ECOLOGY

Essential Biodiversity Variables

A global system of harmonized observations is needed to inform scientists and policy-makers.

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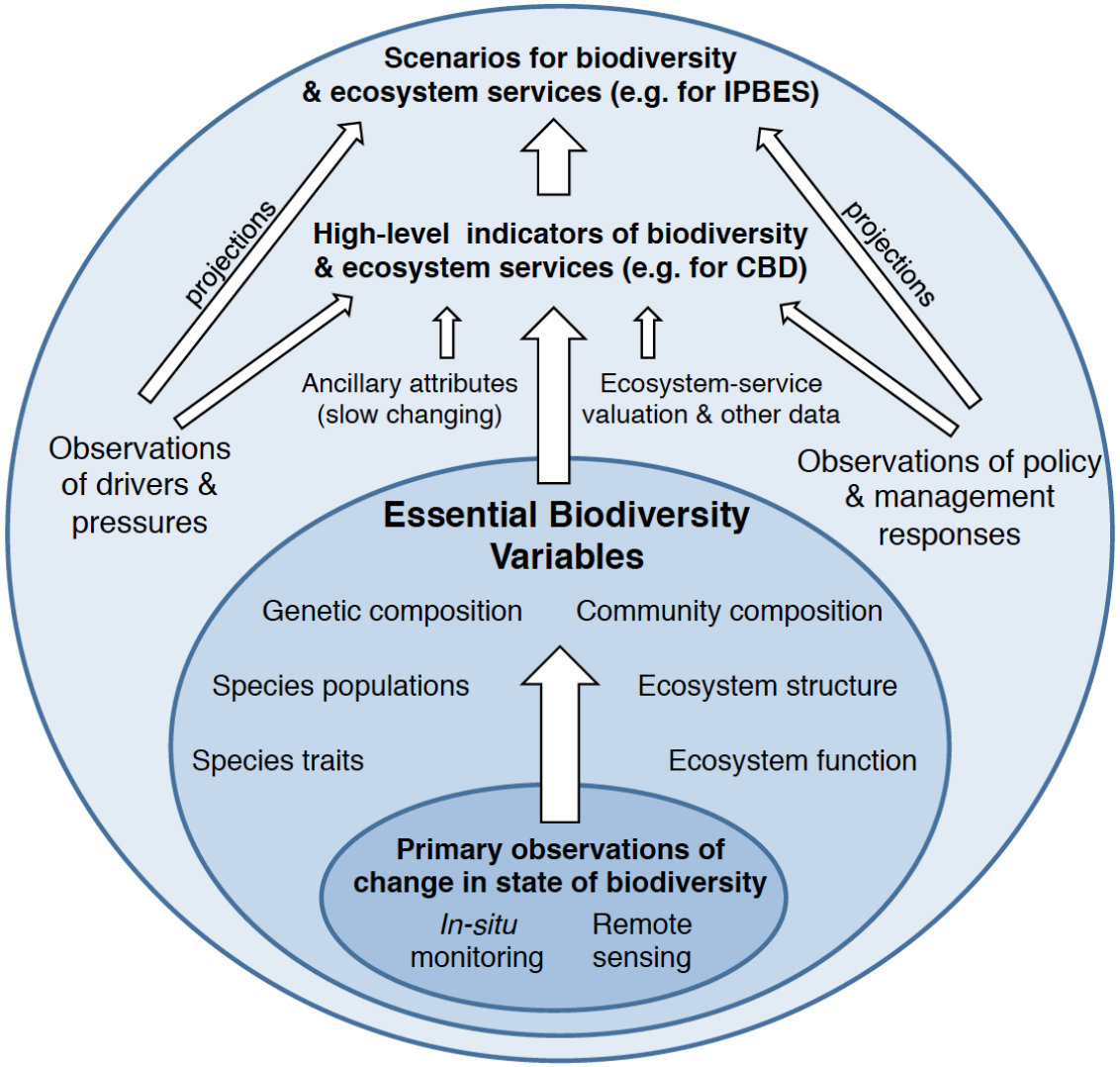


Goal

Identify and prioritize biological variables as MBON products

Prioritization factors:

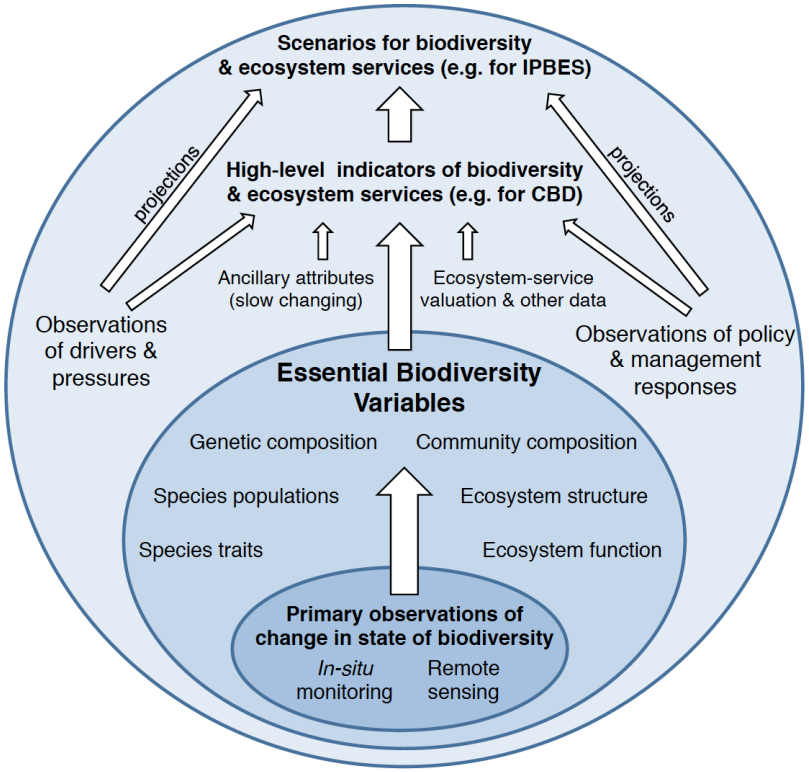
Is the variable important in its own right and to ecosystems?

Is the variable ecosystem agnostic?

Are there existing and proven methods and infrastructure to make the measurements on meaningful scales?

EBV classes

- Species populations
- Community composition
- Ecosystem structure
- Ecosystem function



Species populations

- Abundance – population size

Suggested targets: Marine mammals, seabirds, sea turtles, key predators and grazers

Methods: Visual counts, imagery, tag recapture, acoustics, eDNA

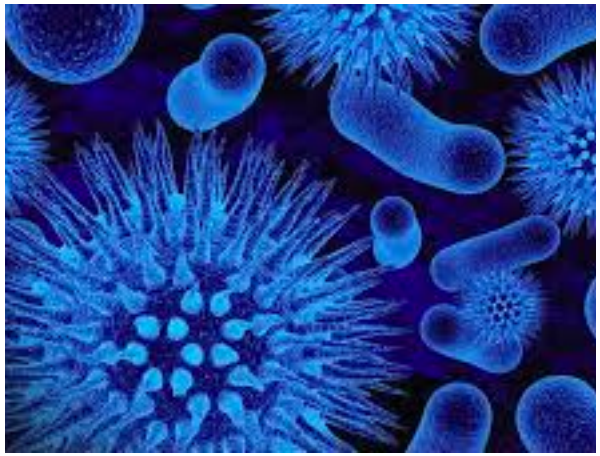
Community composition

- Species richness and relative abundance

Plankton: genomics, imagery, remote sensing, pigments, acoustics

Nekton: imagery, acoustics, eDNA

Benthic communities: imagery and visual surveys, cores/trawls, genomics

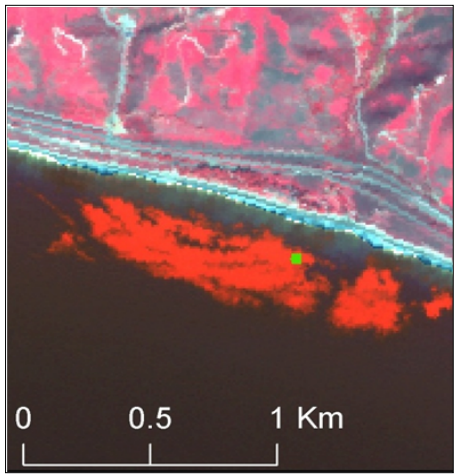


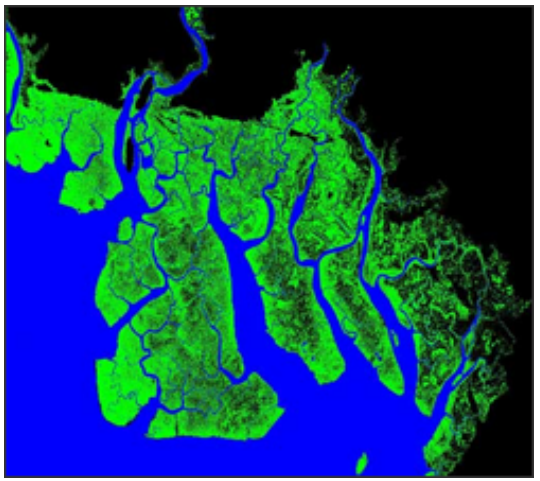
Ecosystem structure

- Habitat area, foundation species abundance

Suggested targets: Cover or biomass of macrophytes and sessile invertebrates (e.g. coral)

Methods: Remote sensing, imagery, visual transects



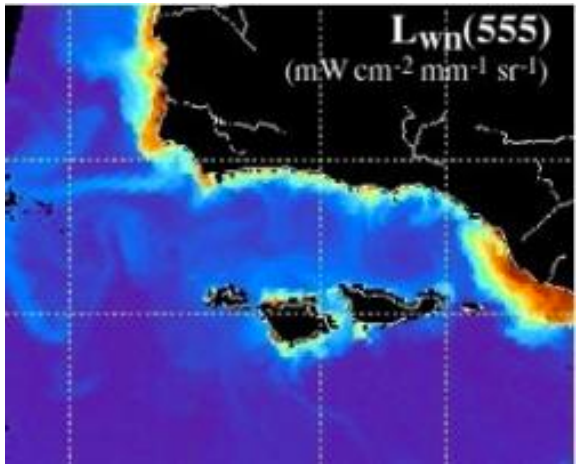


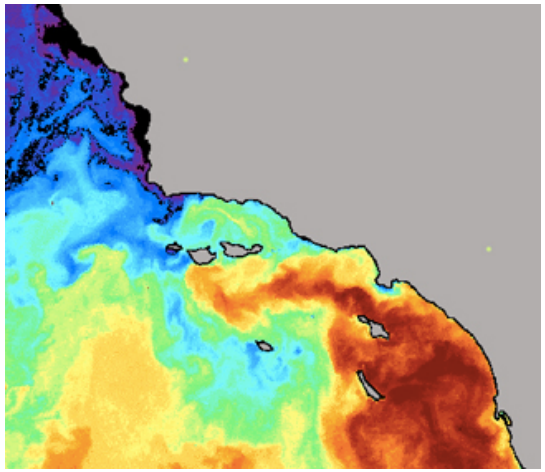
Ecosystem function

- Ecosystem processes e.g. Primary production, nutrient cycling, predation

Suggested targets: Phytoplankton and macrophyte NPP

Methods: Remote sensing, field measurements





Where to start?

- Identify data types that are common among projects
- Example – abundance and diversity of demersal fish
- Create synthetic dataset from multiple data sources within and among MBON projects
- Collaborate with IOOS nodes to make data available

Longer term

- Identify potentially sustainable and expandable datasets
- Use decision support modeling to select best mix of sampling methods