1. Definitions

Ecosystem Based Management (EBM) is the framework currently used for restoration of marine ecosystems. It is an environmental management approach that recognizes the full array of interactions within an ecosystem. EMB differs from conventional resource management in that it defines strategies for entire systems, not simply individual components of the ecosystem.

Integrate Ecosystem Assessments (IEA) is a synthesis and quantitative analysis of information on relevant physical, chemical, ecological and human processes in relation to specified ecosystem management objectives. IEAs are a critical science support element enabling an EBM strategy.

2. Tool: Levin Cycle

3. Study Area: Gulf of Cadiz

4. Available Information:

**Estuarine compartment**
- Main Functions: 
  - Nursery
  - Spawning
- Monitoring Program: 
  - JUVERO Guadalquivir surveys
- Protected Area: 
  - Marine Protected Area (Estuary)
- Pressures: 
  - Dam
  - Pollution
  - Divide

**Pelagic compartment**
- Zooplankton identification (in progress)
- Monitoring Programs: 
  - ECOE: Acoustic
  - BOGADIA: Daily Egg Production Method

**Demersal compartment**
- Detritus Input
- Monitoring Programs: 
  - STOCA: Time series
  - ECOPATH approach
- Protected Area: 
  - Special Areas of Conservation (RES) (Mud volcanoes)
- Pressures: 
  - Trawling (33%) of the total landings
  - Fishery (Purse seiners)

**Food Web Model**

**Traffic Plots Analysis**

5. Results:

6. Future Research:

1. Ecopath limitations
   - Lack of information for invertebrates and vulnerable groups.
   - Major sources of uncertainty associated with the biomass estimations.
   - Better estimations of the total catch for all functional groups are needed.

2. Fields to develop
   - Zooplankton research
   - Water masses exchange research
   - Detritus better estimation

3. European perspective / ICES Recommendations
   - See Dickey-Collas (2014)

References


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