

# Definitions of terms

Proposals to support the discussion on updated BSAP objectives for biodiversity

# Ecological Objective

- describe characteristics of a healthy sea
- provide a link to HELCOM assessments
- easy to communicate to the wider community
- defined and assessed by indicators and associated threshold values
- the ecological objectives under biodiversity should relate to the state of the ecosystem and its components,

# Management Objectives

- related to the desired effect of management measures or aspired target levels of the pressure
- their achievement can be defined and assessed by indicators and associated pressure or conservation targets
- should be linked to sustainable level of human activities
- the management objectives under biodiversity should relate to the conservation, maintenance or restoration of the system and associated components.

# Abundance (ecological):

- The size of a population of a particular life form in a given area. (IPBES)

# Adaptive management:

- A systematic process for continually improving management policies and practices by learning from the outcomes of previously employed policies and practices. In active adaptive management, management is treated as a deliberate experiment for purposes of learning. (IPBES)

# Benthic:

- Connected with, or living near, the sea bottom. (IUCN)
- Occurring at the bottom of a body of water; related to benthos. (IPBES)

# Biodiversity:

- The variability among living organisms from all sources including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, among species, and of ecosystems (CBD, IUCN).
- The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. This includes variation in genetic, phenotypic, phylogenetic, and functional attributes, as well as changes in abundance and distribution over time and space within and among species, biological communities and ecosystems. (Diaz et al. 2015. “The IPBES Conceptual Framework — Connecting Nature and People.” *Current Opinion in Environmental Sustainability* 14: 1–16. doi:10.1016/j.cosust.2014.11.002)

# Conservation:

- The protection, care, management and maintenance of ecosystems, habitats, wildlife species and populations, within or outside of their natural environments, in order to safeguard the natural conditions for their long-term permanence. (IUCN)



# Critical natural capital:

- Describes the part of the natural capital that is irreplaceable for the functioning of the ecosystem, and hence for the provision of its services.

# Community (ecological):

- assemblages of interacting populations of the species living within a particular area or habitat. (Encyclopedia Britannica)
- a group of actually or potentially interacting species living in the same location. Communities are bound together by a shared environment and a network of influence each species has on the other. (Nature)
- populations of different species, includes the study of the interactions between species, such as mutualism, predation and competition, and the dynamics and structure of the community. (Nature)

# Conservation:

- The management of human use of nature so that it may yield the greatest sustainable benefit to current generations while maintaining its potential to meet the needs and aspirations of future generations. (CBD)
- The protection, care, management and maintenance of ecosystems, habitats, wildlife species and populations, within or outside of their natural environments, in order to safeguard the natural conditions for their long-term permanence. (IUCN)

# Distribution:

- The spatial occurrence of an ecosystem or species (IUCN).

# Disturbance (event):

- An event that causes a change in environmental conditions that interfere with ecosystem function. (IUCN)

# Ecological coherence (of MPAs):

- Interacts with and supports the wider environment;
- Maintains the processes, functions and structures of the intended protected features across their natural range;
- Functions synergistically as a whole, such that the individual protected sites benefit from each other in order to achieve the other two objectives.

Additionally, an ecologically coherent network of MPA may:

Be designed to be resilient to changing conditions. (OSPAR 2006)

# Ecological integrity:

- Maintaining the diversity and quality of ecosystems and enhancing their capacity to adapt to change and provide for the needs of future generations. (IUCN)

# Ecosystem:

- A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. (Article 2, CBD, IPBES)
- Ecosystems are self-regulating communities of plants and animals interacting with each other and with their non-living environment (CBD)



# Ecosystem Approach:

- An ecosystem approach is based on the application of appropriate scientific methodologies focused on levels of biological organization, The ecosystem approach is based upon the hierarchical nature of biological diversity characterized by the interaction and integration of genes, species and ecosystems, which encompass the essential structure, processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems. The ecosystem approach should be undertaken at the appropriate spatial and temporal scales. (CBD)
- A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (IUCN)

# Ecosystem-based management (EBM):

- A process that integrates biological, social and economic factors into a comprehensive strategy aimed at protecting and enhancing sustainability, diversity and productivity of natural resources. EBM emphasizes the protection of ecosystem structure, functioning and key processes; is place-based in focusing on a specific ecosystem and the range of activities affecting it; explicitly accounts for the interconnectedness among systems, such as between air, land and sea; and integrates ecological, social, economic and institutional perspectives, recognizing their strong interdependences (COMPASS Scientific Consensus Statement, used by IUCN).

# Ecosystem function:

- The process through which the constituent living and nonliving elements of ecosystems change and interact (ForestERA, 2005, supported by IUCN)
- The flow of energy and materials through the biotic and abiotic components of an ecosystem. It includes many processes such as biomass production, trophic transfer through plants and animals, nutrient cycling, water dynamics and heat transfer. (IPBES, Adapted from <http://www.ecosystemserviceseq.com.au/ecosystem-functions.html>)

# Ecosystem integrity :

- The continuity and full character of a complex system, including its ability to perform all the essential functions throughout its geographic setting; the integrity concept within a managed system implies maintaining key components and processes throughout time. (IUCN)

# Ecosystem resilience:

- The ecosystems' capacity to approximately return to the state prevailing prior to the disturbance is called resilience. (IUCN)

# Ecosystem restoration:

- Recovery of the structure, function and processes of the original ecosystem. (IUCN)

## Ecosystem services:

- The goods and services provided by healthy ecosystems, including medicinal plants, clean water and air, and protection from extreme natural events. (IUCN)
- The benefits people obtain from ecosystems. In the Millennium Ecosystem Assessment, ecosystem services can be divided into supporting, regulating, provisioning and cultural. This classification, however, is superseded in IPBES assessments by the system used under “nature’s contributions to people”. This is because IPBES recognises that many services fit into more than one of the four categories. For example, food is both a provisioning service and also, emphatically, a cultural service, in many cultures. (IPBES)
- Ecosystem services are processes by which the environment produces benefits useful to people, akin to economic services. They include:
  - Provision of clean water and air
  - Pollination of crops
  - Mitigation of environmental hazards
  - Pest and disease control
  - Carbon sequestration

Accounting for the way in which ecosystems provide economic goods is an increasingly popular area of development. The concept of ecosystem services is similar to that of natural capital. The Millennium Ecosystem Assessment released in 2005 showed that 60% of ecosystem services are being degraded or used unsustainably. (CBD)

# Ecosystem structure:

- The individuals and communities of plants and animals of which an ecosystem is composed, their age and spatial distribution, and the non-living natural resources present (APEX, 2004, supported by IUCN).



# Functional groups:

- Functional diversity is the number of functionally different groups of species and consists of two aspects: one that affects the influence of a function within a scale (see 'levels of biological organization' above) and the other that aggregates that influence across scales.
- Assemblages of species performing similar functional roles within an ecosystem, such as pollination, production, or decomposition (i.e., trophic groups), hence providing some redundancy. (Hooper and Vitousek 1997)

# Habitat:

- The locality or environment in which an animal lives. (IUCN)
- The place or type of site where an organism or population naturally occurs. Also used to mean the environmental attributes required by a particular species or its ecological niche. (IPBES, CBD)

# Healthy ecosystem:

- Ecosystem health represents a desired endpoint of environmental management, but it requires adaptive, ongoing definition and assessment. We propose that a healthy ecosystem is one that is sustainable – that is, it has the ability to maintain its structure (organization) and function (vigor) over time in the face of external stress (resilience). (Constanza & Magenau, 1999, Aquatic Ecology 33(1):105-115)
- Clarified for BSAP UP:
- **Health represents a desired endpoint of environmental management. Healthy ecosystem/biodiversity/foodweb/population/species has the ability to maintain its structure (organisation) and function over time in the face of external stress.**

# Marine Protected Area (MPA):

- A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the longterm conservation of nature with associated ecosystem services and cultural values. MPAs can offer a spectrum of management strategies ranging from full protection, or no-entry areas, to multiple-use areas which prohibit limited activities. No-take MPAs are spatial closures that prohibit all forms of resource extraction, especially fishing. Limited take MPAs include those MPAs with mixed harvest or restricted harvest prohibition areas. (IUCN-WCPA 2008).
- An area of sea (or coast) especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. (CBD)

# Natural:

- Existing in or derived from nature; not made or caused by humankind (Oxford Dictionary)

# Occurrence

- the existence or presence of something (Cambridge English Dictionary)

# Precautionary principle:

- Pertains to risk management and states that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is not harmful, the burden of proof that it is not harmful falls on those taking an action. The principle is used to justify discretionary decisions when the possibility of harm from making a certain decision (e.g., taking a particular course of action) is not, or has not been, established through extensive scientific knowledge. The principle implies that there is a social responsibility to protect the public from exposure to harm, when scientific investigation has found a plausible risk or if a potential plausible risk has been identified. (IPBES)

# Quality (of habitats & biotopes):

- the ability of the environment to provide conditions appropriate for individual and population persistence. (Hall et al. (1997:175) )



# Representative:

- typical of, or the same as, others in a larger group of people or things (Cambridge English Dictionary)

## Resilience:

- The capacity of a system to recover from stress and disturbance while retaining its essential functions, structure, feedbacks and identity. Resilient ecosystems sustain biological diversity and human livelihoods in times of severe and wide-ranging change. (IUCN)
- Ecosystem functioning and resilience depends on a dynamic relationship within species, among species and between species and their abiotic environment, as well as the physical and chemical interactions within the environment. The conservation and, where appropriate, restoration of these interactions and processes is of greater significance for the long-term maintenance of biological diversity than simply protection of species. (CBD)
- The capacity of an ecosystem to return to the pre-condition state following a perturbation, including maintaining its essential characteristics taxonomic composition, structures, ecosystem functions, and process rates. (Holling 1973)
- The level of disturbance that an ecosystem or society can undergo without crossing a threshold to a situation with different structure or outputs. Resilience depends on factors such as ecological dynamics as well as the organizational and institutional capacity to understand, manage, and respond to these dynamics. (IPBES)

# Sustainability:

- A characteristic or state whereby the needs of the present and local population can be met without compromising the ability of future generations or populations in other locations to meet their needs. (IPBES, from: Millenium Ecosystem Assessment, <https://www.millenniumassessment.org/documents/document.59.aspx.pdf>)

# Sustainable development:

- Development that meets the needs and aspirations of the current generation without compromising the ability to meet those of future generations. (CBD)

# Sustainable use (of biodiversity and its components):

- The use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations. (CBD, 1992, IPBES)

# Threatened habitat:

- Area assigned on the basis of quantitative thresholds to one of the three following IUCN categories for ecosystem assessment: Critically Endangered (CR), Endangered (EN), and Vulnerable (VU). (IUCN)

# Threatened species:

- Any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. (IUCN, CBD)
- In the IUCN Red List terminology, a threatened species is any species listed in the Red List categories Critically Endangered, Endangered, or Vulnerable. See <https://portals.iucn.org/library/efiles/documents/RL-2001-001-2nd.pdf> (IPBES)

# Thriving

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# Viable population:

- A population large enough for long-term survival. (IUCN)

# Thank you for your attention!

