

Indicators of Biological Diversity for the Baltic Sea

ICES/BSRP SGEH

***Sub-group on Habitat Destruction
and Loss of Biodiversity***

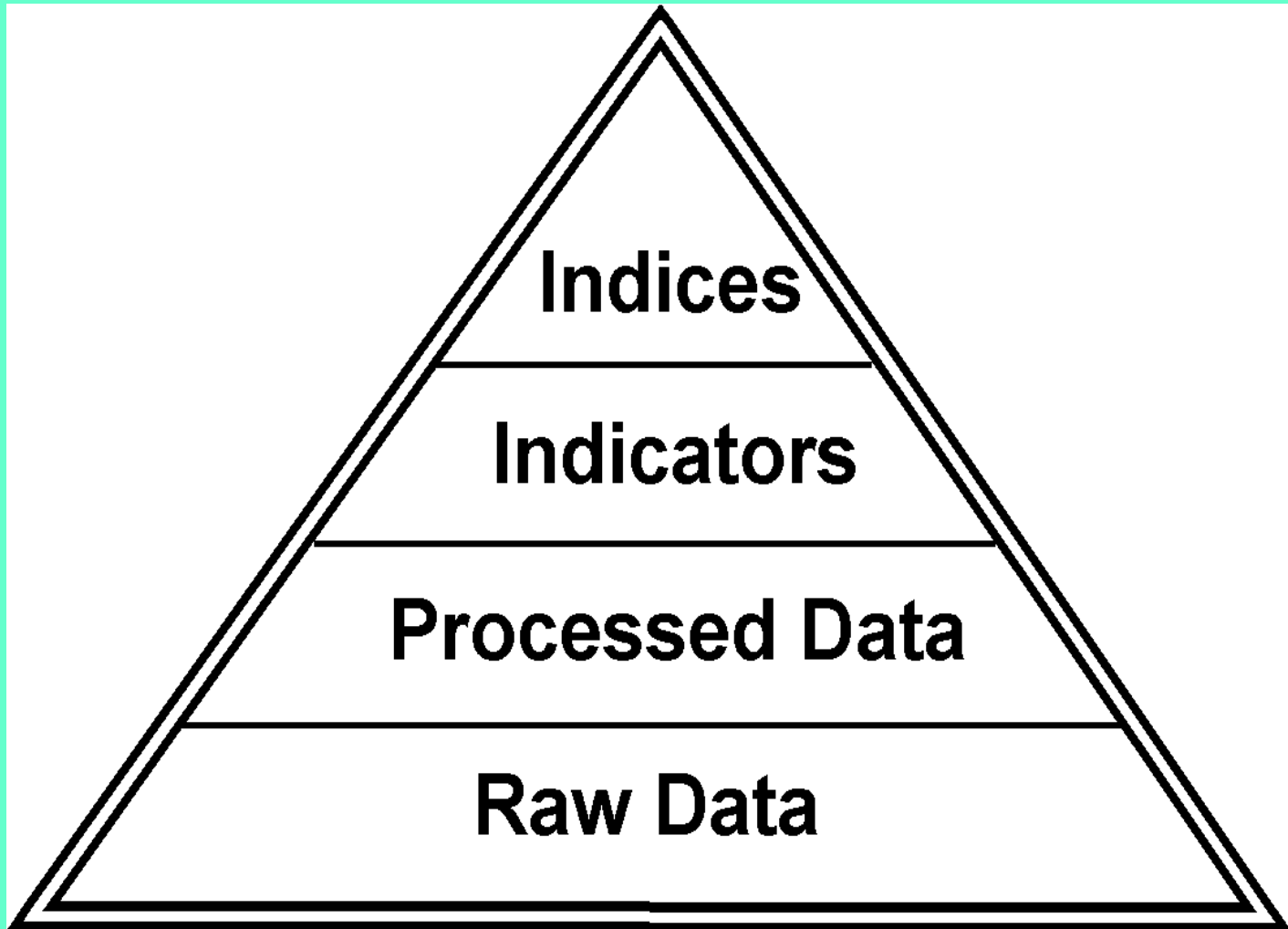
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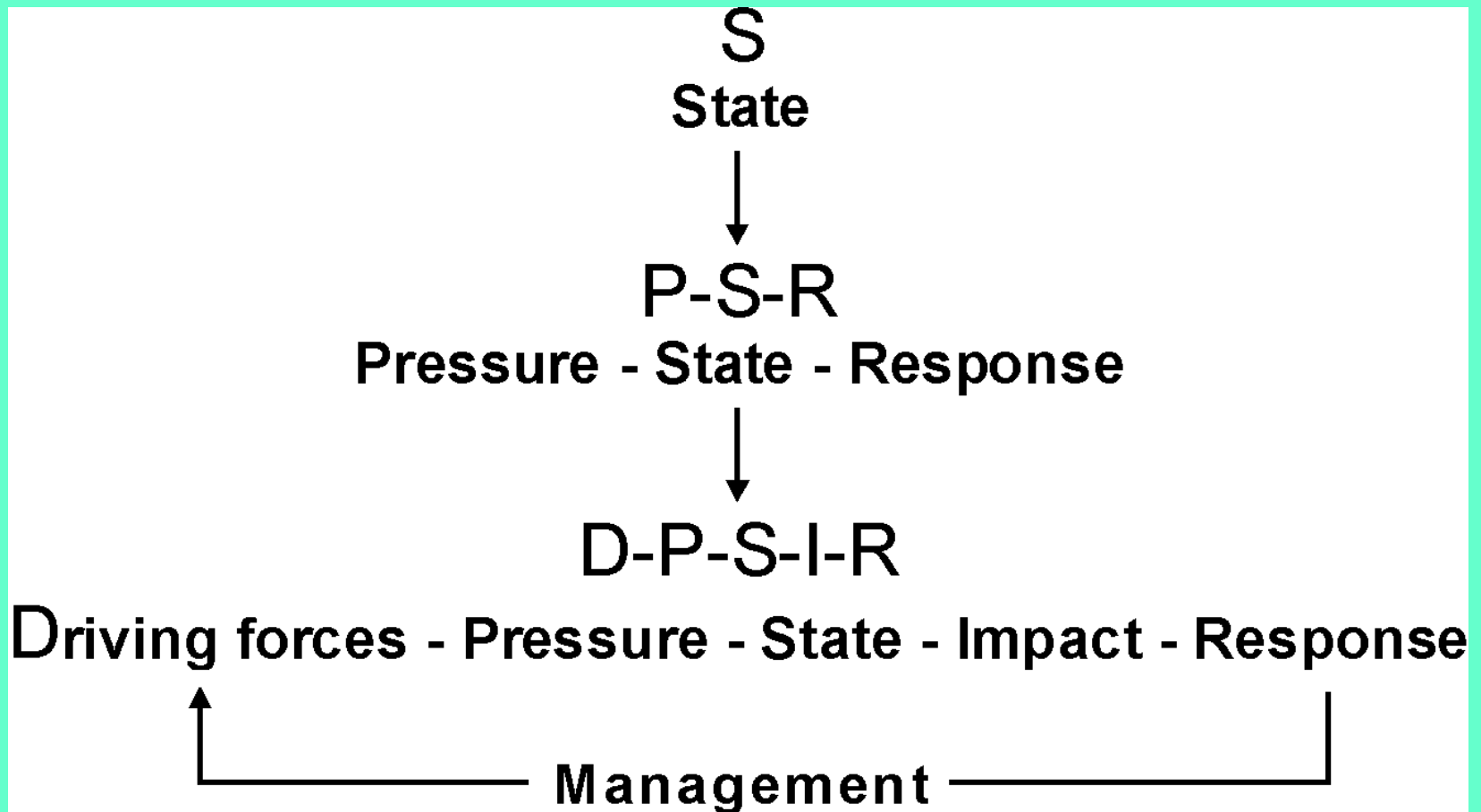
Ecological Quality Objectives (EcoQOs)

- SGEH (general) EcoQO (vision) : *natural biodiversity at all levels*
- HELCOM EcoQO: *favorable status of biodiversity*

Why do we need indicators ?



The use of indicators for management



Ecosystem components and other relevant issues to be covered

- Phytoplankton
- Zooplankton
- Phytobenthos
- Zoobenthos
- Ichthyofauna
- Avifauna
- Mammals
- Keystone species/habitat forming species
- Endangered/declining species
- Alien species
- Functional diversity
- Marine Protected Areas

Elaborating indicators - working procedure

- Phase I : 'Shopping list' of indicators
- Phase II: Selection and structuring a list of the best indicators

SGEH methodology: expert judgement

US EPA criteria for selection indicators

1. Regionally responsive
2. Unambiguously interpretable
3. Simply quantifiable
4. Stable over the sampling period
5. Low year-to-year variability
6. Minimal environmental impact during sampling

Data availability !

Communicative ability!

Structuring indicator list – a diagnostic score

Score 1: **Very good/recommended**

Indicators directly applicable in ecosystem-based assessment and management

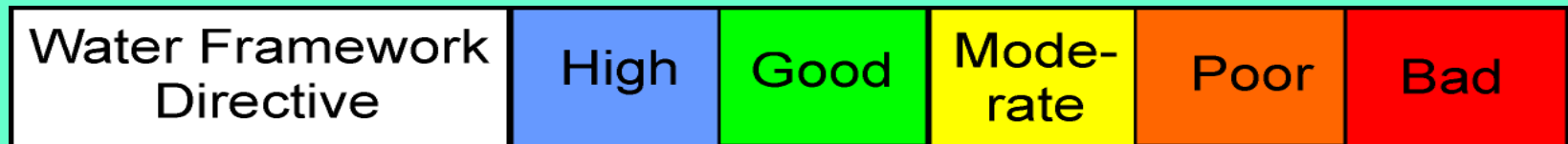
Score 2: **Sufficient/acceptable**

Indicators demanding more evaluation

Score 3: **Not (yet) recommended**

Indicators, most probably, to be eliminated or placed into a 'reserve list' according to present knowledge

Expression of ecological status /biodiversity status



To be developed: reference values, target values

SGEH Recommended indicators- score 1

- **Phytobenthos:** area and depth distribution of submerged vascular plant meadows and depth distribution for of perennial macroalgae beds
- **Zoobenthos:** zoobenthos community structure including Baltic Sea glacial relict species trends (crustaceans) and number of of (extinct) threatened and declining species
- **Alien species:** rate of new introductions

SGEH Recommended indicators- score 1, ctd.

- **Fish:** coastal fish community structure and offshore (marine trophic index of commercial fish species)
- **Birds:** coastal bird species populations (key groups – sea ducks, divers, eiders, auks, cormorants)
- **Mammals:** seal species population
- **Status of Baltic Sea Protected Areas:** percentage of the MPA from total coastal zone and proportion of different depth ranges under protection

Recommended SGEH Reports

- Report of the Study Group on Baltic Ecosystem Health Issues in Support of BSRP, **2004, Vilnius, Lithuania**
- Report of the ICESBSRP/HELCOM/UNEP Regional Sea Workshop on *Baltic Sea Ecosystem Health Indicators*, **2005, Sopot, Poland**
- Report of the ICES/BSRP Study Group on Baltic Ecosystem Health Issues in Support of BSRP (SGEH) **2005, Kaliningrad, Russia**

www.ices.dk [working groups reports]

www.helcom.fi [data publishing system]



Thank you for your attention