

11 September 2018

Las Palmas de Gran Canaria Spain



Workshop Maritime Spatial Planning for Islands



Critical issues in island MSP

Dania Abdul Malak
Director ETC-UMA, University of Malaga



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Contributors

Dania Abdul Malak (ETC-UMA; Director)

Ameer Abdulla (ETC-UMA Senior Advisor; Assoc. Prof. GCI,UQ)

Antonio Sánchez Espinosa (ETC-UMA; Data Analyst and GIS)

Sonsoles San Román (ETC-UMA; Communication officer)



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Main messages

- I. **Island communities may be more resource dependent and vulnerable than the mainland due to their unique biodiversity and oceanography, consequently a holistic approach to assessing and managing (EBM) is more of a priority.**
- II. **Mapping the activities of multiple sectors as well as sensitive areas is key in island MSP, as considering single (not multiple) impacts without geolocating sensitive marine habitat / critical ecosystem services will mislead spatial prioritization of management interventions.**
- III. **An EBM approach in island MSP ensures that socio-ecological resilience and uncertainties (the future) are addressed while user conflict (the present) is reduced thus allowing for a balance between immediate and long term needs.**



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Endemism and biodiversity in Islands

- ✓ **Islands cover small proportion of Earth's surface (around 5%) but host a remarkable range of exceptional biodiversity that resulted from high selective pressure**
 - 50,000 plant species and 15% of all mammals and birds being found on islands
- ✓ **Genetic diversity and population sizes tend to be limited, and species often become concentrated in small confined areas**
- ✓ **Endemism is very high in Islands - few examples**
 - >90% of Hawaiian and >50% of Mauritius species are endemic
- ✓ **One third of the Earth's conservation hotspots are islands**
 - seven of the 10 coral reef hotspots surround islands
 - around 50% of all recorded animal extinctions in the last 400 years were island species

Biodiversity is unique in terms of its vulnerability. It demonstrates the

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climate change and invasive species far before they are visible

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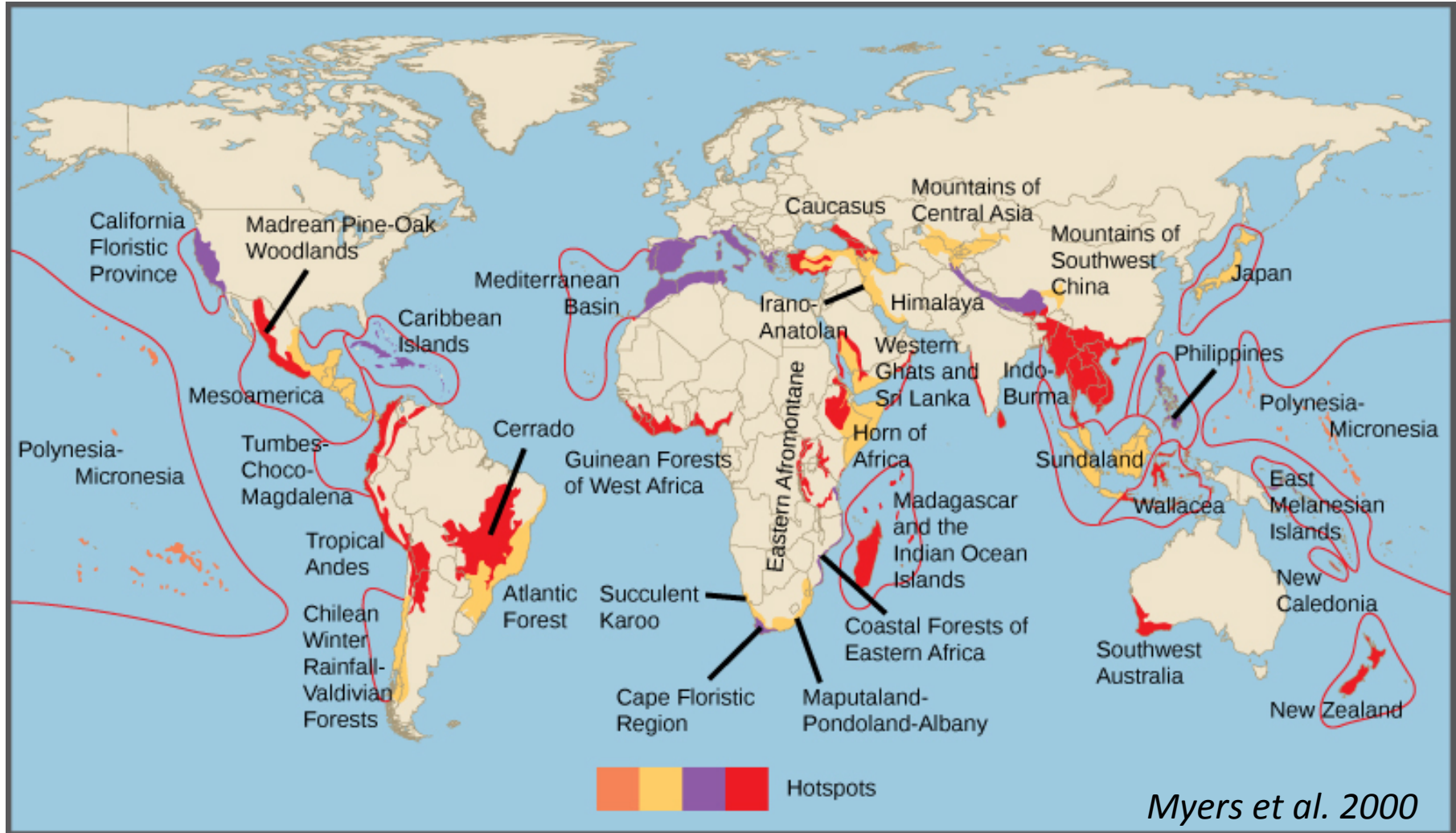
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Islands – Biological diversity hotspots



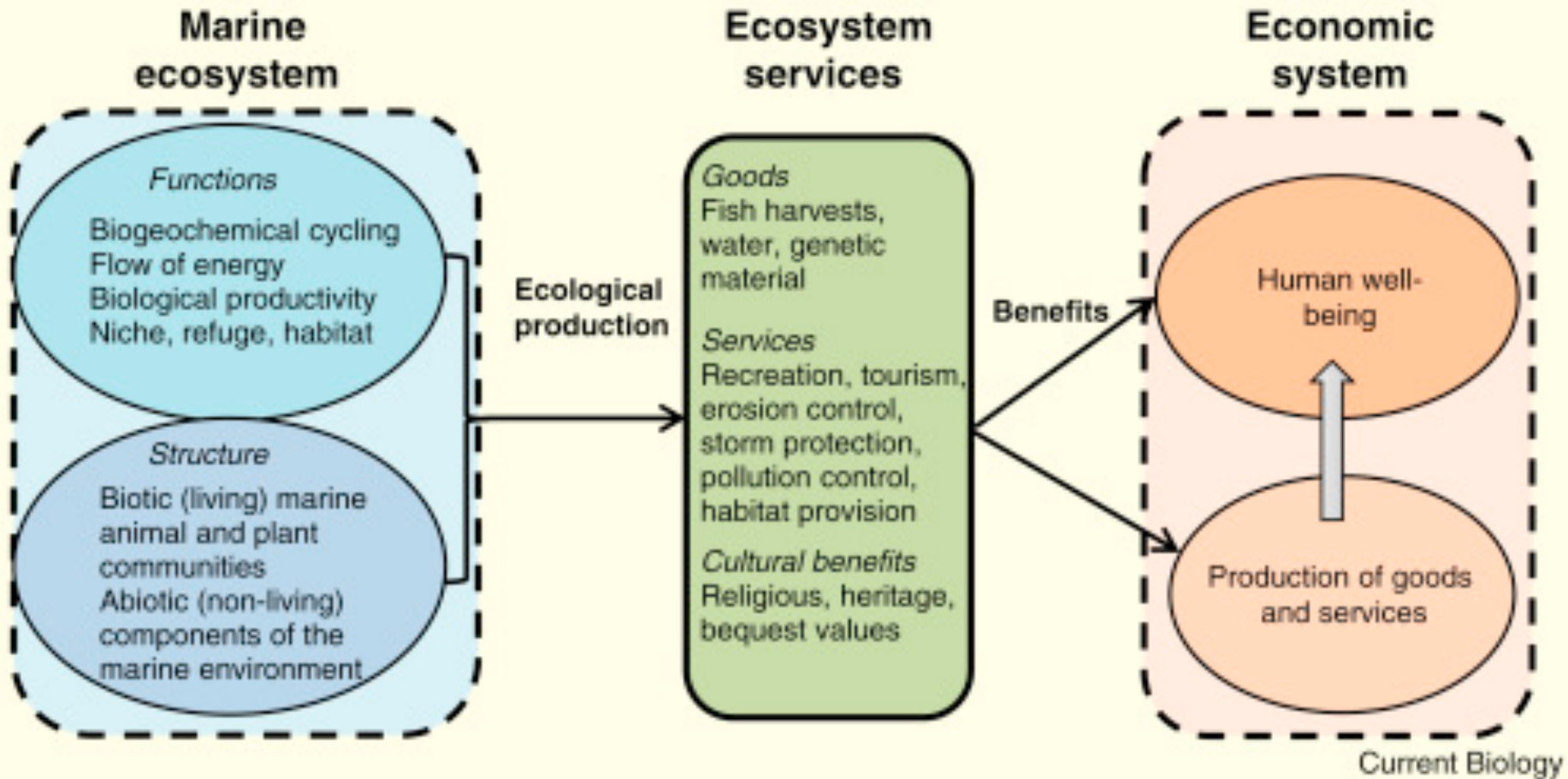
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Ecosystem services provided by marine



Barbier 2017



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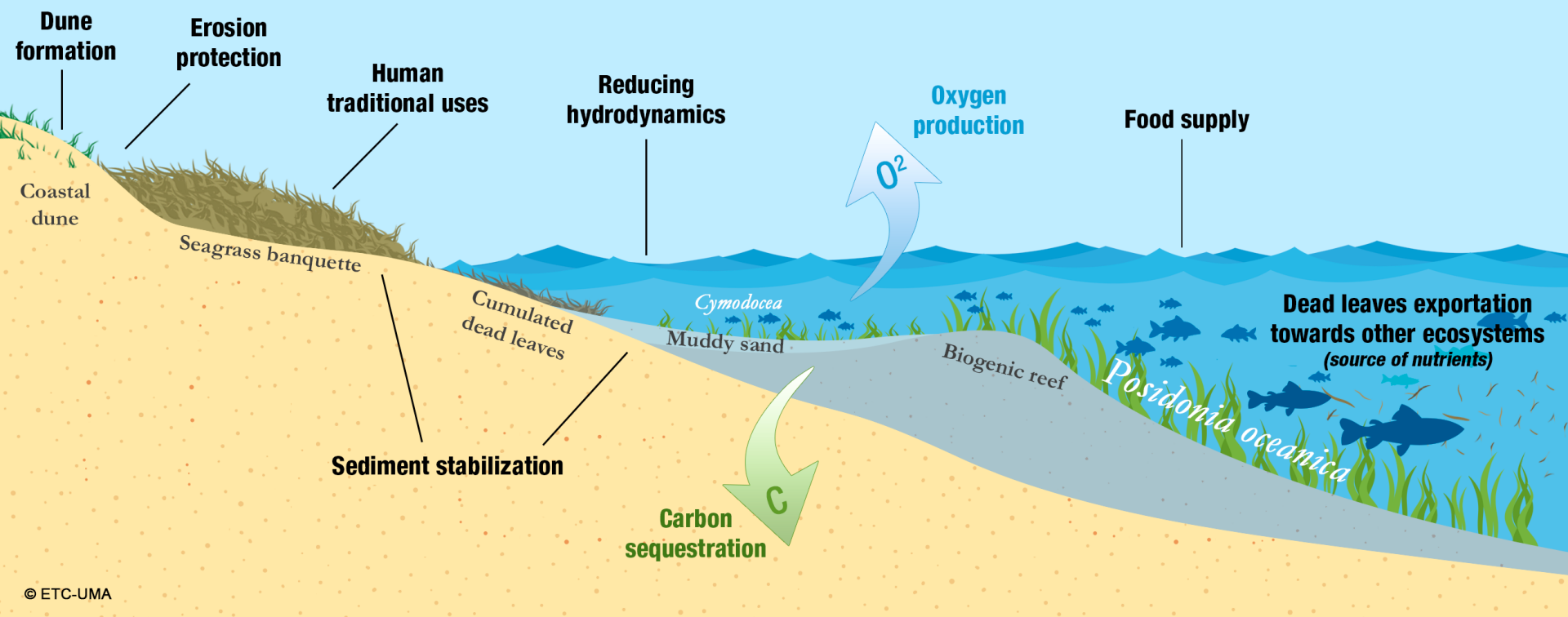
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Ecosystem services provided by coastal and marine ecosystems – LSI example

ECOLOGICAL CYCLE OF *Posidonia oceanica* MEADOWS



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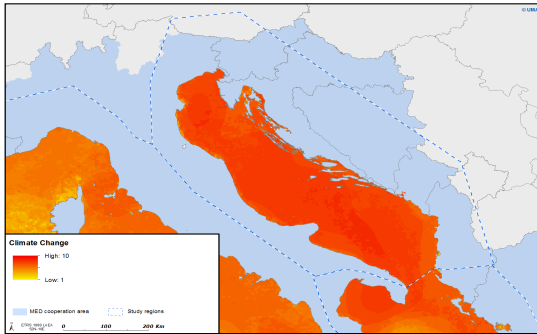
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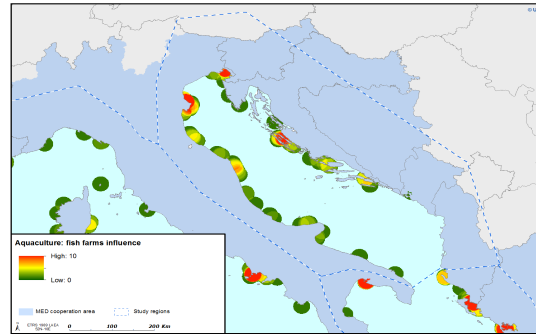
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MSP – isolated vs. cumulative pressures

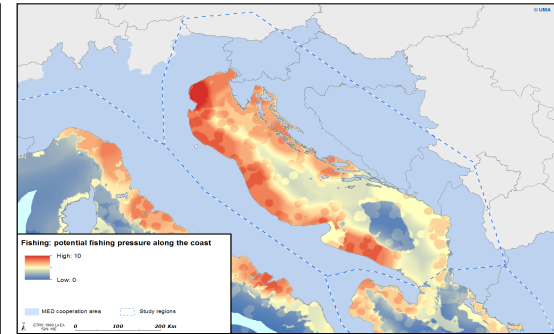
Climate change



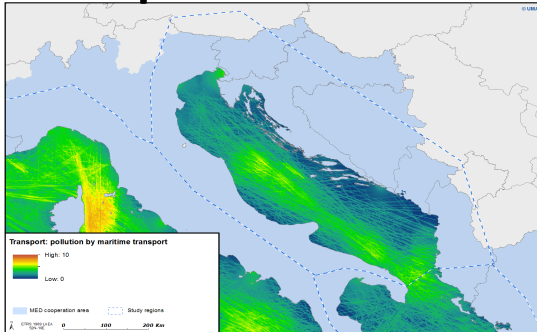
Aquaculture



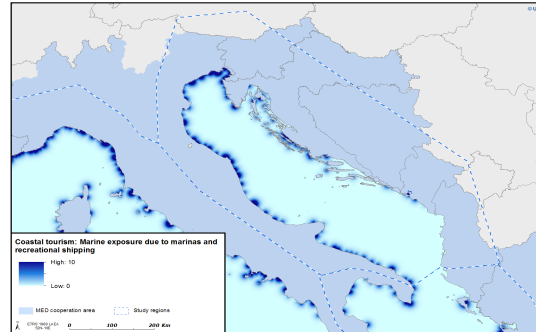
Fishing



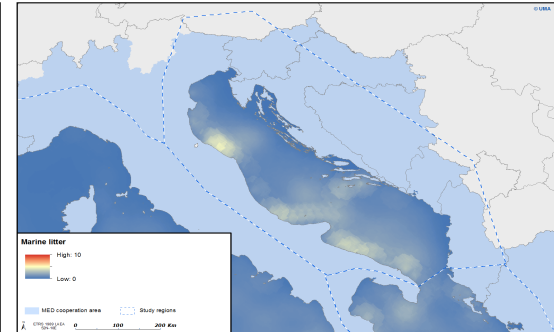
Transport



Tourism



Marine litter



Abdul Malak et al. 2018



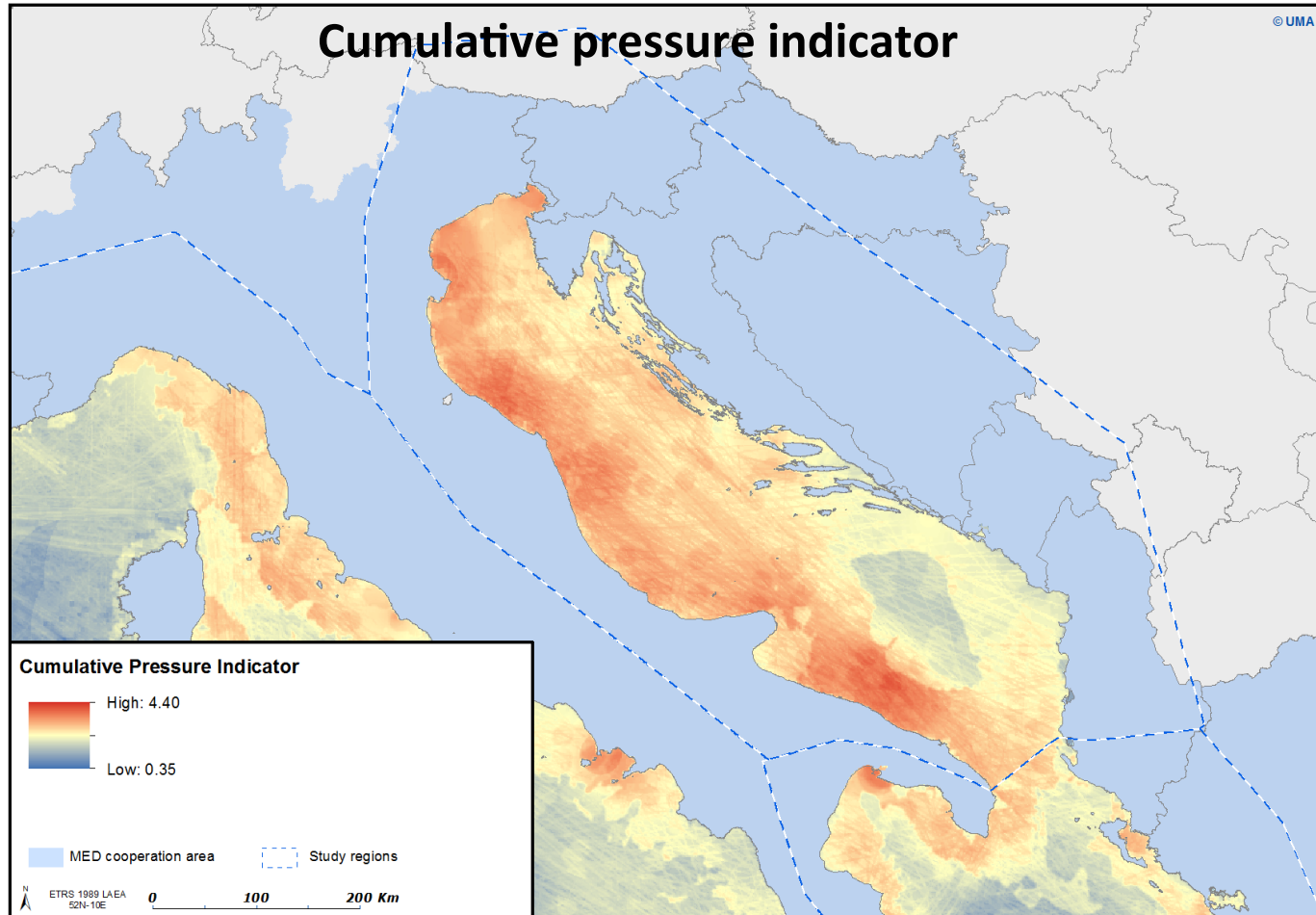
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MSP – isolated vs. cumulative pressures



Abdul Malak et al. 2018



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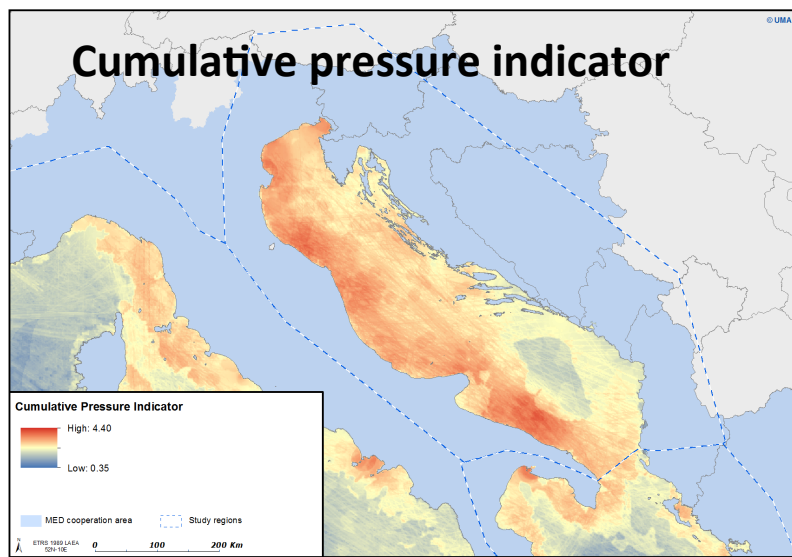
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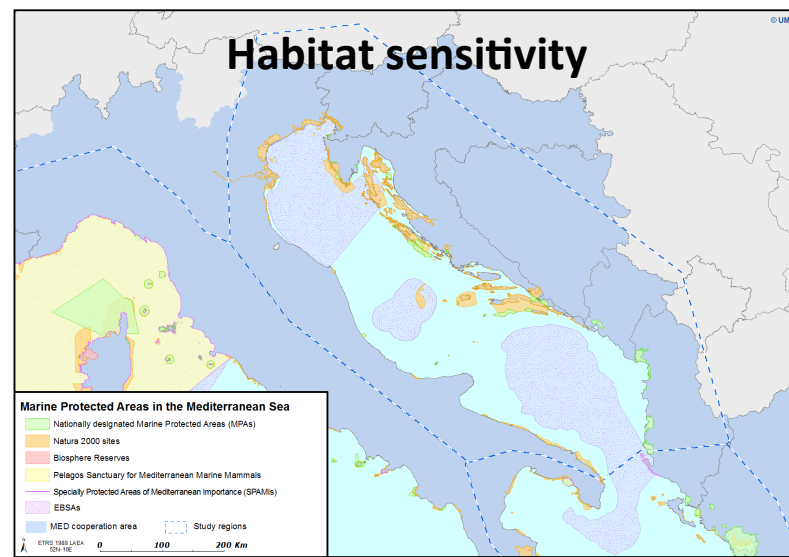


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MSP – considering cumulative impacts at ecoregional scale



Vs.



Abdul Malak et al. 2018



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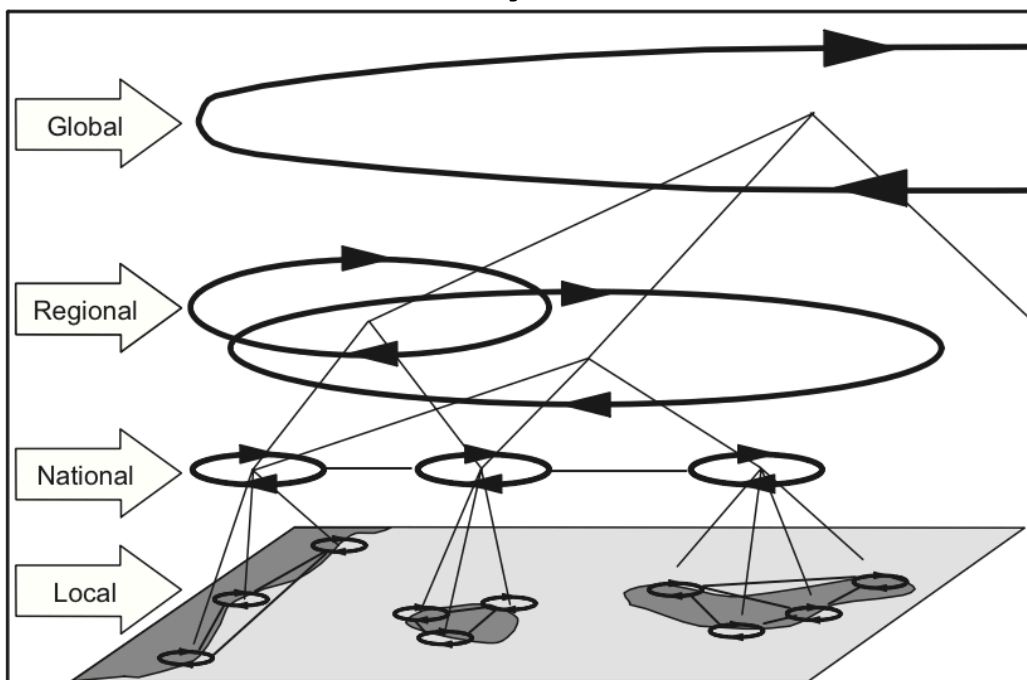
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EBM – Understanding socio-ecological processes

At different spatial scales

NESTED APPROACH:

All scales are necessary and have to be linked



Fanning et al. 2013

It reflects governance aspects as well as on both environmental and socio-economic objectives

- ✓ Depending on the level of the management and conservation objectives of the plan (governance and resource scales), and on where priorities have to be placed
- ✓ At ecoregional and regional level more strategic objectives orienting actions and measures and embracing all parties transnationally under a common framework

✓ At national and local level

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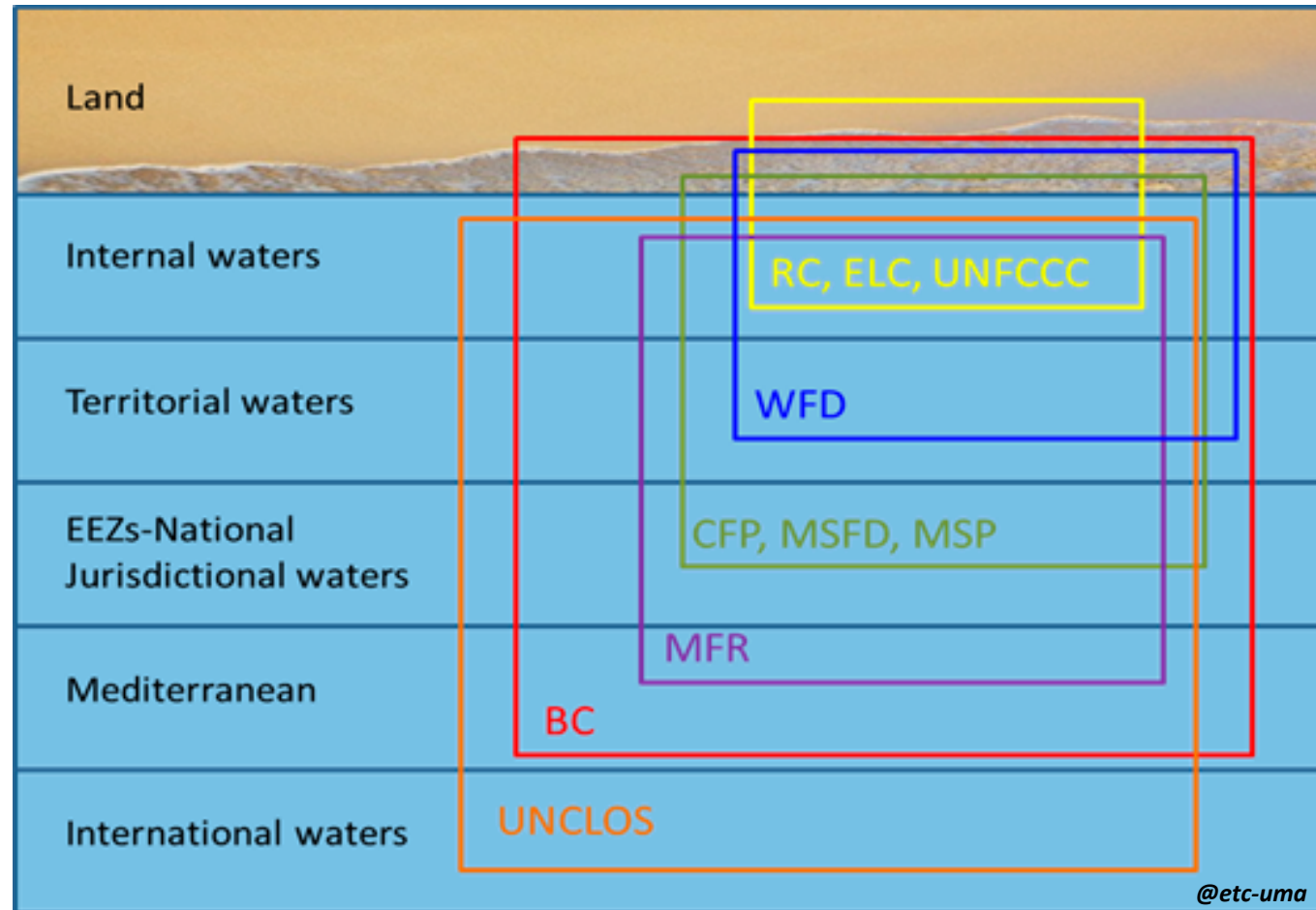
objectives become operational



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MSP – vital tool for adopting EBM at different scales



directed towards a range of coastal and maritime activities (isolated vs. aggregated impacts)

Accounts for ecosystem interactions at all scales (ecosystem function),

consider the full range of tradeoffs, interactions & cumulative effects required across this range of responsibilities

Abdul Malak et al. 2015



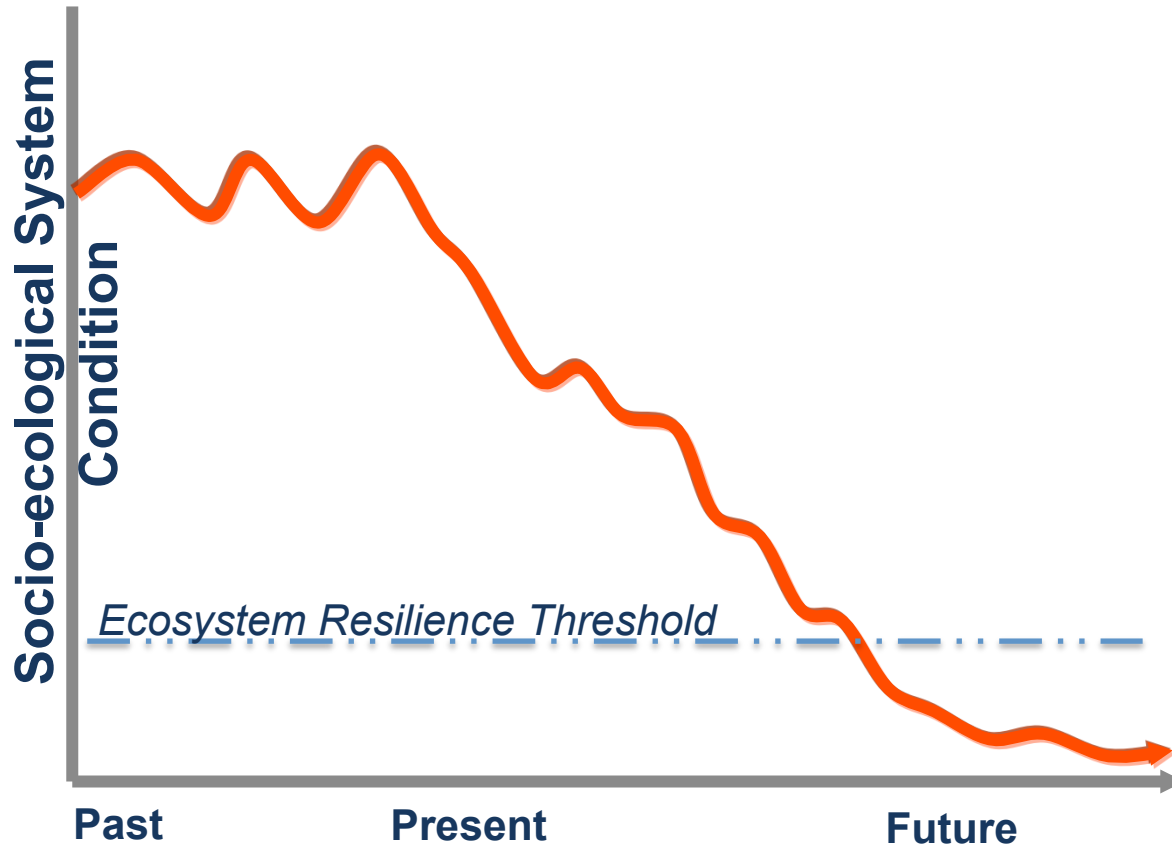
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Applying resilience concepts in ecosystem based management



Abdulla 2017

Normal (business as usual) Management:

- Managing individual species, habitats, or sectors
- 1 year perspective / projects
- Managing commodities
- Reactive
- Tools: none, single species management, pollution management, etc

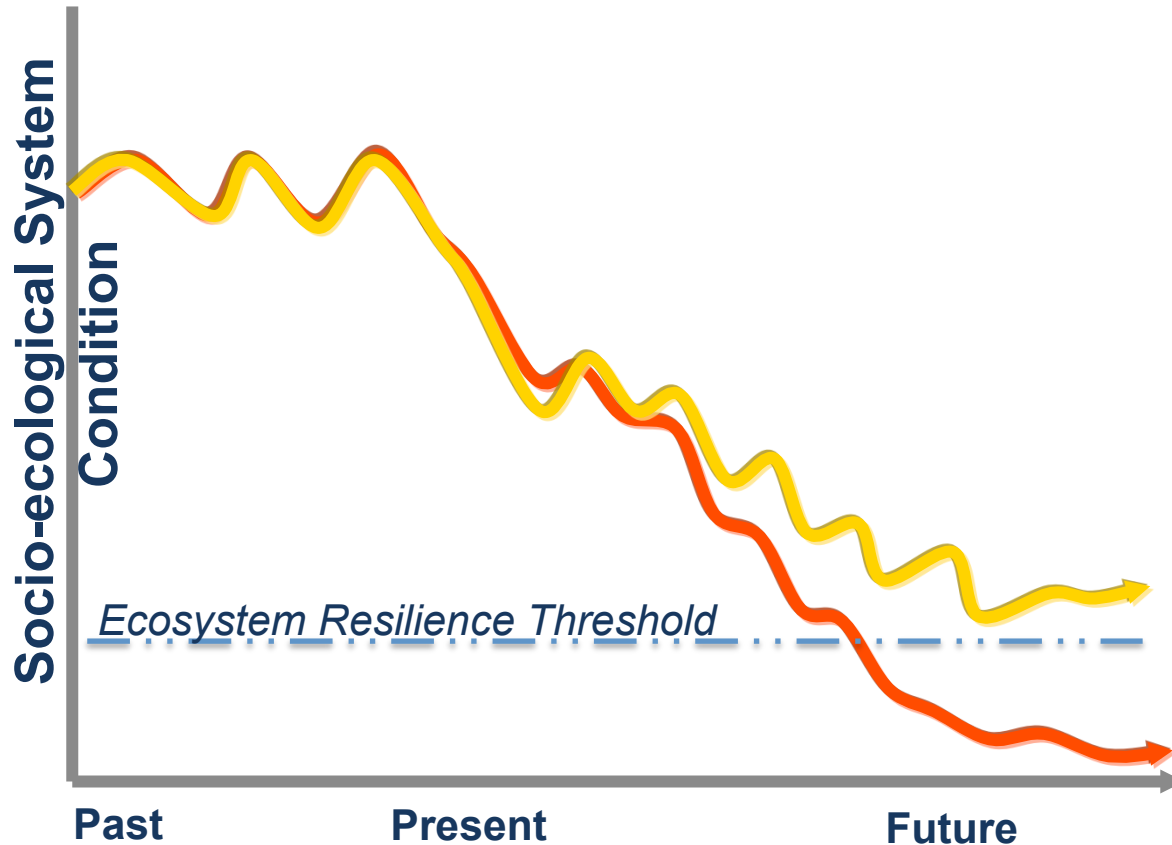


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Applying resilience concepts in ecosystem based management



Abdulla 2017

Incremental EBM:

Managing groups / functional guilds of species or habitats

Integrated management of a few sectors using a site

Coordinated management at local and state level

3-5 year perspective

Managing activities with commodities in mind

Tools: MPA, MMA, LMMA

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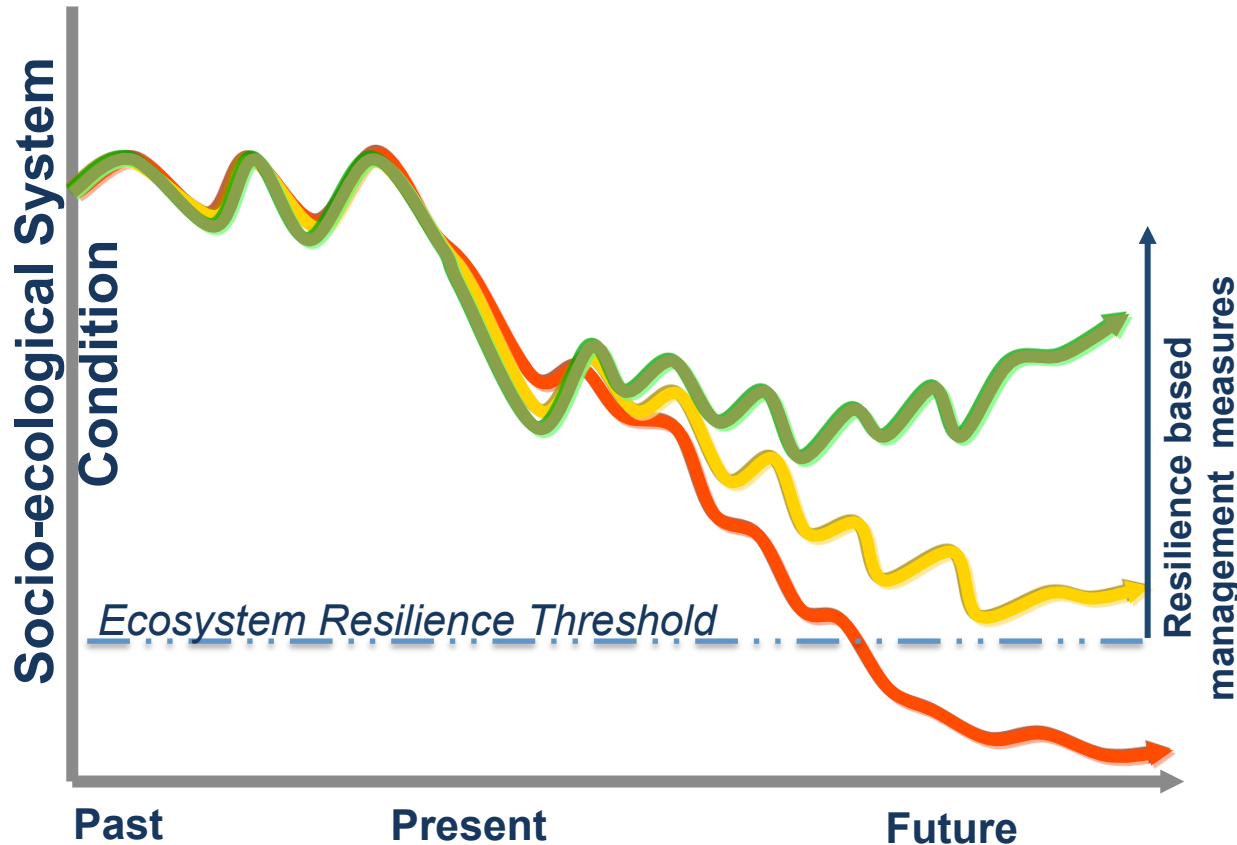
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Applying resilience concepts in ecosystem based management



Abdulla 2017

EBM:

- Managing whole ecosystems
- Integrated across all sectors/ using impacting sites
- Managing ecosystem functions, processes, and services
- Long term 20+ year perspective
- Proactive
- Tools: ICZM, MSP, IWM

Incremental EBM:

- Managing groups / functional guilds of species or habitats
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- 3-5 year perspective
- Managing activities with commodities in mind
- Tools: MPA, MMA, LMMA

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Thank you for your attention

For more information

Dania Abdul Malak
ETC-UMA Director



UNIVERSIDAD
DE MÁLAGA

danialabdulmalak@uma.es

www.etc.uma.es



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