

Coastal biodiversity in South America and the Caribbean, and its variability

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1. Background

- Marine ecosystems provide many services to human societies
- Biodiversity considers the life at different dimensions, from genes to species and ecosystems, operating at multiple scales [1]
- 22% of marine species recorded in the OBIS database were only found in South America [2]
- It is important to understand how biodiversity is changing to identify problems and design solutions
- Biodiversity data is difficult to collect and to interpret; data are sparse and inconsistent in time and space. A major issue is availability of data

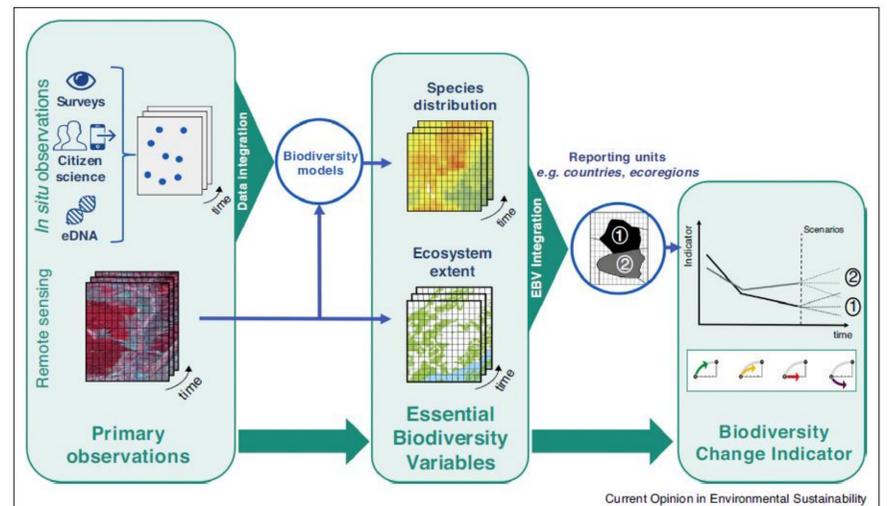


Fig. 1. From biodiversity observations to biodiversity indicators [3]

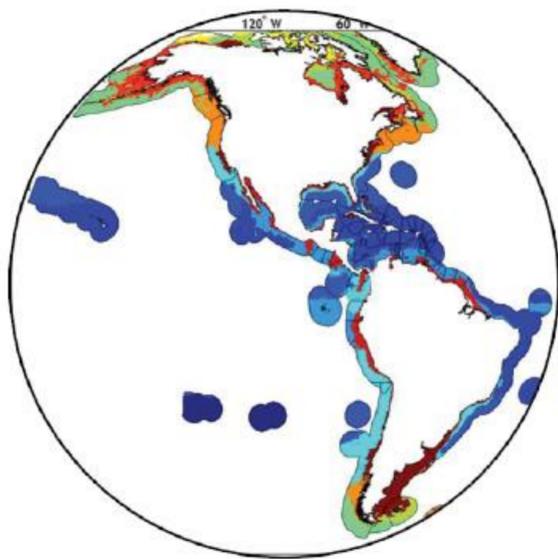


Fig. 2. Coastal seascapes of America derived from SST, Chl-a and PAR images from the MODIS sensor in 2012 [4]

3. Local and regional variations

- Possible to efforts such as the Pole to Pole (P2P) Marine Biodiversity Observation Network (MBON)
- Detect and quantify changes through the integration of historical time series of environmental and biological data [4] (Fig. 2)
- Satellite remote sensing and other tools for biodiversity at different scales [5]
- Design and implement viable management plans

References

1. Noss, R.F. (1990). *Conserv Biol* 4: 355-364
2. Miloslavich, P. et al. (2011). *PLoS One* 6: e14631
3. Navarro, L.M. et al. (2017). *Curr Opin Environ Sustain* 29: 158-169
4. Muller-Karger, F.E. et al. (2014). *Oceanography* 27(2): 18-23
5. Duffy, E.J. et al. (2013). *BioScience* 63(5): 350-361

2. Biodiversity assessment

- Biodiversity observations can be made *in situ* or by remote sensing through ocean color-derived products (Fig. 1)
- Biodiversity monitoring protocols over time:
 1. the South American Research Group on Coastal Ecosystems (SARCE) (2011-present)
 2. the Caribbean Coastal Marine Productivity Program (CARICOMP) (1993-present)
 3. The Atlantic and Gulf Rapid Reef Assessment (AGGRA) (1997-present)
- Biodiversity databases:
 - OBIS, GBIF, GMED, WoRMS, Marine Regions, IOOS, CoML



4. Expectations

- Increase access to the knowledge of South American biodiversity
- Understand the ecology and biogeography of coastal organisms
- Biodiversity information for conservation strategies, sustainability and management plans

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