouquere 2005	IUCN Centre for Mediterranean Cooperation	120 (W. Med. only)

# Marine News - IUCN Global Marine and Polar Programme Newsletter 2010-2011

## Marine Protected Areas



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## Mediterranean Sea

### Better management for more biodiversity

The Mediterranean Sea, one of the world's biodiversity hotspots, is increasingly threatened by human activities. The creation of Marine Protected Areas (MPAs) can reduce biodiversity loss, as long as these areas are managed effectively. Since July 2010, key actors from 6 European countries have

A threatened sea of worldwide importance

A number of important civilizations developed and expanded worldwide from the Mediterranean shores and lands, notably the Macedonians, Greeks, Carthaginians, Romans, Byzantines, Turks and the French

maritime traffic routes, connecting the Indian and Atlantic oceans with the countries of the Mediterranean basin and the Black Sea.

This long history of human settlements and developments has led to significant alterations to the Mediterranean Sea's natural environment

and distribution of native species. The accumulated effects of these threats are of great importance, especially since the Mediterranean basin is considered one of the world's biodiversity hotspots. Out of approximately 12,000 Mediterranean marine native species, 25 to 30% are endemic or exclusively found in the Mediterranean Sea. Conserving Mediterranean marine and coastal biodiversity is therefore crucial to slow current biodiversity loss and reach the Convention of Biological Diversity (CBD) targets for 2020.

#### Mediterranean MPAs

MPAs are set up with a conservation goal as well as to promote sustainable use of natural resources. They are also important for the preservation of local culture and associated historical features, such as submarine and ecological ones. According to the last report from the Regional Activity Centre for Specially Protected Areas (SPAs) there are over 75 SPAs in the Mediterranean, covering 144,000 km<sup>2</sup>. This includes a diverse array of sites under different protec-

Mediterranean Sea. However, the distribution of these sites is uneven, with a greater proportion occurring in the northern and western part of the basin. The protection figures are still far from the 2020 CBD target, which proposes that we should effectively protect at least 10% of coastal and marine ecosystems.

In addition to increasing the number of MPAs in the Mediterranean, effective management of existing MPAs is crucial to reach intended objectives. A designated MPA without effective management is simply a paper park lacking the necessary means and measures to reach its conservation and sustainable use targets.

#### MedPAN NORTH project

The MedPAN Association was created as a legally independent structure under French law at the end of 2008 to represent managers of Mediterranean MPAs. Its purpose is the establishment and the effective operation of a Mediterranean network of MPAs to support the conservation of regionally important coastal and

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MARINE NEWS — MARINE PROTECTED AREAS

2010. It aims to improve the management effectiveness of Mediterranean MPAs. It brings together 12 key actors from 6 European countries bordering the Mediterranean: Spain, France, Greece, Italy, Malta and Slovenia. The main project activities aim to promote innovative aspects of MPA management and a more sustainable management of fisheries and tourism.

IUCN-Med is collaborating closely with MPA managers and leading the project's technical aspects to promote innovative aspects of MPA management. In particular, a harmonized methodology will be provided to Mediterranean MPA managers to assess the effectiveness of their MPAs. IUCN will also assist managers in developing guidelines on how to address climate change and in designing a common strategic orientation and monitoring programme for invasive species.

For more information, please visit:

[http://iucn.org/about/union/secretariat/offices/iucnmed/iucn\\_med\\_programme/marine\\_programme/med-pan](http://iucn.org/about/union/secretariat/offices/iucnmed/iucn_med_programme/marine_programme/med-pan)

# Sources of Information

The Network of Managers of Marine Protected Areas in the Mediterranean (MEDPAN)

A Database of the World's Marine Protected Areas

World Database of Protected Areas

World Wildlife Fund

National Oceanic and Atmospheric Administration, USA

International Union for Conservation of Nature

Regional Activity Center for Specially Protected Areas

International Partnership of Science

Marine Protected Areas as Tools for Fisheries Management and

Conservation

~~INLAND LAKES~~

~~COASTAL FORMATIONS~~

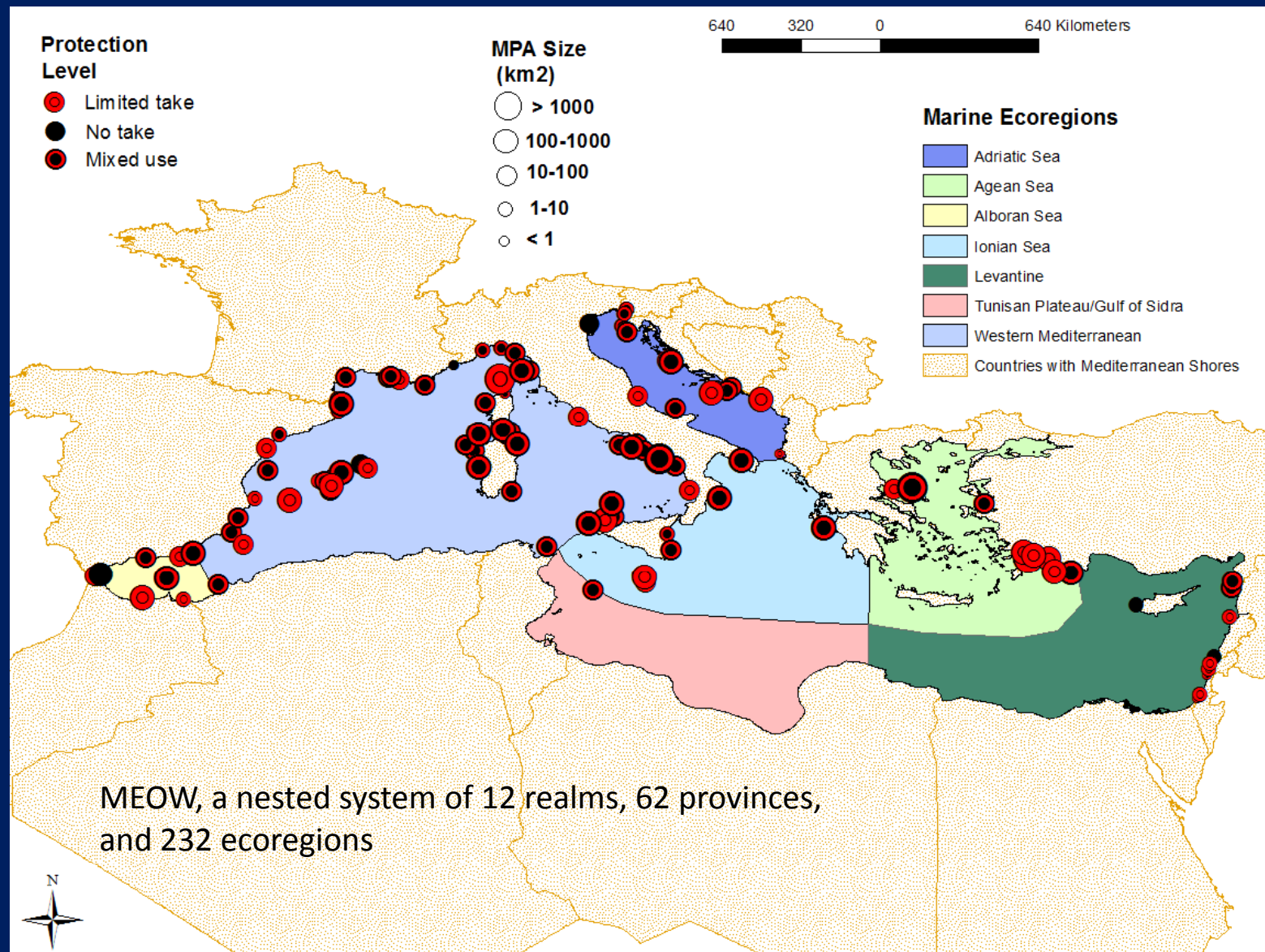
~~DELTA & ESTUARIES~~

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~~ISLANDS~~

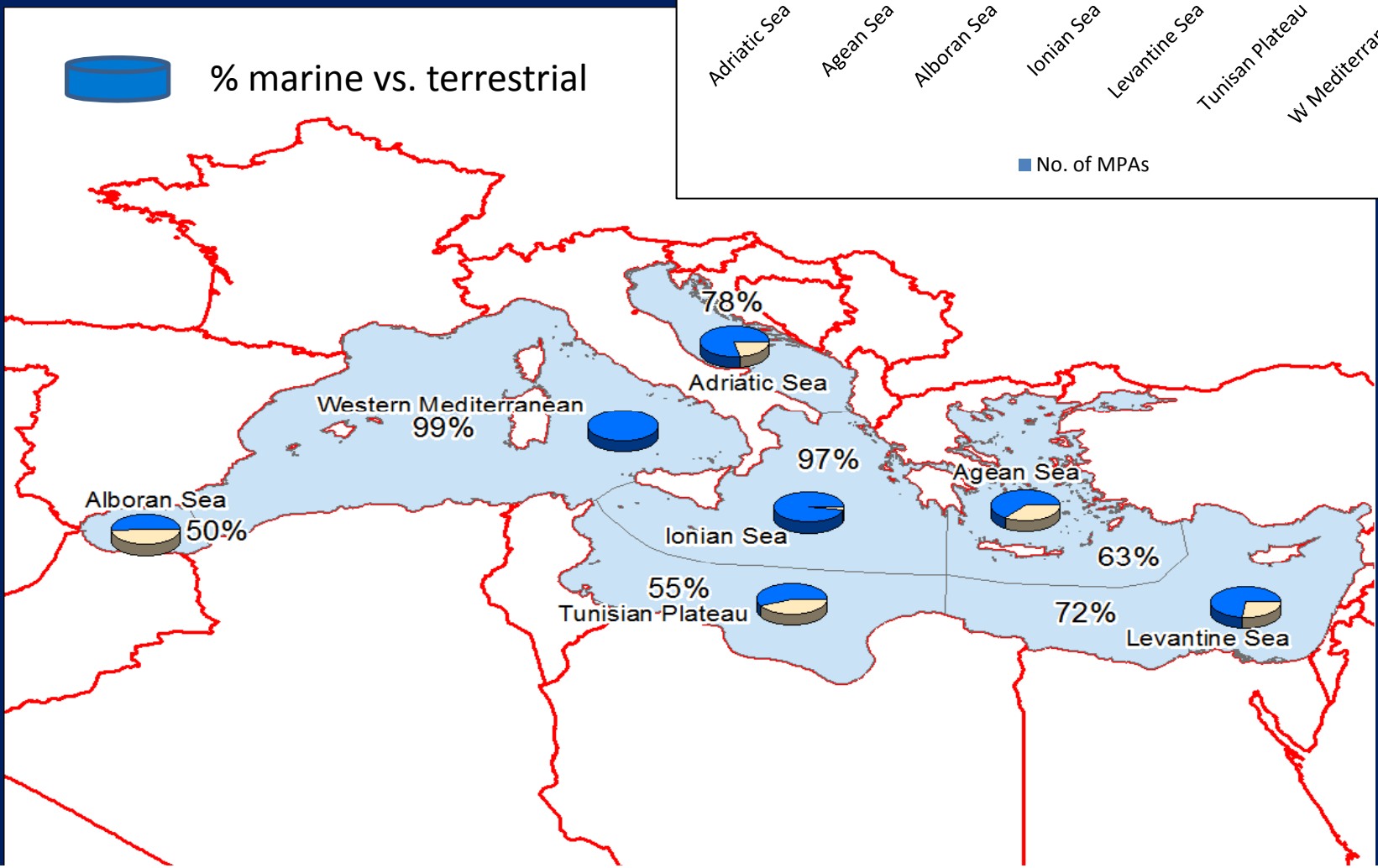
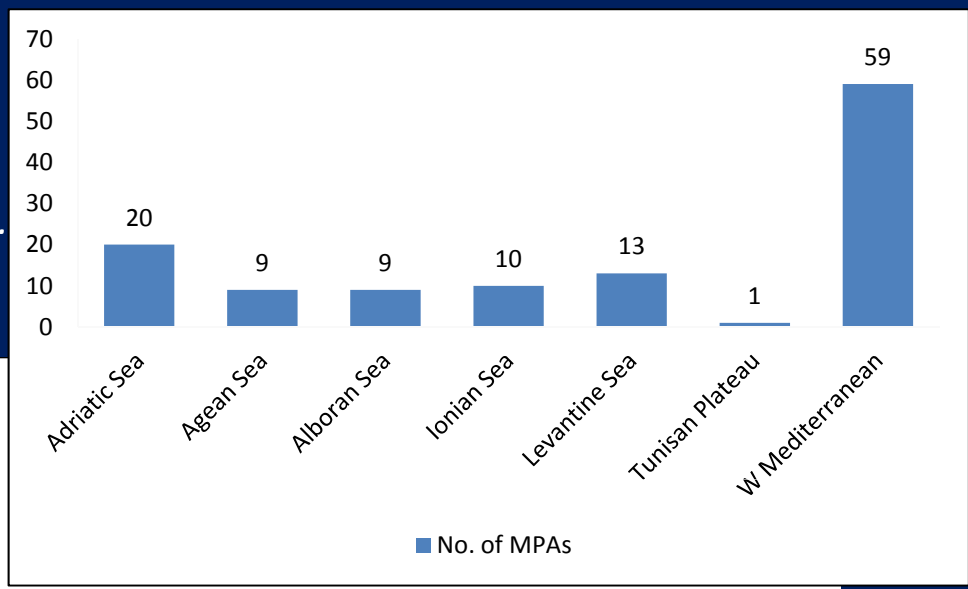
~~WETLANDS/LAGOONS~~



### Ecoregions from MEO:

Spalding, M. D., et al. (2007). "Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas." *Bioscience* 57(7): 573-583.

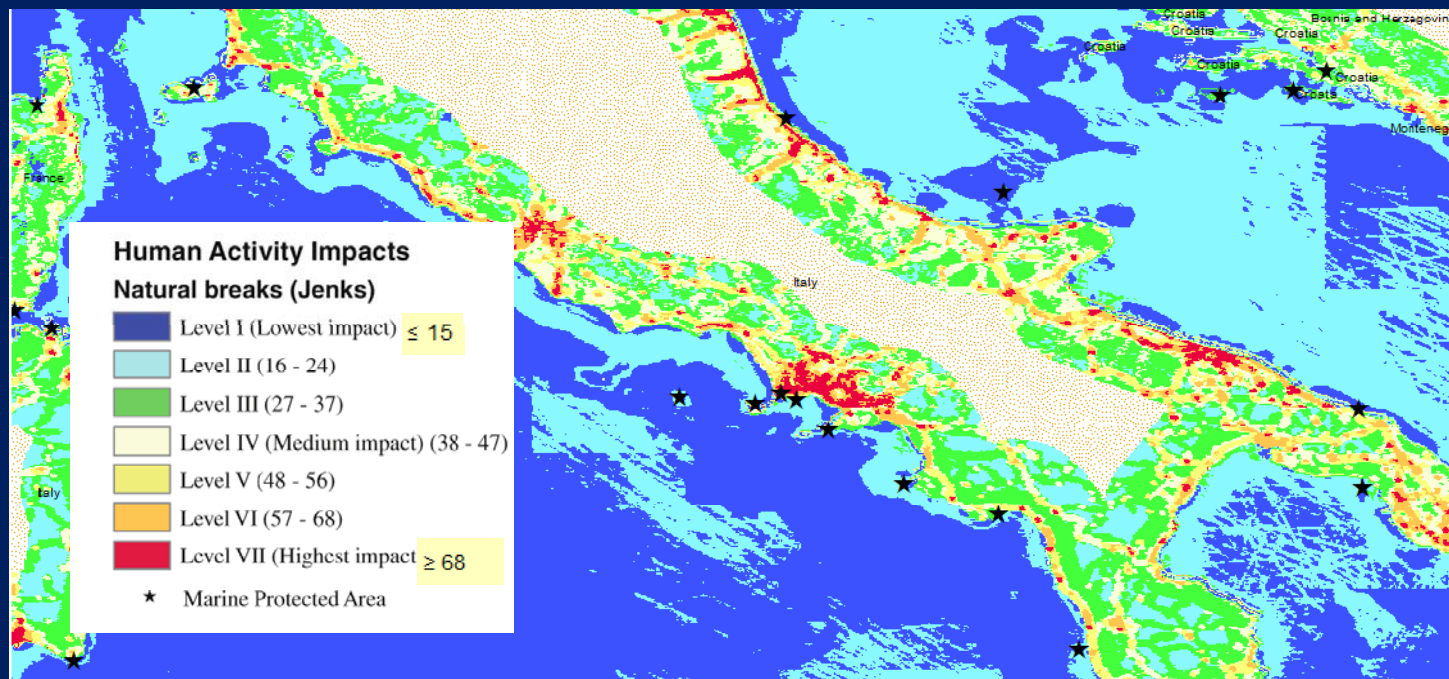
Portman, M. E., Nathan, D., Levin, N. (2012)  
 "From the Levant to Gibraltar: A Regional  
 Perspective for Marine Conservation in the  
 Mediterranean Sea"  
*Ambio — Journal of the Human Environment.*  
 doi:10.1007/s13280-012-0298-x





# Human Activities Models

- Sanderson et al. (2002)'s proxies: human population distribution, urban areas, roads, navigable rivers, and agricultural land uses; Combined influence is normalized by global biomes - impact scores (WCS 2011).
- Halpern et al. (2008) used expert opinion to rate the impact of marine uses (fishing, mining, etc) on marine ecosystems.
- Standardized and combined at resolution of 1 km<sup>2</sup> cells.



# Survey Results

## Spatial Extents:

16% (19 of 117): more terrestrial than marine area  
13% < 1 sq km.; 15% have marine areas < 1 sq km

## Spatial distribution can be generalized thus:

Most MPAs are near shores; 94% are within territorial waters  
Most are small 40% < 100 sq km; 30% < 10 sq km  
Most are listed as level IV of the IUCN protection categories  
The average distance between MPAs: 50 km

In some countries there seems to be preference for proximity of MPAs to high human impact areas more than others.

PART II – Conservation “Identity”  
and  
Propensity For  
Marine Conservation

# Independent Variables – Country Identity

## HUMAN IMPACTS

*Terrestrial impact average for the country 50 buffer*

*Marine impact average for the territorial Sea*

*Marine impact average of area within EEZ*

*Combined marine and terrestrial human impact level*

## CONSERVATION CHARACTERISTICS

- *Number of non-M protected areas in country*
- *Country non-M Protected area total*
- *Average MPA size in country*
- *Country MPA marine area vs. country MPA terrestrial area country*
- *Country MPA area total (marine + terrestrial)*
- *Length of coast*

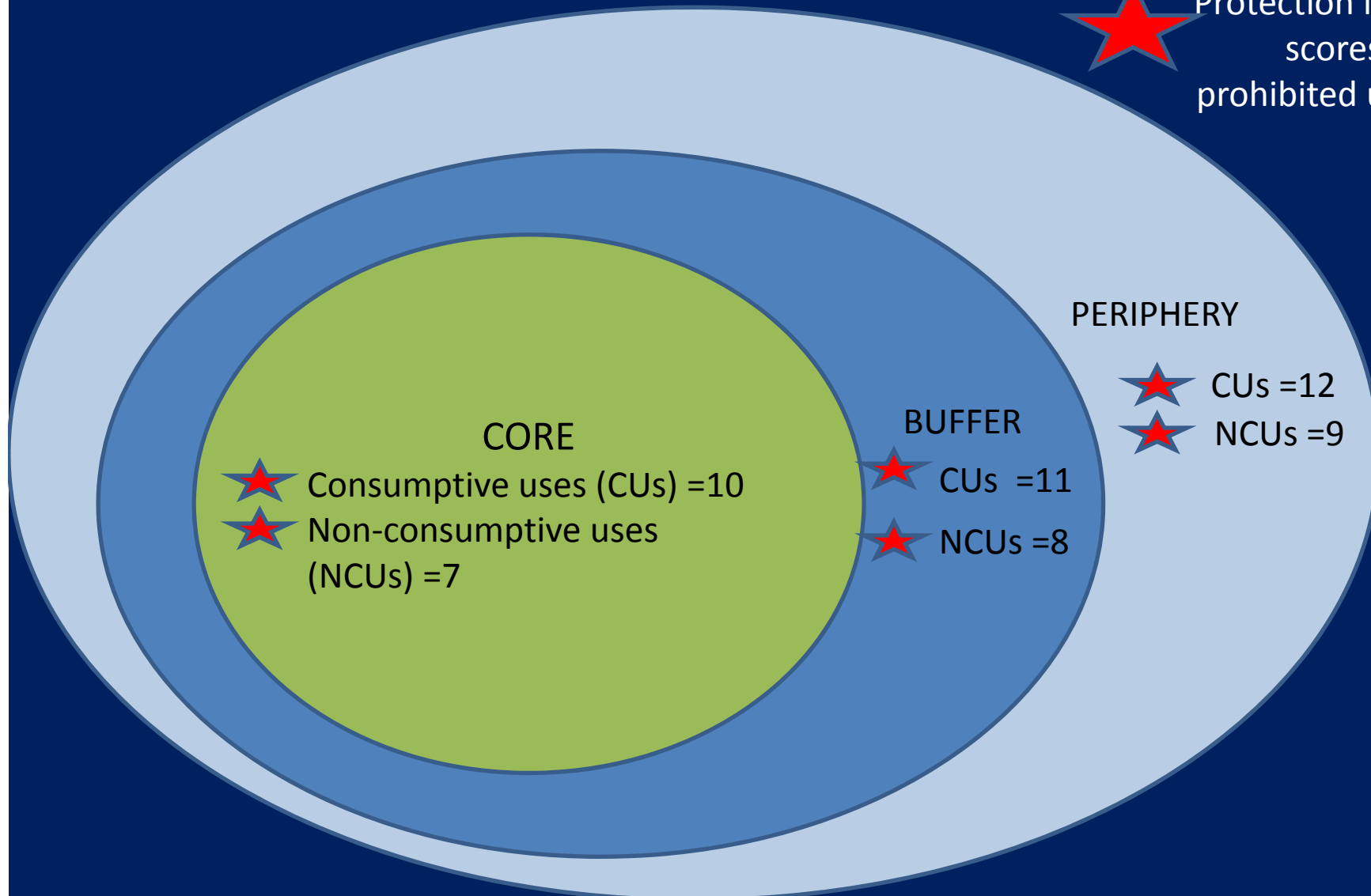
## ECONOMIC

- *Country GDP*
- *Country Fishing Activity— tonnage, fleet*
- *Country Income from fishing activity in dollars/euros*

# Dependent Variable

## Average MPA protection level

★ Protection level scores for prohibited uses



# MPA Protection Level Grade (Dependent variable- country score)

	Prohibited (%)**	Each use value	Regulated (%)**	Each use value
<b>Core</b>				
Consumptive Use*	66 (97)	10	14 (21)	4
Non-consumptive Use*	47 (69)	7	67 (99)	1
<b>Buffer</b>				
Consumptive use*	51 (98)	11	48 (86)	5
Non-consumptive Use	13 (25)	8	54 (96)	2
<b>Periphery</b>				
Consumptive Use*	29 (97)	12	37 (93)	6
Non-consumptive Use*	5 (17)	9	36 (90)	3

\*At least one activity of each type is prohibited or regulated.

\*\* From among those MPAs with each zone type (i.e., core, buffer, periphery)

**Consumptive Uses:** Recreational Fishing, Commercial Fishing, Spearfishing

**Non-consumptive Uses:** Tourism, Diving, Swimming, Education, Anchoring, Mooring, Boating

# Contribution

To discover:

- whether certain Med countries have a tendency towards marine conservation and if so, why?
- whether a marine conservation tendency is significantly different than one for land conservation
- where establishing spatially managed protected areas using zoning are making the greatest contribution (Are protection level scores associated with high/low impact areas?)



*Thank you for listening....*



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