Goal 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development

Target number: 14.1

Indicator Number and Name: 14.1.1 Index of Coastal Eutrophication (ICEP) and Floating Plastic debris Density

Agency: UN Environment in cooperation with IOC-UNESCO

Has work for the development of this indicator begun?
Yes

Who are the entities, including national and international experts, directly involved and consulted in developing the methodology/and or data collection tools?

1) Index of Coastal Eutrophication (ICEP):
    a. IOC-UNESCO (contact: Henrik Enevoldsen, Acting Head, IOC Ocean Science Section and Head, IOC Science and Communication Centre on Harmful Algae, h.enevoldsen@unesco.org)
    b. Sybil P. Seitzinger, Study Lead, International Geosphere-Biosphere Program (IGBP), Stockholm, Sweden, sybil.seitzinger@igbp.kva.se
    c. Emilio Mayorga, Study Collaborator and Data Point of Contact, University of Washington (UW), Seattle, USA, mayorga@apl.washington.edu
    d. GESAMP-UN Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
    e. UN Environment, Ecosystems Division (contact: Christopher Cox, Christopher.cox@unep.org)
2) Floating Plastic debris Density:
    a. IOC-UNESCO (contacts: Julian Barbiere, J.barbiere@unesco.org, Kirsten Isensee, k.isensee@unesco.org)
    b. UN Environment, Ecosystems Division (contact: Heidi Savelli, Programme Officer, Marine Litter Heidi.savelli@unep.org)
    c. Regional Seas Conventions and Action Plans (contact person: Kanako Hasegawa, kanako.hasegawa@unep.org)

What is the involvement of or how do you plan to involve National Statistical Systems in the development of the methodology?

1) Index of Coastal Eutrophication (ICEP): testing phase of the agreed draft methodologies in pilot countries in 2017 (for Chlorophyll-a concentration as an indicator of phytoplankton biomass) and data collection from countries in 2018-2020 (for Chlorophyll-a concentration as an indicator of phytoplankton biomass) and from 2021 onwards (for ICEP).
2) Floating Plastic debris Density: testing phase of the agreed methodologies in pilot countries in 2017 (for beach litter) and data collection from countries in 2018-2020 (for beach litter) and from 2021 onwards (for Floating Plastic debris Density). UN Environment Live may provide a platform for country involvement with regard to data.

Please briefly describe the process of developing the methodology for the indicator

1) Index of Coastal Eutrophication (ICEP): inputs of nutrients (nitrogen, phosphorus and silica, in different forms) from rivers, and corresponding nutrient-ratio sub-indicator. There is broad consensus that this indicator will not be operational for several years. At the Mexico Meeting, a provisional sub-indicator has been proposed to replace ICEP: Chlorophyll-a concentration as an indicator of phytoplankton biomass. This is a core indicator of the Regional Seas

Conventions and Action Plans and is collected by national monitoring mechanisms for Regional Seas Conventions Programmes (RSCP). However, different Regional Seas have different methodologies. It is widely monitored by HELCOM, OSPARCOM, MAP and NOWPAP. In-situ sampling and remote sensing methodologies are already in place. The methodology will develop from the Global NEWS 2 model output for river nutrient exports (loadings) to the coast (Beusen et al, 2009; Mayorga et al, 2010; Seitzinger et al, 2010), and the application of the nutrient-ratio (ICEP) indicator of coastal eutrophication potential using these nutrient loadings (defined in Garnier et al, 2010; applied for the TWAP LME project using the Global NEWS 2 data). The GEF-GNC Project has developed a nutrient management toolbox that incorporates the Global NEWS modelling for basin-scale assessments of nutrient loading to the receiving environment. Building on the baseline information contained in the TWAP assessment and other marine pollution assessment, a technical expert meeting bringing together relevant institutional partners will be organized at the end of 2016/beginning of 2017 with aim of finalizing the indicator methodology and protocols for collecting data at national scale. The alternative sub-indicator will be used in the short-term, and the methodology for ICEP will be developed and made ready by 2020.

2) Floating Plastic debris Density: the second sub-indicator refers to modelled macro and micro plastics distribution in the ocean. Relative quantities of floating micro (<4.75mm) and macro- (>4.75mm) plastics in large marine ecosystems are measured based on a model of surface water circulation and the use of proxy inputs (shipping density, coastal population density, area of impermeable catchment i.e. urban areas with rapid run-off). The Regional Seas Conventions and Action Plans have agreed on beach litter as their indicator for marine litter, and this is the alternative proposal that has been submitted to the IAEG-SDGs at its 3rd Meeting. Some of the Regional Seas have included floating plastics in their monitoring programme (OSPAR, MAP). Monitoring guidelines on beach litter and floating plastics were also developed by UN Environment and IOC-UNESCO and published in 2009. The consultative process may include webinars, sessions during relevant meetings including the 43rd GESAMP Meeting (Nairobi, November 2016), the Global Regional Seas Meeting, Third Global Land-Oceans Connections Conference, SDG 14 Conference (June 2017) and other large-scale marine litter meetings scheduled for 2017, which will bring together experts to agree on furthering the work on indicators within the framework of the Global Partnership on Marine Litter (GPML). In addition, building on the baseline information contained in the TWAP assessment and other marine pollution assessments, a technical expert meeting bringing together relevant institutional partners will be organized at the end of 2016/beginning of 2017 with aim of furthering the indicator methodology and protocols for collecting data at national scale. An ongoing discussion is led by the University of Hawaii and NASA involving e.g. UN Environment on remote sensing technologies that could be relevant for marine litter. The methodology on beach litter will be ready by 2017, and the final indicator on Floating Plastics debris Density will be made ready by 2020.

Please indicate new international standards that will need to be proposed and approved by an intergovernmental process (such as UNSC) for this methodology.

Standards for accuracy of parameters to measure plastics and other types of litter, for the minimum parameters to measured, temporal and spatial coverage.

When do you expect the methodological work on this indicator to be completed?

1) ICEP: by end 2017 for alternative sub-indicator Chlorophyll-a and by end 2020 for ICEP.
2) Floating Plastic debris Density: by end 2017 for alternative sub-indicator on beach litter and by end 2020 for Floating Plastic debris Density.

Are data and metadata already being collected from the National Statistical System for one or more components of this indicator?

No

If yes, please describe:

How do you plan to collect the data?

1) Send questionnaires to countries
2) Obtain data directly from country database/website
3) Joint survey/compilation with national agency and international entity
4) Satellite images, remote sensing (marine litter: once progress has been made in the above mentioned initiative, we envisage that some data may be available via remote sensing).

If the indicator involves multiple components from different data sources, please describe how each individual component of the indicator will be collected here.

1) ICEP: data on Anthropogenic Non-Point nutrients sources from agriculture can be generated from global FAO databases and national databases; Point sources from sewage discharges will be derived from national sources. Hydrology and physical factors will be derived from the Global NEWS model datasets. Smaller-scale watershed data will need to be derived from national sources.

With what frequency is data expected to be collected?

1) ICEP: to be determined (data collection for alternative sub-indicator on Chlorophyll-a will start in 2018; data collection for ICEP will start in 2021).
2) Floating Plastic debris Density: Once developed, biannually (data collection for alternative sub-indicator on beach litter will start in 2018; data collection for Floating Plastic debris Density will start in 2021).

Is there a process of data validation by countries in place or planned for this indicator?
Yes - planned

If yes, please briefly describe:

1) ICEP: to be determined (a strategy for data collection for alternative sub-indicator Chlorophyll-a concentration will be ready by early 2018; a strategy for data collection for ICEP will be ready by early 2021).
2) Floating Plastic debris Density: to be determined (a strategy for data collection for alternative sub-indicator on beach litter will be available by early 2018; a strategy for data collection for Floating Plastic debris Density will be ready by early 2021).