

# Towards a global dataset of seagrass occurrences

*Current progress, knowledge gaps, and challenges*



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# Positioning biodiversity at the heart of decision-making

UNEP-WCMC's mission:

*To provide authoritative information about biodiversity and ecosystem services in a way that is useful to decision-makers [...]*

Local, regional and global scale biodiversity data are needed by:

## National governments

Reporting under policy, (spatial) planning, natural capital accounting, Environmental Impact Assessment, screening (permitting)...

## Inter-Governmental Organisations

Policy development & implementation, assessments (e.g. IPBES), indicators & conservation targets (e.g. Aichi), spatial planning for VMEs/EBSAs/ SPAMIs/...

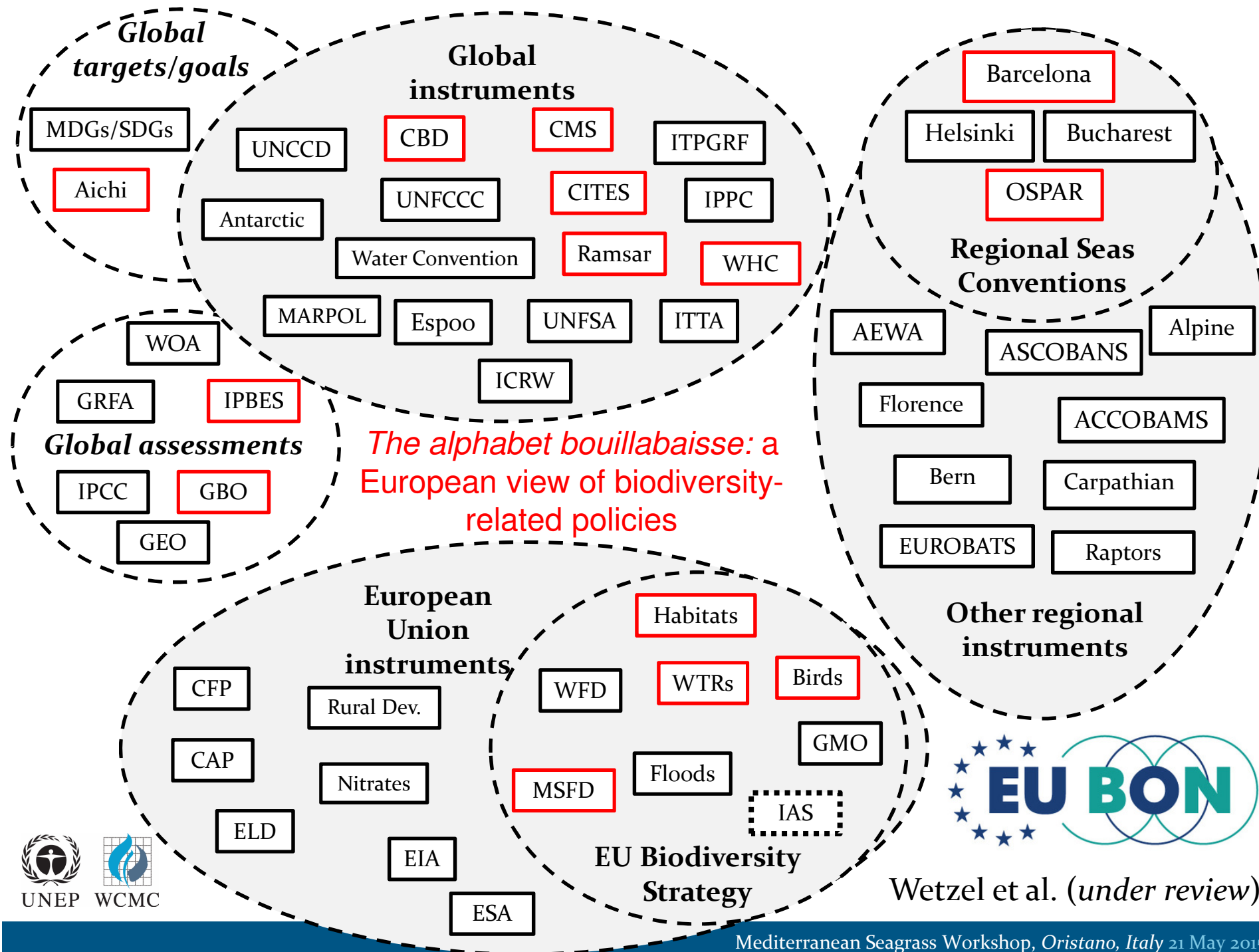
## NGOs

Biodiversity management, protected area management, advocacy, public awareness...

## Research bodies

Critical Habitat mapping, species distribution modelling, blue carbon assessment, ecosystem service valuation, protected area design...

(this is not an exhaustive list!)

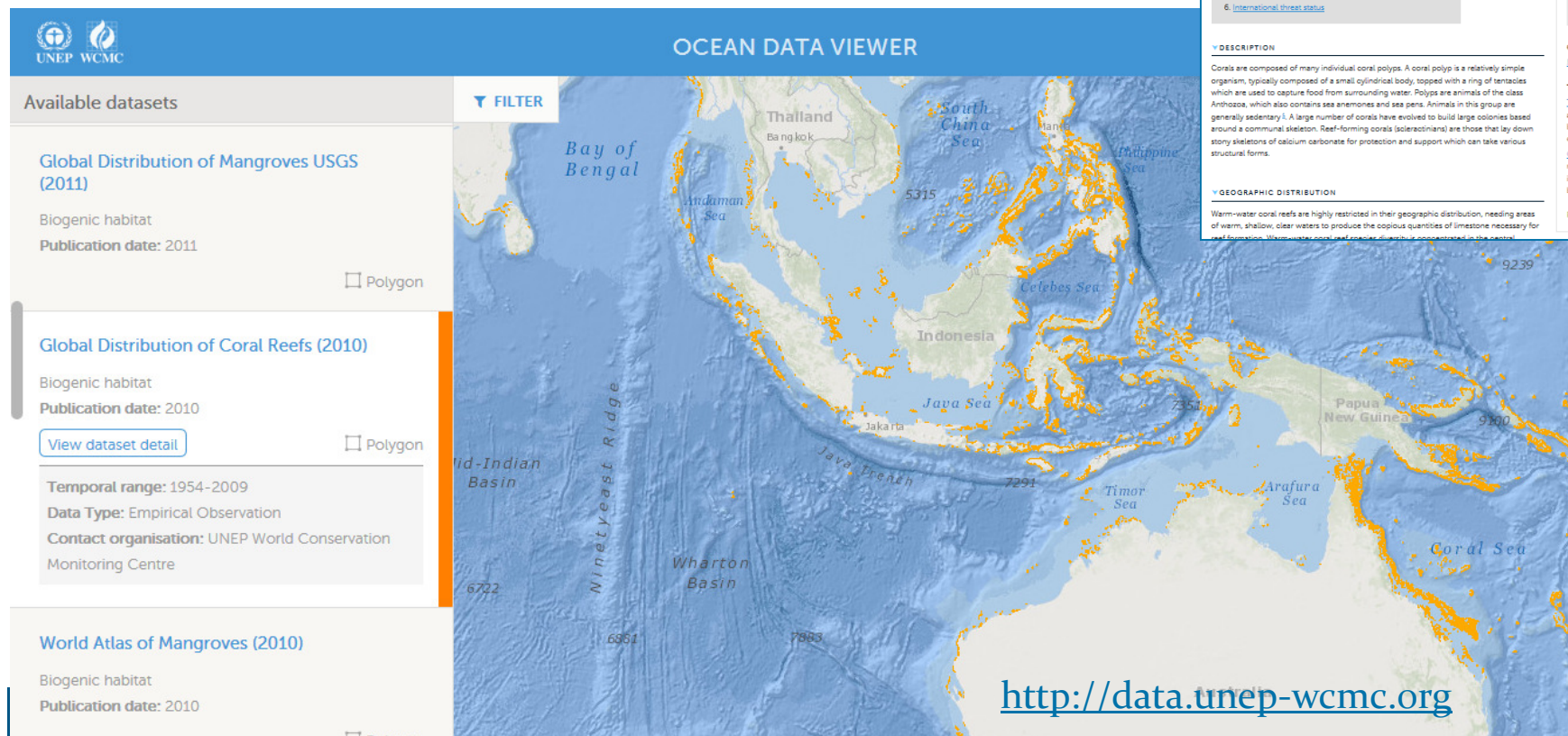
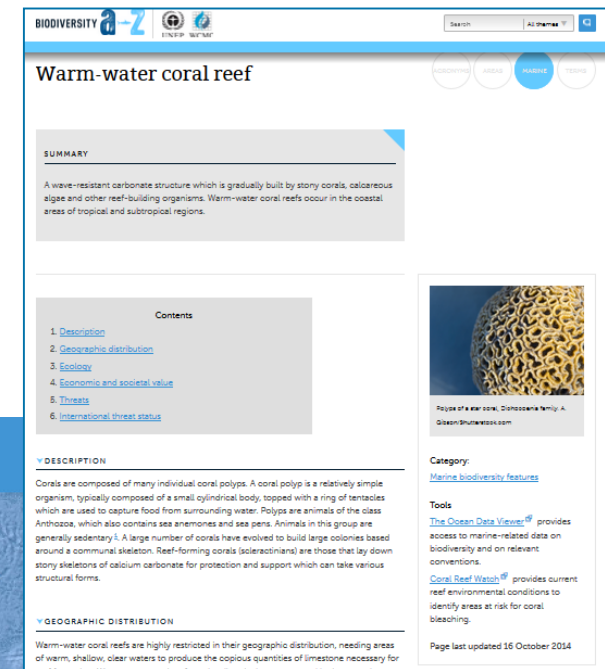


Wetzel et al. (under review)

# Providing access to datasets of biodiversity importance...

... through our Ocean Data Viewer

- 30+ datasets including coral, mangrove, seagrass, ecoregions, species, metrics, environmental, etc
- Background 'factsheets' are available on our 'marine' Biodiversity a-z





Coastal/shallow waters are not doing bad compared to offshore deep waters

Marine biodiversity data are *spatially* biased (but also *taxonomically*, *seasonally*, *temporally*, etc)

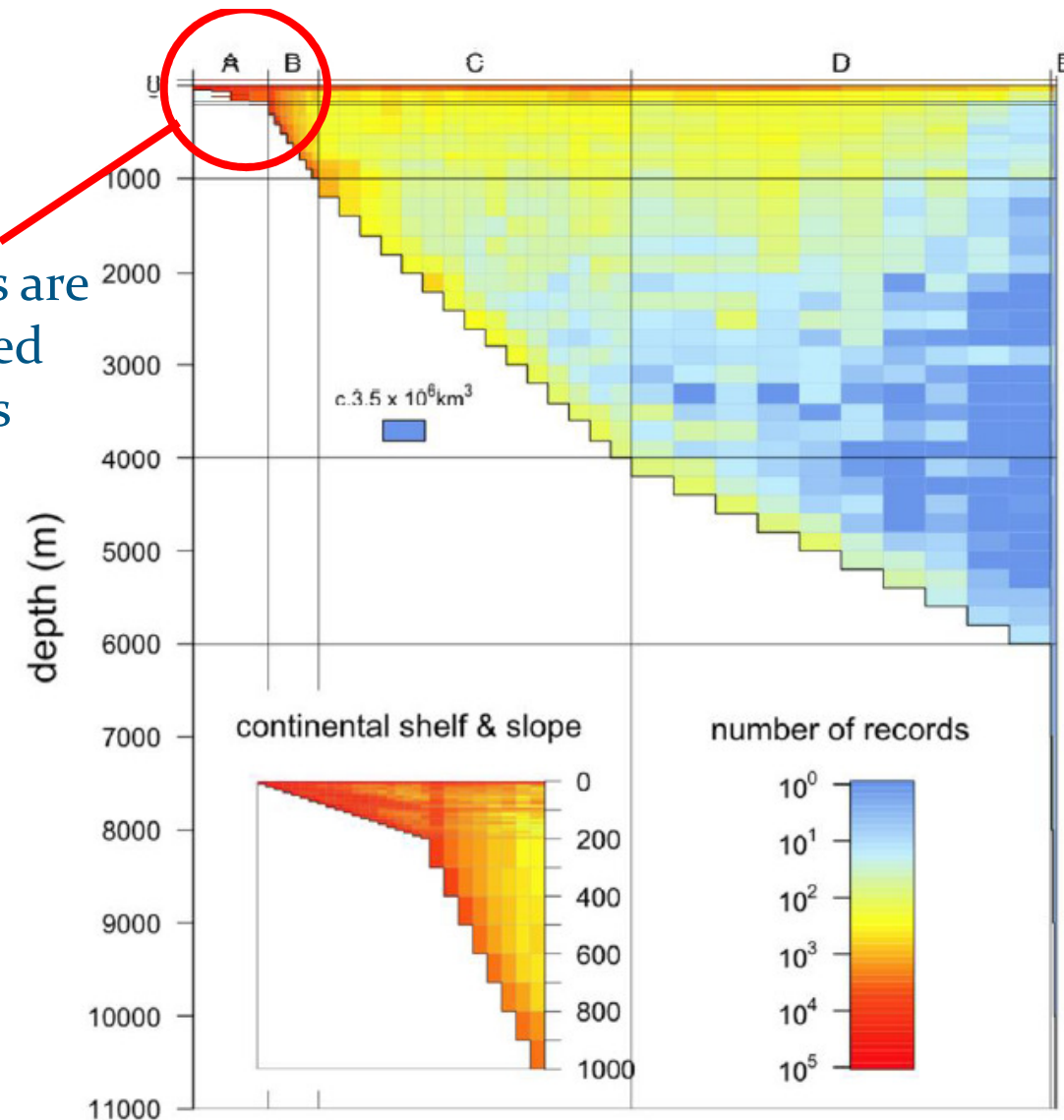
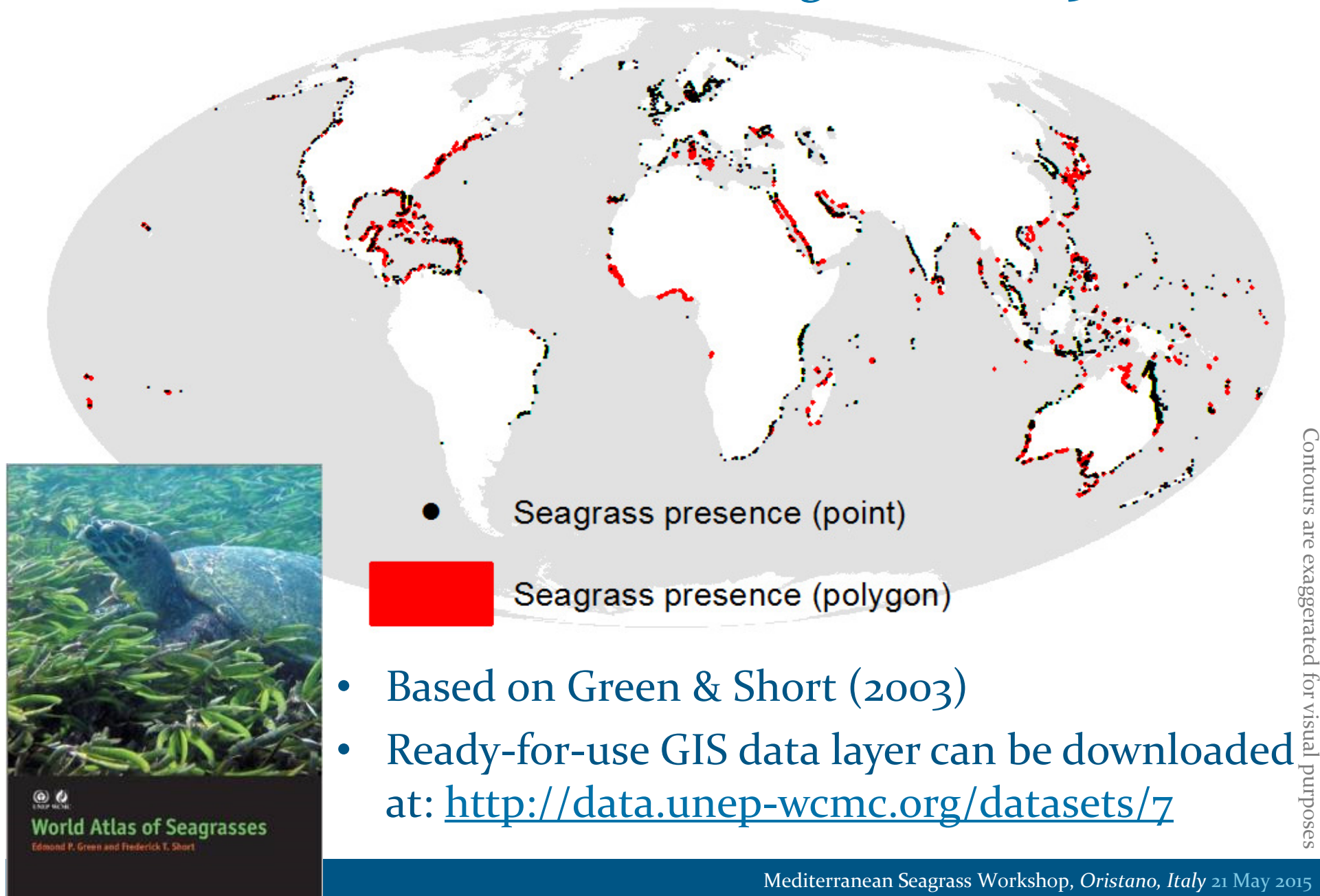


Figure 4<sup>17</sup>. Global distribution within the water column of recorded marine biodiversity (Webb et al. 2010). The horizontal axis splits the oceans into five zones on the basis of depth, with the width of each zone on this axis proportional to its global surface area. The vertical axis is ocean depth, on a linear scale. This means that area on the graph is proportional to volume of ocean. The inset shows in greater detail the continental shelf and slope, where the majority of records are found.

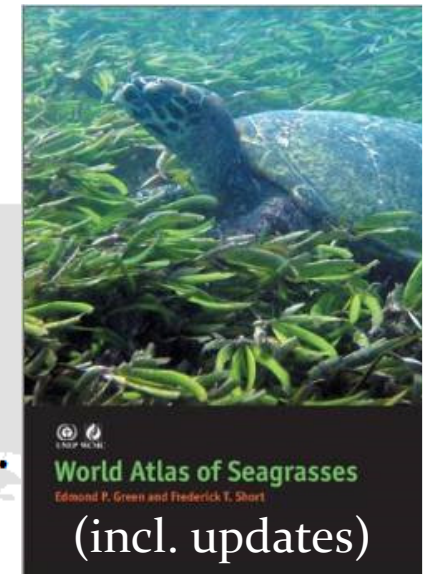
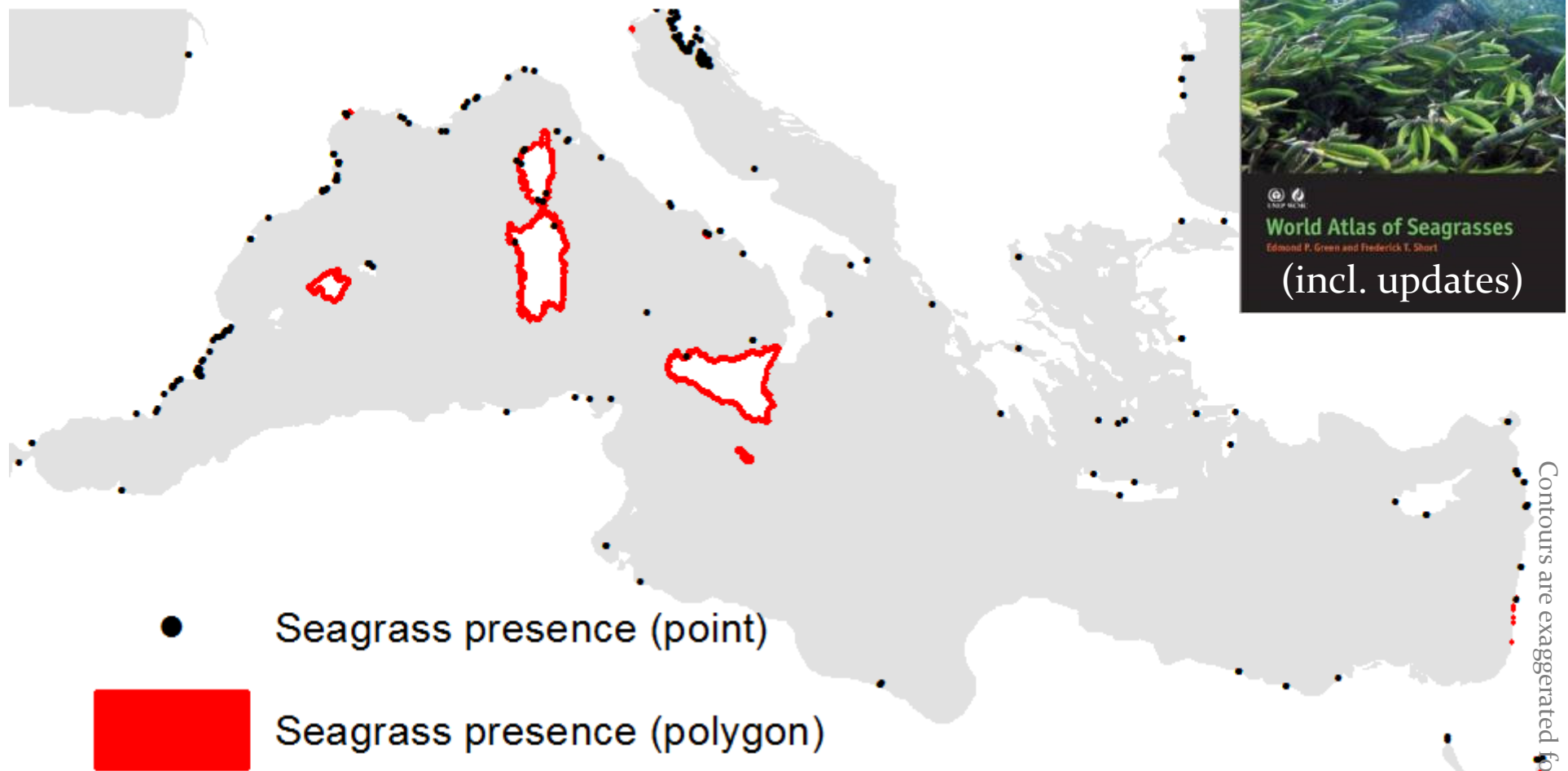
# Global Distribution of Seagrasses (2005)



# Global Distribution of Seagrasses (2005)

- The updated Short & Green (2003) **GIS layer** contains:
  - 184,814 ‘polygons’ in 52 countries
  - 9,100 ‘point occurrences’ in 128 countries
  - 2005 and 2014 updates (e.g. Philippines in 2014)
  - 100+ data sources: scientific papers, reports, pers. comms, books, projects, ...
- Currently seeking **permissions** for updates and contributions from:
  - US, Canada
  - Arabian Gulf
  - India
  - Cambodia
  - Indonesia
  - Micronesia
  - Russia
  - Abu Dhabi
  - ... and many other countries

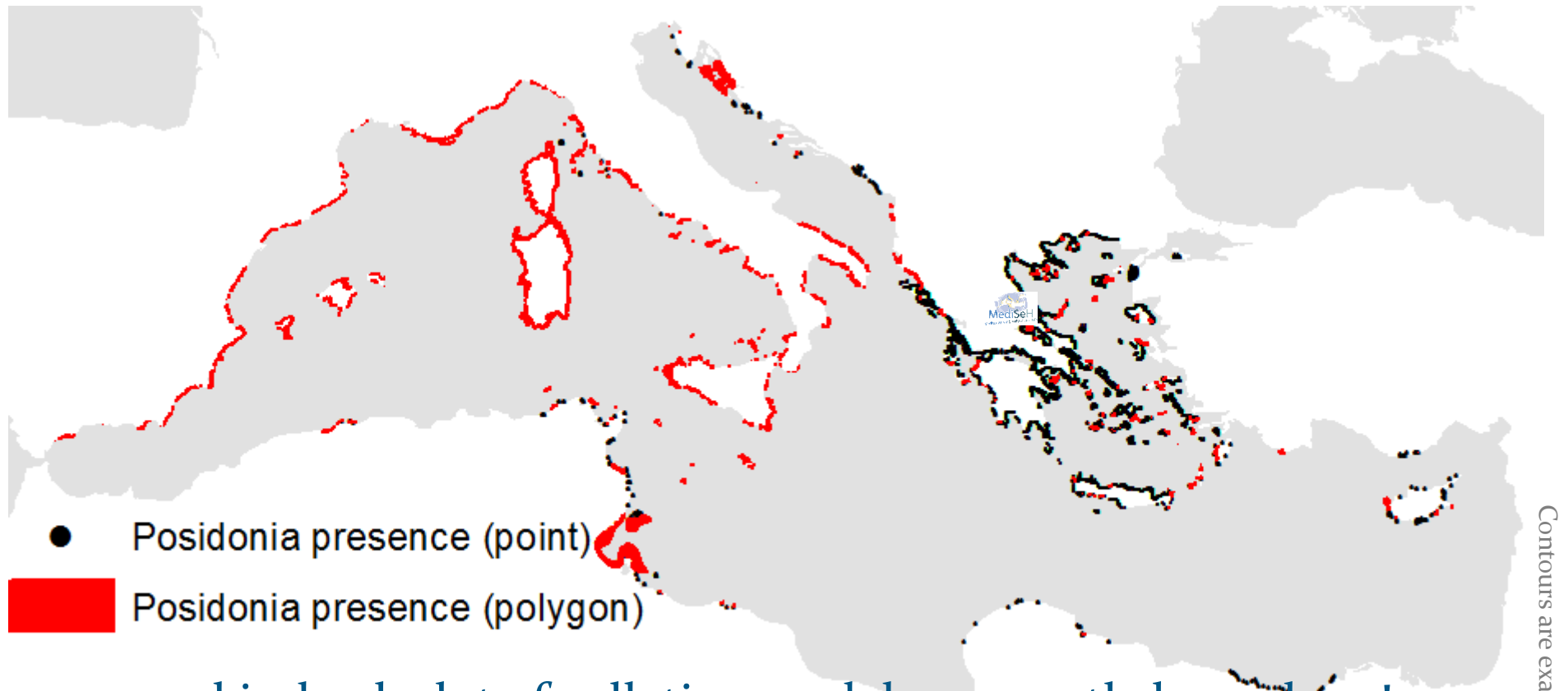
# Zooming on the Mediterranean sea reveals...



... there is still a lot of knowledge to collate!



# ‘Mediterranean Sensitive Habitats’ (Belluscio *et al.* 2013)

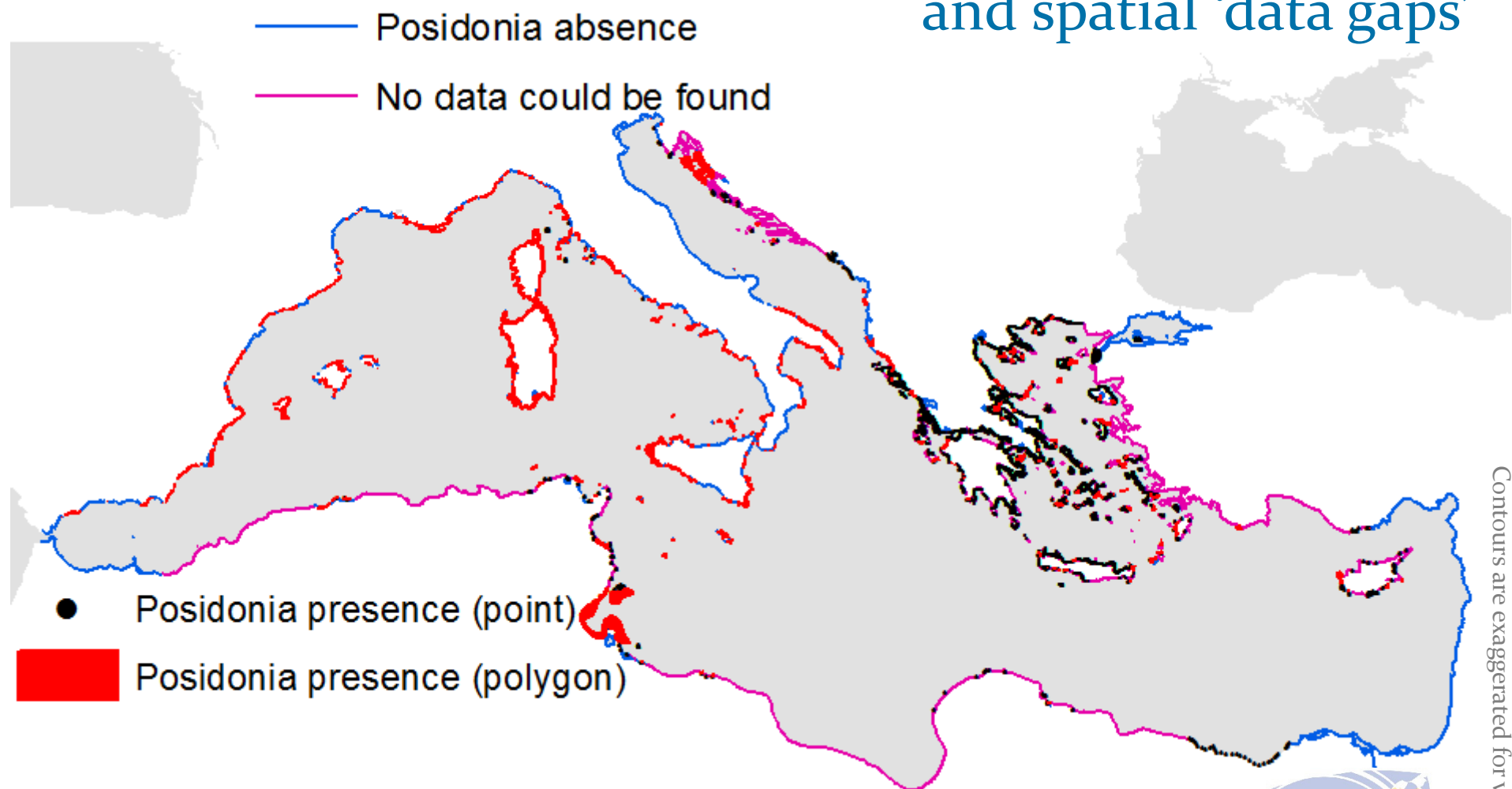


Contours are exaggerated for visual purposes

- ... and indeed a lot of collation work has recently been done!
- Publication by Telesca *et al.* (under review) – 263 studies collated
- Also mapped: *Zostera spp.* and *Cymodocea nodosa*

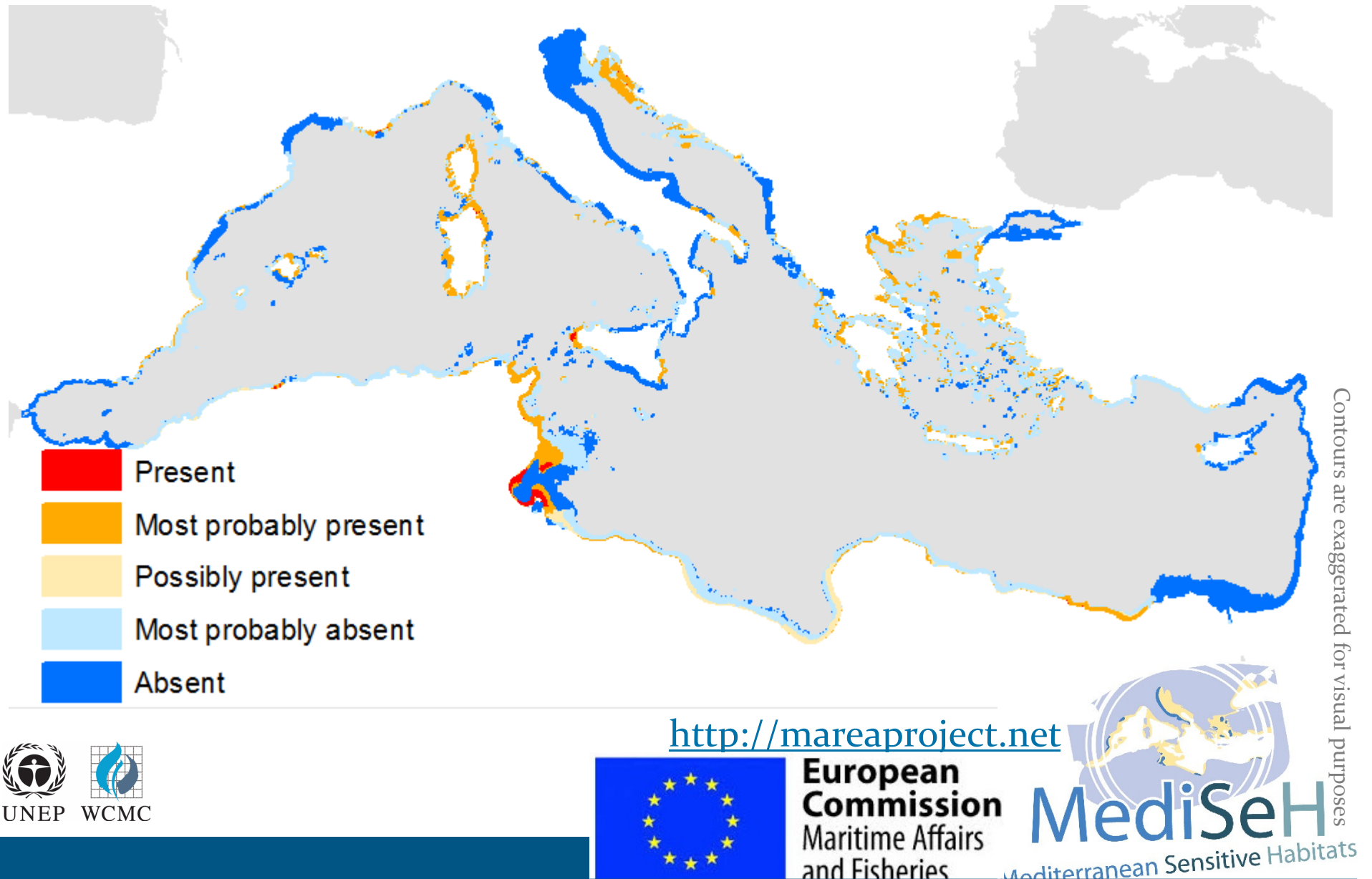
<http://mareaproject.net>

# Belluscio *et al.* (2013) also collated *Posidonia* 'absence' and spatial 'data gaps'



Contours are exaggerated for visual purposes

# ‘Filling in’ the spatial data gaps (Scardi *et al.* 2013) ...using *environmental niche modelling*



# Collating datasets is challenging...

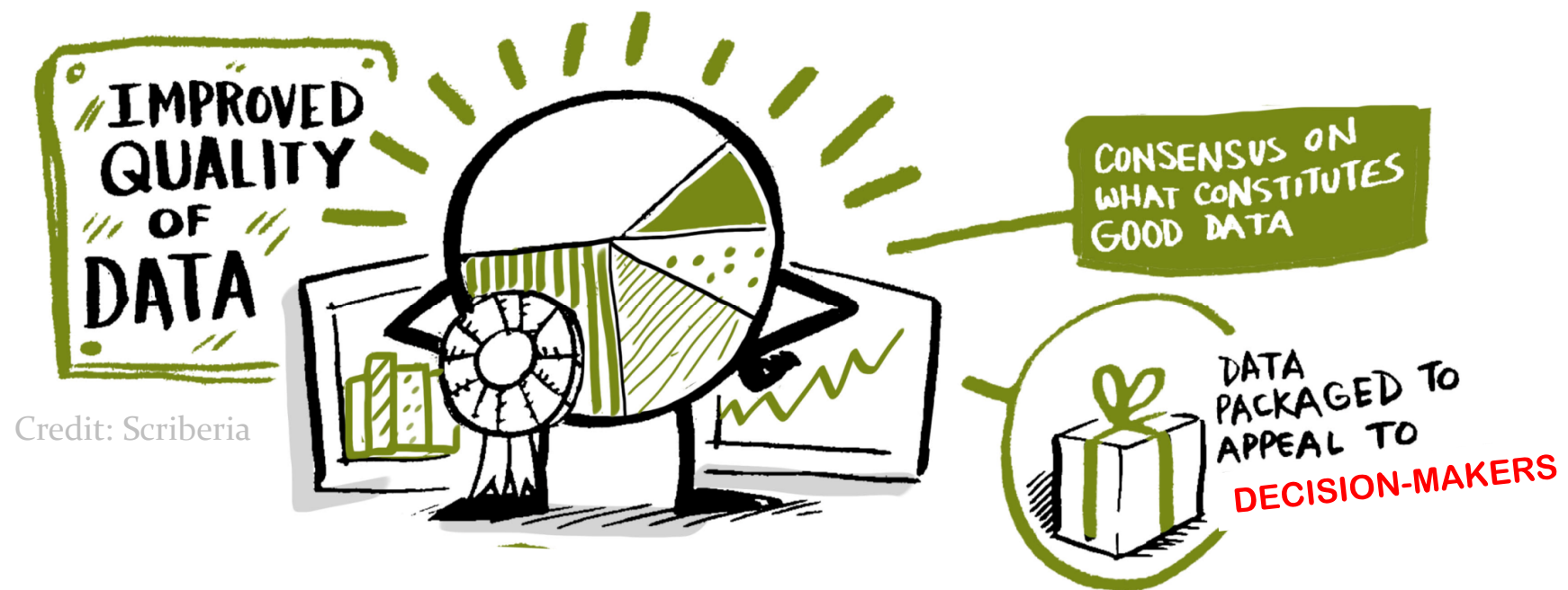
- “Across all disciplines, only 6-8% of the researchers deposit datasets in an external archive of the research domain” (Hardisty et al. 2011)
- Data **owner** point of view:
  - lack of funding to manage/store/prepare/share data
  - lack of awareness of other uses of data, even ‘degraded’ versions
  - data not yet/entirely published, attribution/citation issues
  - fear of data misuse (e.g. for profit; extrapolation)
- Data “**requester**” point of view:
  - Datum/projection issues, un-georeferenced data
  - ‘metadata’ issues (limited supporting documentation)
  - costs of IT infrastructure and data curation
  - licence incompatibility across collated datasets
  - fair attribution for “mosaic” (i.e. multi-author) datasets
  - “unlocking” corporate sector collected data (e.g. EIA)
  - data degradation (“levelling down” for broad-scale use)



Thank you for listening...

Any questions?

Thank you to the organising committee, host and sponsors  
of the *4th Mediterranean Seagrass Workshop*



Credit: Scriberia

Access these slides at: <http://wcmc.io/MSW15>