

Northeast Coastal Indicator Workshop Operational Definitions

TERM	DEFINITION
Biodiversity	<p>(1) The variety and variability among living organisms and the ecological complexes in which they occur. The number of different items and their relative frequencies encompassing three basic levels of ecosystems, species and genes (After EPA, 2003).</p> <p>(2) Pertaining to the diversity and frequency of organisms in a given area (http://www.biology-online.org/dictionary.asp).</p>
Bottom Up	An approach to evaluation or management of an ecosystem that starts with the lowest trophic level or the most structurally simple component and works its way up to higher levels of complexity and sophistication. See also, Top Down.
Coastal Health	The interconnections and overlap between the areas of human, environmental and community health...present along the shores of a water body and within the watersheds (Wells, 2002).
Collaborative Ecosystem Management	A regional basis for decision-making and environmental management that defines geographic scope or boundaries on an ecosystem or ecoregional basis rather than political jurisdiction and seeks to involve both governmental and non-governmental entities in the process.
Condition	See State.
Critical Life Stage	Level of species development most sensitive to external stressors likely to cause mortality or impairment of condition.
Cultural Indicator	See Societal Indicator.
Diversity	See Biodiversity.
Ecological Indicator	Measurable characteristics related to the structure, composition, or functioning of ecological systems (EPA, SAB 2002 in EPA, 2003); a measure, an index of measures, or a model that characterizes an ecosystem or one of its critical components (Jackson et al., 2000 in EPA, 2003); any expression of the environment that quantitatively estimates the condition of ecological resources, the magnitude of stress, the exposure of biological components to stress, or the amount of change in condition (Barber, 1994 in EPA, 2003). See also Environmental Indicator.
Ecological Integrity	See Ecosystem Integrity.
Ecological Performance Measure	See Environmental Indicator.
Economic Indicator	<p>(1) Statistical data showing general trends in the economy. Those with predictive value are leading indicators; those occurring at the same time as the related economic activity are coincident indicators; and those that only become apparent after the activity are lagging indicators. Examples are unemployment, housing starts, Consumer Price Index, industrial production, bankruptcies, GDP, stock market prices, money supply changes, and housing starts. also called business indicators (http://www.investorwords.com/cgi-bin/getword.cgi?1643&economic%20indicator).</p> <p>(2) An environmental indicator quantified in dollar value such as the harvest value of a commercial species.</p>
Ecosystem Integrity	(1) The capacity to support the ecological structure (genes, species assemblages, habitats/communities, etc.) and function (distribution, abundance in space and time, biotic interactions, nutrient cycles, energy

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	<p>flows, etc.) of a system with respect to a defined reference state (pristine or natural system or socially defined) and the ability to maintain the structure in the face of anthropogenic or natural stressors (modified from Angermeier and Karr, 1994).</p> <p>(2) Karr and Dudley (1981): "the capability of supporting and maintaining a balanced, integrated, adaptive, community of organisms having species composition, diversity, and functional organization comparable to that of natural habitats of the region."</p>
Entry Point	Specific geographic location or site where a source of water or water borne substances enter a water body. Examples include industrial discharge pipes or a river mouth entering an estuary.
Environmental Indicator	<p>(1) A scientific measurement of the state of air, water and land resources, pressure on those resources, and the resulting effect on ecological and human health. An indicator shows progress in making the air cleaner, the water purer and protecting the land (After EPA, 2003).</p> <p>(2) A measurement providing useful information about the condition of a natural or ecological system. See Indicator.</p> <p>(3) A measure of environmental conditions (for example, human health, quality of life, and ecological integrity) or stressors that provides useful information on patterns and trends. Indicators are invaluable for measuring achievement of the milestones and progress towards the environmental goal. Indicators can also function as early warning signals for detecting relatively small adverse changes in environmental quality. The timeframe for monitoring, assessing and reporting on an environmental indicator may range from as little as several times per year to once every year or longer. Also, a change in ecological or human health conditions may not be manifested or discernable for several or perhaps many years (EPA, 2000).</p>
Exposure	The amount of radiation or pollutant present in a given environment that represents a potential health threat to living organisms (EPA, 1997 in EPA, 2003). Environmental exposure includes human and ecosystem contact to radiation, pollutants, or other stressors in their surroundings.
Health Index	A measure of condition of individuals (ecologically, individual organisms, humans) using signs of wellness and productivity, based on vital signs, and the absence of obvious disease or lack of function (After Wells, 2002).
Healthy Human Communities	<p>(1) Creation of a shared vision based upon a democratic inclusionary process that can provide permanent prosperity within the biophysical constraints of the natural world in a way that is fair and equitable to all humanity, to other species, and to future generations. Implementation of this vision would need to specify: relevant time period, geographic frame of reference, benefits, and costs of concern, and the priority for these benefits and costs (after Costanza, 2000 and Lackey, 1996).</p> <p>(2) A structured, peopled organization in time and space providing the options and foundations for a sustainable, diverse economy, based upon meaningful work, while providing for the whole person -- spiritually, mentally, and physically (modified from- Global Biodiversity http://www.ecomall.com/activism/forest.htm).</p>

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Homeostasis	The regulation of a particular factor which attempts to keep that factor at an equilibrium or norm. This involves a feedback mechanism that recognises any deviance from the norm and initiates counter-measures to return the factor back to its desired level. An example of <u>homeostasis</u> is temperature regulation (http://www.biology-online.org/dictionary.asp).
Impaired Growth	An organism or population response to environmental stressors or suboptimal ambient conditions manifest in an abnormally low growth rate compared to a defined norm.
Impaired Reproductive Capacity	An organism or population response to environmental stressors or suboptimal ambient conditions manifest in an abnormally low fecundity or reproductive rate compared to a defined norm.
Indicator	A measurement that provides useful information about the condition of the natural, ecological, cultural or economic environment.
Indigenous	Native, naturally occurring without the interference of man (http://www.biology-online.org/dictionary.asp).
Invasive Species	Non native organisms, intentionally or unintentionally introduced by humans, that exert a damaging effect on ecosystem integrity usually through dominance or out competing native species.
Marine Ecosystem Health	MEH is the condition of stable metabolic activity and internal structure and organization, resistant to stress over a wide range of temporal and spatial scales (after Epstein, 2000 in Wells, 2002). Wells (2002) notes that MEH and MEQ are often used interchangeably but makes the case that the terms "health" and "quality" are not the same.
Marine Environmental Quality	MEQ is the condition of a particular marine environment measured in relation to each of its intended uses and functions...usually assessed quantitatively for each environmental compartment, on temporal and spatial scales...using sensitive indicators of natural condition and change (Wells, 2002).
Nonindigenous Species	Non native organisms, intentionally or unintentionally introduced by humans. Nonindigenous species may, but don't always, exert a damaging effect on ecosystem integrity usually through dominance or out competing native species. See Invasive Species.
Outcome	The end result of a management or environmental manipulation, usually in the sense of an improved condition such as removal of a stressor.
Pathways	Routes of exposure from stressors, usually chemicals, via soil, water or food by ingestion, inhalation, or dermal absorption from source to sink (After EPA, 1997 in EPA, 2003).
Performance Measure	A program, policy, or administrative response to an environmental problem. Performance measures may or may not lead to detectable improvements in environmental conditions. In terms of timeframes, performance measures are usually tracked on an annual or more frequent basis.
Pressure	See Stressor.
Program Activity	See Response.
Program Indicator	See Performance Measure.
Resilience	The ability of an ecosystem to return to its original or a health state after exposure to a stressor or stressors.
Response	Refers to the regulatory or voluntary actions taken by government agencies or other parties (for example, industries) to address or remedy an identified stressor/pressure on the environment. The ultimate goal of the response or program activity is to improve the quality of the environment. Some examples of responses include passing legislation,

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	promulgating regulations, installing new treatment technologies, issuing permits, taking enforcement actions, implementing best management practices, and remediating a “hotspot”. The administrative response actions taken by environmental agencies are often tracked by performance measures, program measures, or program indicators (EPA, 2000).
Societal Indicators	A measure of human activity and their impact on ecosystem integrity and also a measure of human response to ecosystem stressors. Examples of the former include population, impervious land cover, and wetland filling; examples of the latter include fish consumption advisories and beach closure days.
Source	Origin of a stressor, especially as a waterborne chemical pollutant.
State	The actual biological, chemical or physical quality of the environment, including ecosystem and human health. Some examples of environmental conditions include toxic chemical concentrations in air, water, soil, or blood; species diversity; and number of respiratory illnesses (EPA, 2000).
Stressor	<p>(1) A physical, chemical or biological entity that can induce adverse effects on ecosystems, individual organisms, or human community health (After EPA, 1997 in EPA, 2003).</p> <p>(2) A factor that can adversely affect environmental conditions. Pressures or stressors can be human-induced. Examples of human-induced pressures include toxic pollutants, nutrients, habitat loss, sedimentation, hydrological changes (flow), and exotic species introduction. Examples of natural pressures include predation, volcanic eruptions, and floods (EPA, 2000).</p>
System Integrity	See Ecosystem Integrity.
Top Down	An approach to evaluation or management of an ecosystem that starts with the highest trophic level or the most structurally complex or sophisticated component and works its way down to more rudimentary levels of complexity and sophistication. See also, Bottom Up.
World-wide Indicator	An indicator with global applicability as a response to a common stressor (e.g., global warming) or as an indicator with value regardless of geographic location (e.g., water temperature).

Sources:

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