Goal 14

Target number: 14.1

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

Agency: UN Environment

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. Jillian Campbell – campbell7@un.org
2. Christopher Cox (coastal eutrophication) – christopher.cox@un.org
3. Heidi Savelli (marine litter) – heidi.savelli@un.org

UN Environment works in close collaboration with the Regional Seas Conventions and IOC-UNESCO on coastal eutrophication and marine litter. UN Environment also has a core group of experts which includes IOC-UNESCO, International Geosphere-Biosphere Program (IGBP), University of Washington and GESAMP-UN Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection. The Group on Earth Observation (GEO) Blue Planet has also been providing support toward the development of this methodology. GEO Blue Planet is Chaired by the United States National Oceanic and Atmospheric Administration.
UN Environment has been using existing meetings on coastal eutrophication and marine litter to discuss the methodology for this indicator. Additionally, UN Environment will convene an expert group meeting on SDG 14.1.1 in Paris in September 2018. A meeting of the global Reginal Seas Conventions will be convened in Split, Croatia in September 2018 at which further discussions will be held on progress in monitoring within Regional Seas convention areas.

What is the involvement of or how do you plan to involve National Statistical Systems in the development of the methodology?
Government Ministries working with oceanic data as part of the National Statistical Systems have been engaged throughout the process. Additionally, pilot testing of the approach for 14.1.1 was conducted in 2017 in Fiji and Colombia. Both pilots worked with the National Statistical Office and a wide variety of members of the National Statistical System.

Please briefly describe the process of developing the methodology for the indicator
A review of existing indicators and methodologies currently used by Regional Seas Programmes and other key intergovernmental, international or regional bodies highlights three main approaches for monitoring coastal eutrophication and marine litter.
Based on this review there are currently four main types of indicators of coastal eutrophication:
1) Indicators for the cause of eutrophication (nutrient input and concentrations)
2) Indicators for the direct effects of eutrophication (e.g. Chlorophyll-a concentrations, biomass growth, water clarity/turbidity)
3) Indicators for the indirect effects of eutrophication (e.g. dissolved oxygen levels)
4) Modelled indicators of the potential for coastal eutrophication (the Index of Coastal Eutrophication Potential, based on analyzing nutrient load ratios and expected influence on eutrophication due to land based activities)
There are also four main types of indicators for marine litter
1) Plastic debris washed/deposited on beaches or shorelines (beach litter)
2) Plastic debris in the water column
3) Plastic debris on the seafloor/seabed

4) Plastic ingested by biota (e.g. sea birds)

Assessment of some of these indicators present challenges particularly for developing countries and thus an approach which would blend: national level in-situ measurements, remote sensing using satellite images and globally modelled data is being discussed as the basis for this indicator. It is expected that two levels of monitoring will be proposed: (1) globally developed data products from remote sensing and modelled data and (2) compilation of more detailed national data for UN Environment (through the Regional Seas mechanisms when possible).

Please indicate new international standards that will need to be proposed and approved by an intergovernmental process (such as UNSC) for this methodology.
This standard will be adopted by the 18 Regional Seas Conventions which cover all UN members which are included in a Regional Seas Programme. It is expected that an additional intergovernmental process will not be necessary. UN Environment will continue to consult with the Expert Group on Environment Statistics and the UN Committee on Environmental Economic Accounting to ensure harmonization with the existing standards on environment statistics.

When do you expect the methodological work on this indicator to be completed?
By March 2019.

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

If yes, please describe:
Globally, there is an existing effort to consolidate the measurement of Chlorophyl-A and Disolved Suspended Solids into a single geospatial data product using satellite data. There has been some pilot work on marine litter and globally modelled coastal eutrophication which can be included in the scope of this indicator in the future.

Several Regional Seas Programmes (and other frameworks/partners) are collecting indicators which fall under each type as described below:
Coastal Eutrophication:
1) Indicators for the cause of eutrophication (nutrient input and concentrations): Five Regional Seas Programmes, as well as the European Union (EU) Marine Strategy Framework Directive (MSFD, subsequently referred to as "Marine Directive") collect some data on nutrient concentration.
2) Indicators for the direct effects of eutrophication (e.g. Chlorophyll-a concentrations, biomass growth, water clarity/turbidity): All 18 Regional Seas Programmes have some data. In addition, the European Environment Agency, the EU Marine Directive, the United States National Oceanic and Atmospheric Administration (NOAA) and the Global Environment Facility Transboundary Waters Assessment Programme (GEF-TWAP) use Chlorophyll-a as indicator for eutrophication
3) Indicators for the indirect effects of eutrophication (e.g. dissolved oxygen levels): Four Regional Seas Programmes and the EU Marine Directive use dissolved oxygen levels in the water as an additional indicator for eutrophication.
4) Modelled indicators of the potential for coastal eutrophication (ICEP): IOC-UNESCO has facilitated work on this indicator in partnership with UN Environment and other research institutes. The Transboundary Waters Assessment Programme (GEF-TWAP) has included the ICEP as indicator for eutrophication.

Marine litter:
1) Plastic debris washed/deposited on beaches or shorelines (beach litter): Most of the Regional Seas Programmes, as well as the EU Marine Directive collect data; however, not all Regional Seas are using a harmonized methodology.

2) Plastic debris in the water column: Three Regional Seas have indicators and methodologies in place for monitoring marine litter in the water column.
3) Plastic debris on the seafloor/seabed: Three European Regional Seas Programmes currently have indicators and monitoring methodologies in place for seafloor litter.
4) Plastic ingested by biota (e.g. sea birds): Experimental data is being collected by a number of countries and citizen science projects.

How do you plan to collect the data?

1. Send questionnaire(s) to country
2. Satellite images, remote sensing
3. Regional Seas Conventions

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

With what frequency is data expected to be collected?
Globally developed data products using remote sensing will be updated annually. National level data will be collected every 5 years.

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

If yes, please briefly describe:
Communication is carried out with countries for clarification and validation of data as per the guidelines adopted by the UN Statistical Commission.

If you have any additional comments that you believe would be helpful to IAEG-SDG members in analysing the work plan and methodological development of the indicator, please provide them here:
Data for the underlying statistics for this indicator are already collected for many countries. As coastal eutrophication and marine litter are increasingly being recognized as a global priority, additional information will likely be collected by countries in the future. The methodology will include a step-wise or laddered approach to allow countries, including least developed countries, to engage in the process. A methodology will be ready for the IAEG by mid-2019; however, this methodology will need to be refined over time to ensure state of the art monitoring.

(As of July 2018)