United Nations
Educational, Scientific and
Cultural Organization

Intergovernmental
Oceanographic
Commission

Sustainable Development Goal 14

Target 14.3 and the related indicator

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

CLIMATE CHANGE

United Nations Framework Convention on Climate Change

OCEANS

OCEANS & LAW OF THE SEA UNITED NATIONS

GPA

Regional Seas

ICCAT

iotc ctoi

Western & Central Pacific Fisheries Commission

OSPAR COMMISSION

Protecting and conserving the North-East Atlantic and its resources

CCAMLR

Commission for the Conservation of Antarctic Marine Living Resources

BIODIVERSITY CONSERVATION

Ramsar

Convention on Biological Diversity

SUSTAINABLE DEVELOPMENT

UNISDR

The United Nations Office for Disaster Risk Reduction

SUSTAINABLE DEVELOPMENT GOALS

GLOBAL POLICIES

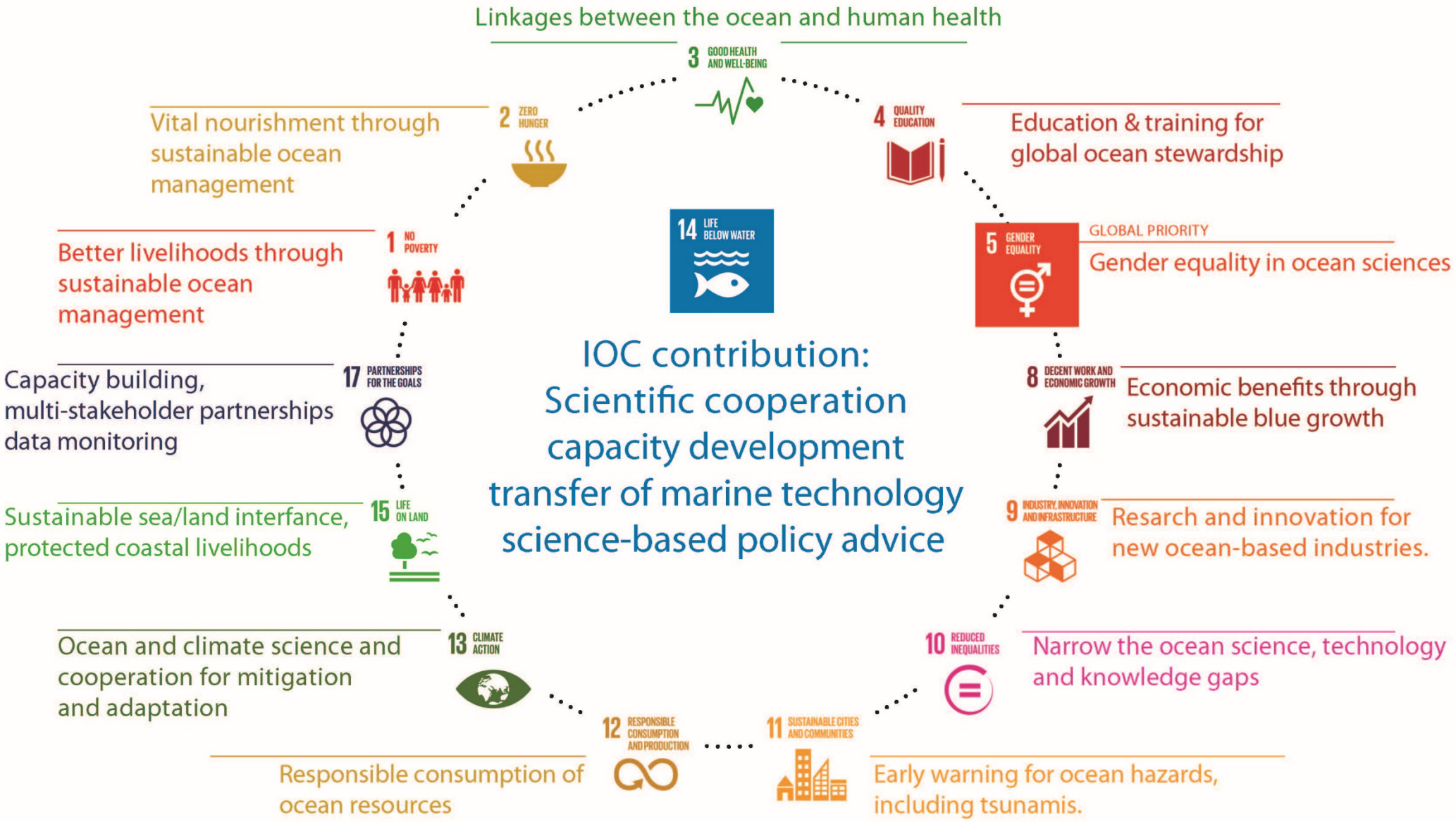
SECTORAL POLICIES

REGIONAL POLICIES

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

17 objectives to transform our world: Agenda 2030

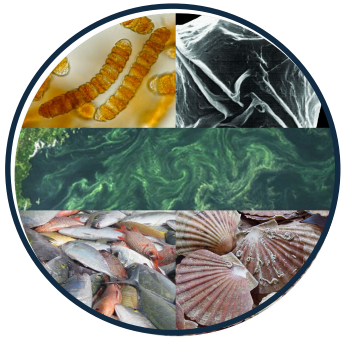


The work of IOC of UNESCO is relevant to **13 out of 17** Sustainable Development Goals

TARGETS – SCIENCE SUPPORT

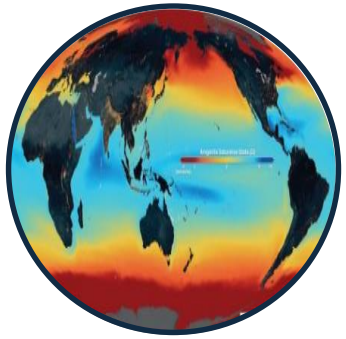
United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission



14.1 Prevent and Reduce marine pollution

14.2 Manage and Protect marine & coastal ecosystems



14.3 Minimize impacts of Ocean Acidification

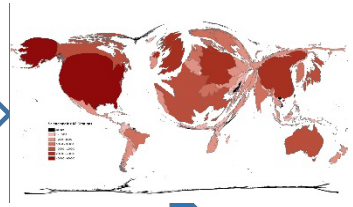
14.4 Implement science-based management Plans

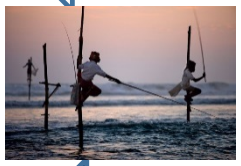
14.5 Conserve coastal and marine areas

14.6 Prohibit certain forms of fisheries subsidies

14.7 Increase socioeconomic benefit of SIDS

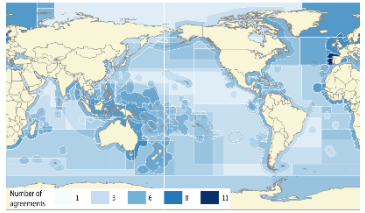
14.a Increase scientific knowledge – Transfer of marine technology





14.b Provide access for artisanal fisheries to marine resources & markets

14.c Enhance conservation & sustainable use of oceans via international law



Processes involved in the achievement of the GOAL 14

1. **Voluntary commitments – Communities of Ocean Action**

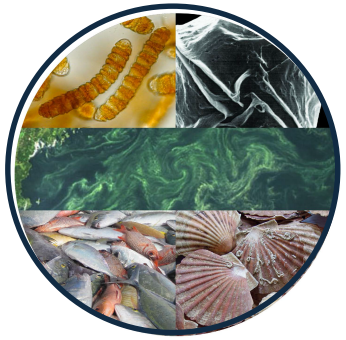
   242 Volunatary commitments
   232 members
   e.g. WESTPAC Coral Reef Ocean Acidification Monitoring (#OceanAction15274); GOA-ON (#OceanAction16542)

2. **Global indicator – 14.3.1**

   Average marine acidity (pH) measured at agreed suite of representative sampling stations
   IOC custodian agency

TARGETS – SCIENCE SUPPORT

United Nations Educational, Scientific and Cultural Organization | Intergovernmental Oceanographic Commission



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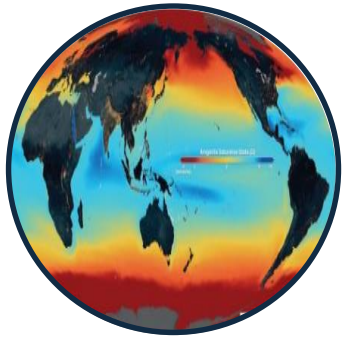

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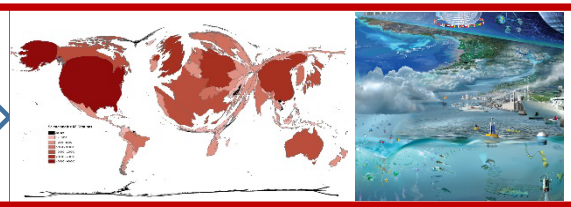

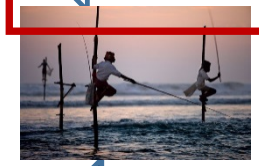

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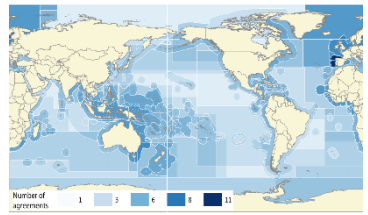
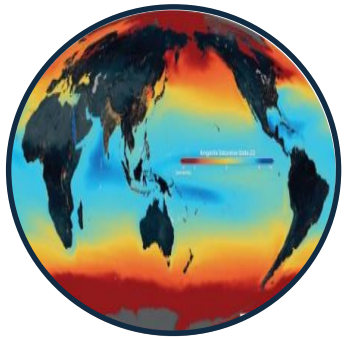


TARGETS – SCIENCE SUPPORT

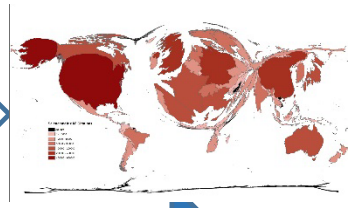


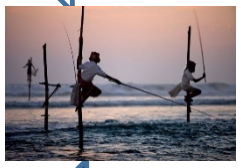
14.3 Minimize impacts of Ocean Acidification

1. Improve Ocean Acidification measurements
2. Detect and model biological impacts of Ocean Acidification
3. Detect and model the socioeconomic impacts of Ocean Acidification
4. Ocean Acidification in a multistressor world

IOC supporting activities: GOOS, GOA-ON, OA-iRUG, IOC-WESTPAC OA coral reef observation, LME

14.a Increase scientific knowledge – Transfer of marine technology





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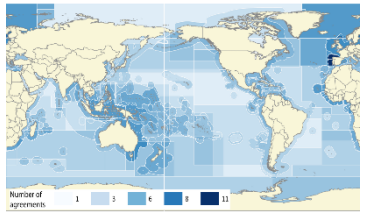


Indicators process:
Process and key actors

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Intergovernmental agreement on Agenda 2030

Work on indicators for SDGs
Coordinated by the UN Stat Commission (UNSC)
UNSD as secretariat

- Report on progress towards the goals and targets
- Develop an indicator framework and a list of indicators
- Provide technical support for the implementation of the approved indicator and monitoring
- Regularly review methodological developments (twice a year)

IAEG – SDG Indicators
⇒**Established by UNSC**
⇒28 Member States plus international agencies and other stakeholders

National Statistical Offices

Indicator Development

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

- IAEG-SDG agreed on a list of indicators for all SDGs which was approved by the UN Statistical Commission.

- IOC identified as custodian agency 2 SDG 14 targets

Indicator: 14.3.1	***Average marine acidity (pH) measured at agreed suite of representative sampling stations***
Indicator: 14.a.1	***Proportion of total research budget allocated to research in the field of marine technology***

- Also contributes to UNEP led targets 14.1 (pollution) and 14.2 (ecosystem management)

Definition of the three indicators tiers

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Tier 1: Indicator conceptually clear, established methodology and standards available and data regularly produced by countries.

Tier 2: Indicator conceptually clear, established methodology and standards available but data are not regularly produced by countries.

Tier 3: Indicator for which there are no established methodology and standards or methodology/standards are being developed/tested.

Most SDG 14 indicators !!

TIER CLASSIFICATION REVIEWED YEARLY BY IAEG-SDG

What does Custodianship mean?

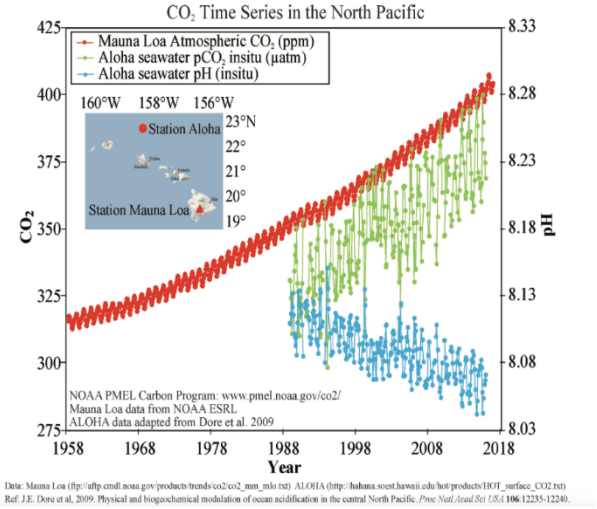
United Nations Educational, Scientific and Cultural Organization

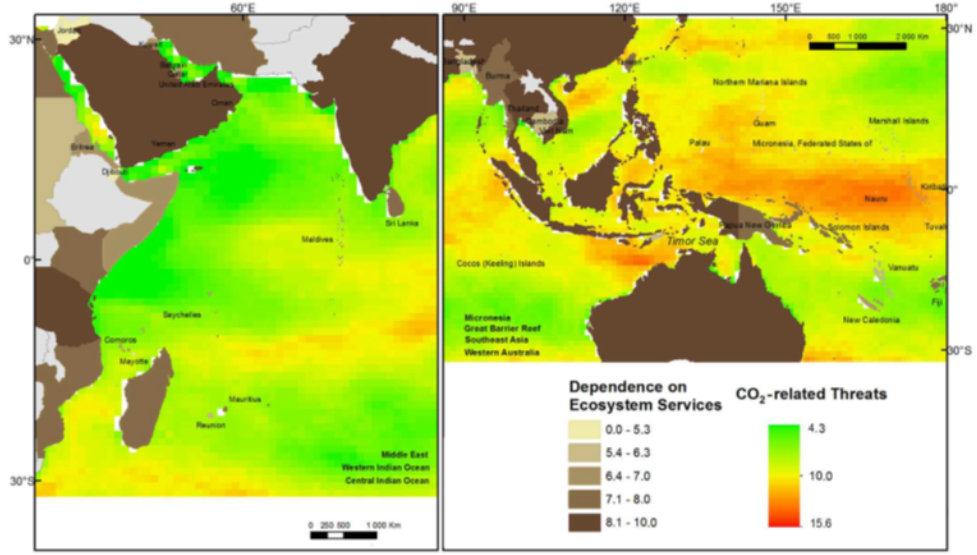
Intergovernmental Oceanographic Commission

1. Develop internationally agreed standards, coordinate the indicator development, and support increased adoption and compliance with the internationally agreed standards at the national level;

2. Collect data in relevant domain from countries (or regional organizations as appropriate through existing mandates and reporting mechanism to provide internationally comparable data are and calculate global and regional aggregates;

3. Strengthen national statistical capacity and improve reporting mechanisms





Pendelton et al. 2016

Decision by IOC Assembly (June 2017)

Contribution to SDG Indicator Process

The Assembly,

Having examined IOC-XXIX/2 Annex 14 and IOC/INF-1346,

Further takes note of the assignment of IOC as a custodian agency for specific SDG 14 indicators, particularly under targets 14.3 and 14.a;

Welcomes the proposed methodology for indicator 14.a.1 as presented in document IOC-XXIX/2 Annex 14 and recommends its presentation to the IAEG-SDG; and takes note of the draft methodology for indicator 14.3.1 to be finalized in 2018 and submitted to the IOC Executive Council for its consideration at its 51st session.

Development of the methodology for indicator 14.3.1

IAEG-SDGs
Inter-agency Expert Group on SDG Indicators

United Nations Educational, Scientific and Cultural Organization
Intergovernmental Oceanographic Commission

Progress so far:

Indicator (TIER III): Average marine acidity (pH) measured at agreed suite of representative sampling stations

Custodian Agency: IOC-UNESCO

Methodology development outline: rough draft submitted in June 2016
update submitted in November 2016 and November 2017

Methodology development includes: bodies involved
how this is conducted, including meetings
data collection/validation – visualization

First results submitted for SDG indicator report in February 2017 with data from Australia and USA, new request received for 2018 – submission until 16 February 2018

Development of the methodology for indicator 14.3.1

IAEG-SDGs
Inter-agency Expert Group on SDG Indicators

United Nations Educational, Scientific and Cultural Organization
Intergovernmental Oceanographic Commission

Methodology:

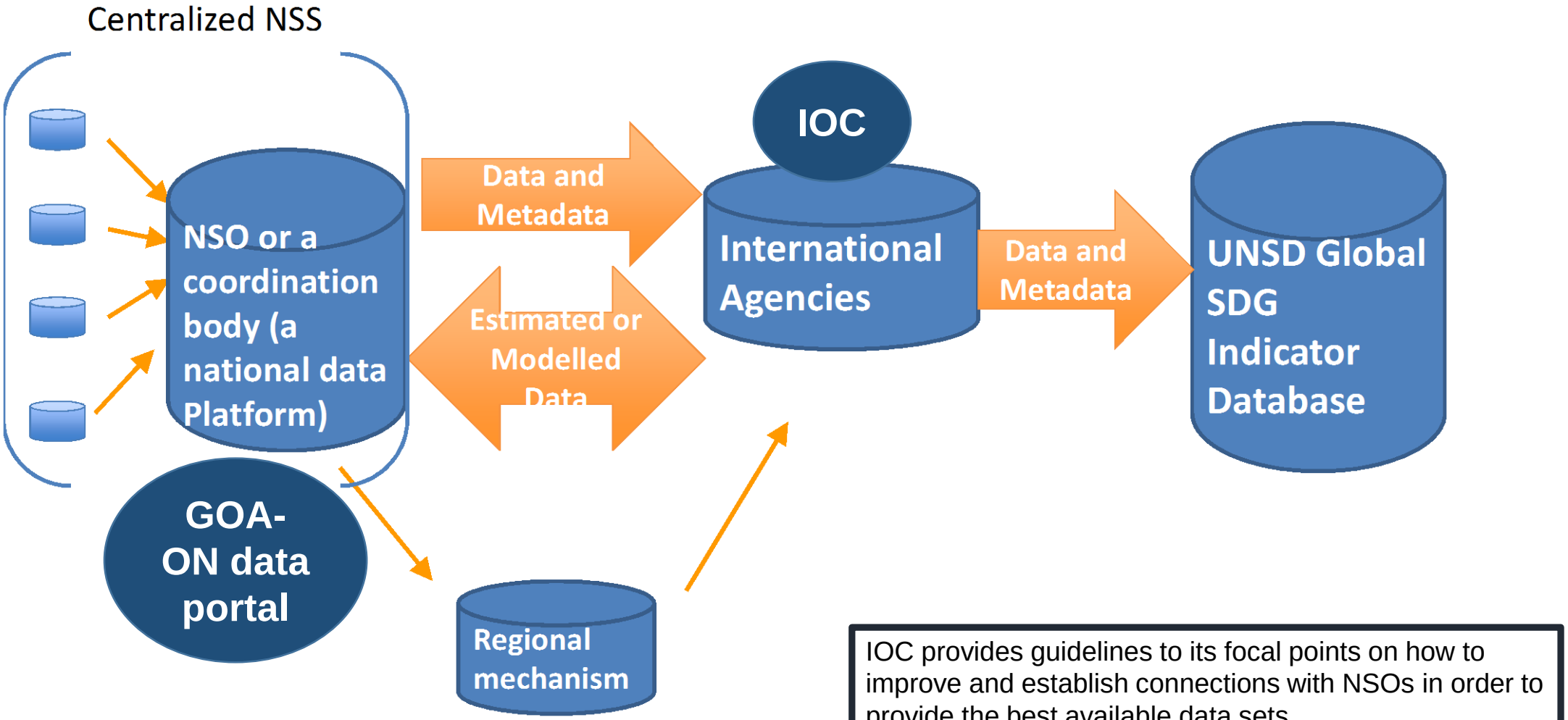
Bodies involved:	IOC Member States GOOS and regional nodes GOA-ON LAOCA, WESTPAC, OA-Africa SOCAT/GLODAP
Data collection:	For the time being, not direct, no regular request, possible use IOC member states, if there is a place to report to: capacities for data storage? need to define clearly what we need for reporting average ph? Parameters, frequency, metadata Lesson learned so far: average monthly or seasonal patterns if possible, to show natural variation, aragonite allows to reflect the target better
Data validation:	GOA-ON EC? GOA-ON data portal?

Data flow from national to global level

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Data flow for indicator measurements



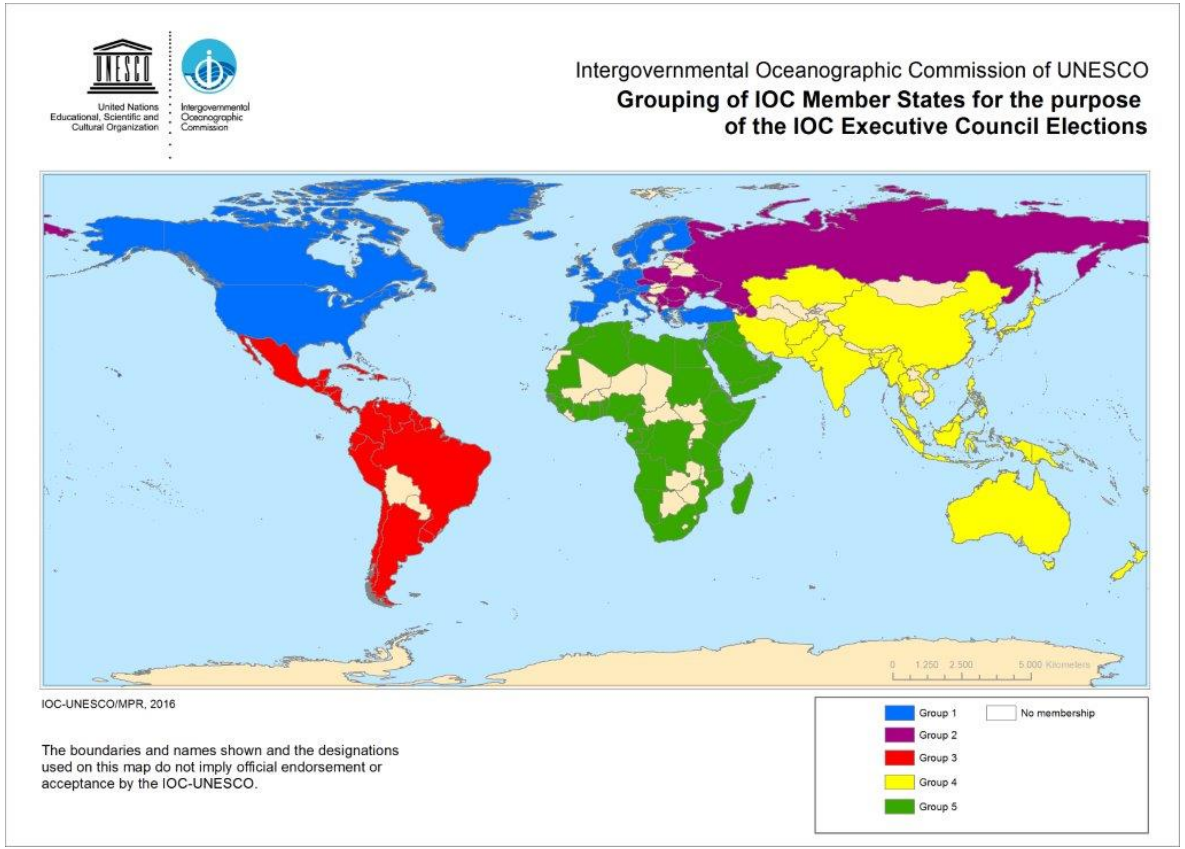
IOC provides guidelines to its focal points on how to improve and establish connections with NSOs in order to provide the best available data sets.

Data flow from national to global level

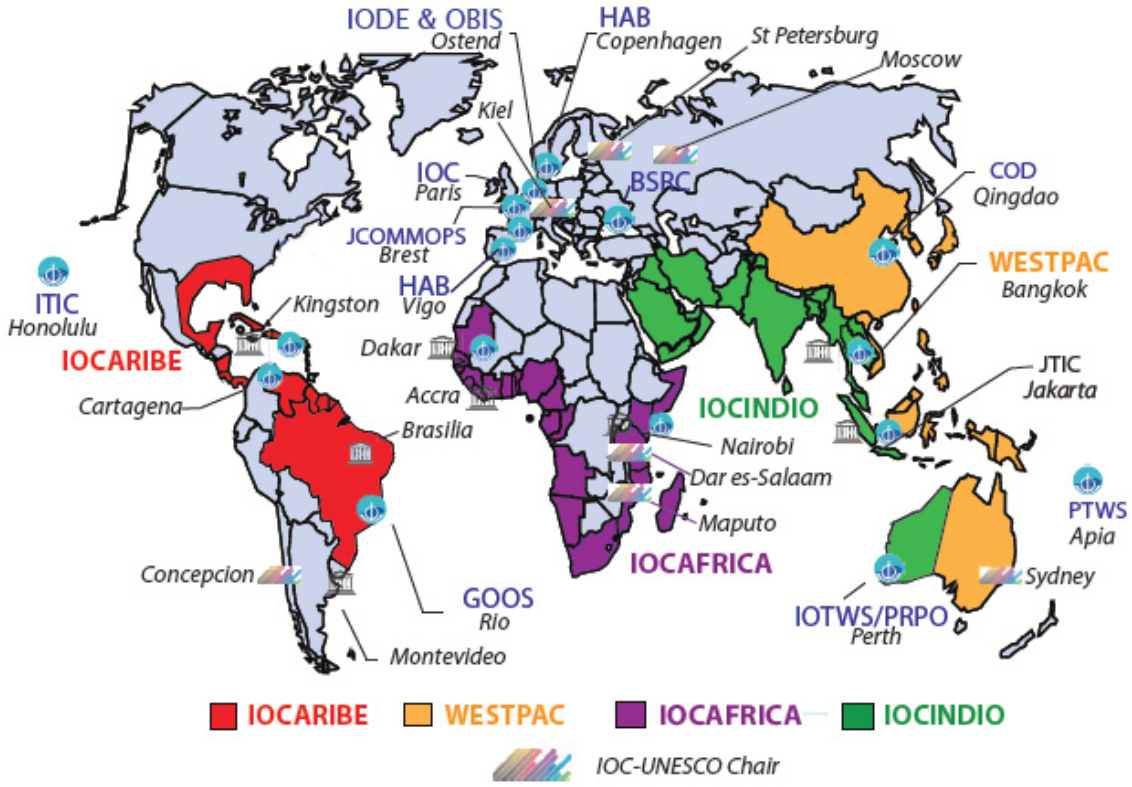
United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

IOC Member States (148):



IOC Sub-Commissions, Committees, Programme Offices and Project Offices:

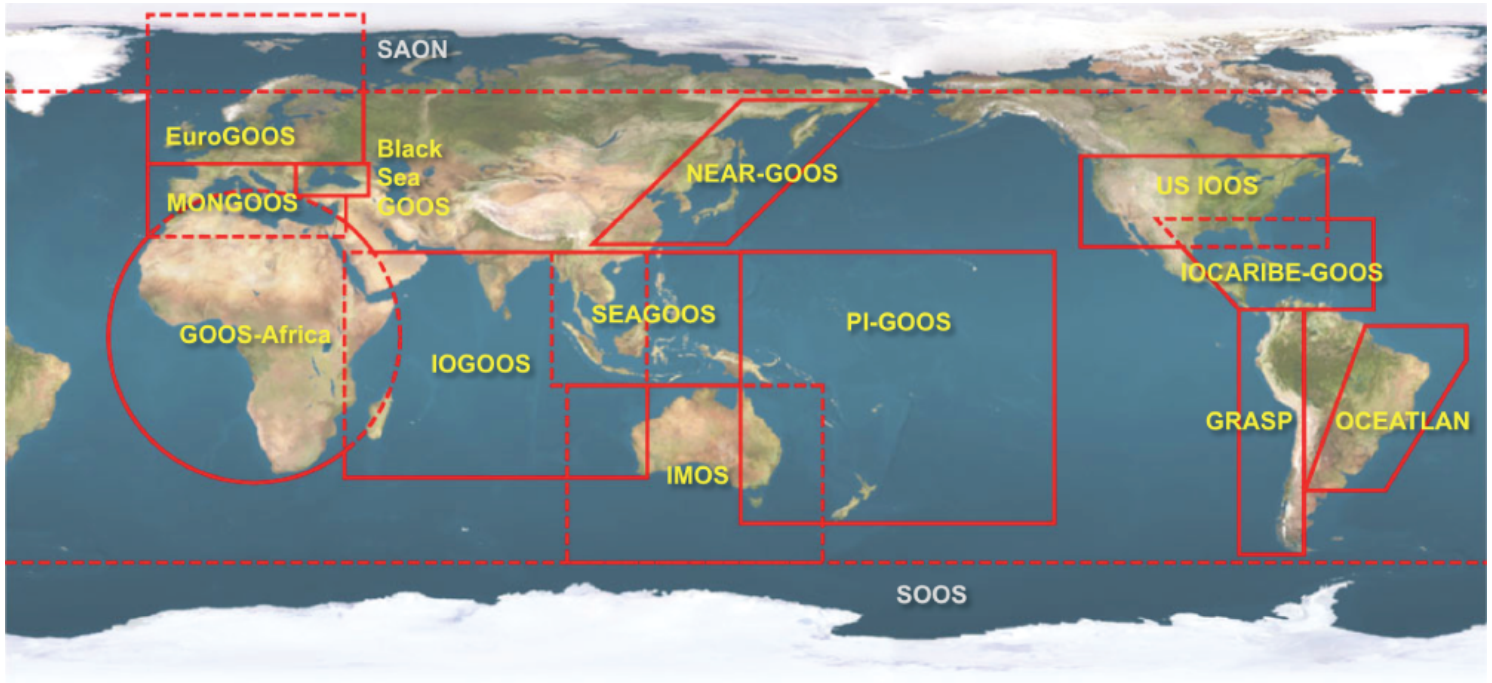


Data flow from national to global level

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

GOOS Regional Alliances:



GOA-ON members and GOA-ON regional nodes:

LAOCA
WESTPAC-coral reef OA monitoring
Arctic
Southern Ocean
OA-Africa….

Other networks???

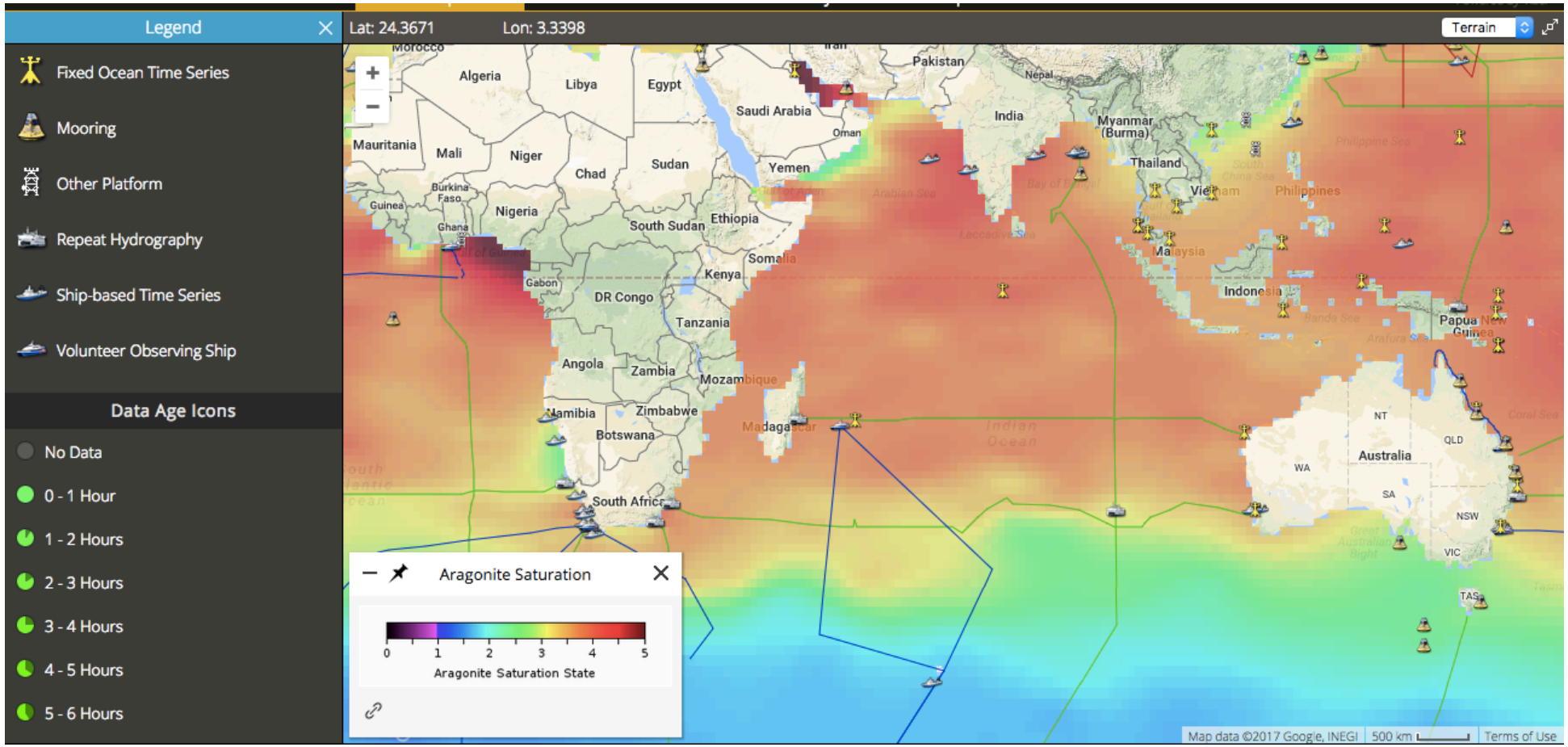
SOCAT?
IOCCP?
GEO?

Data flow from national to global level

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

GOA-ON data portal



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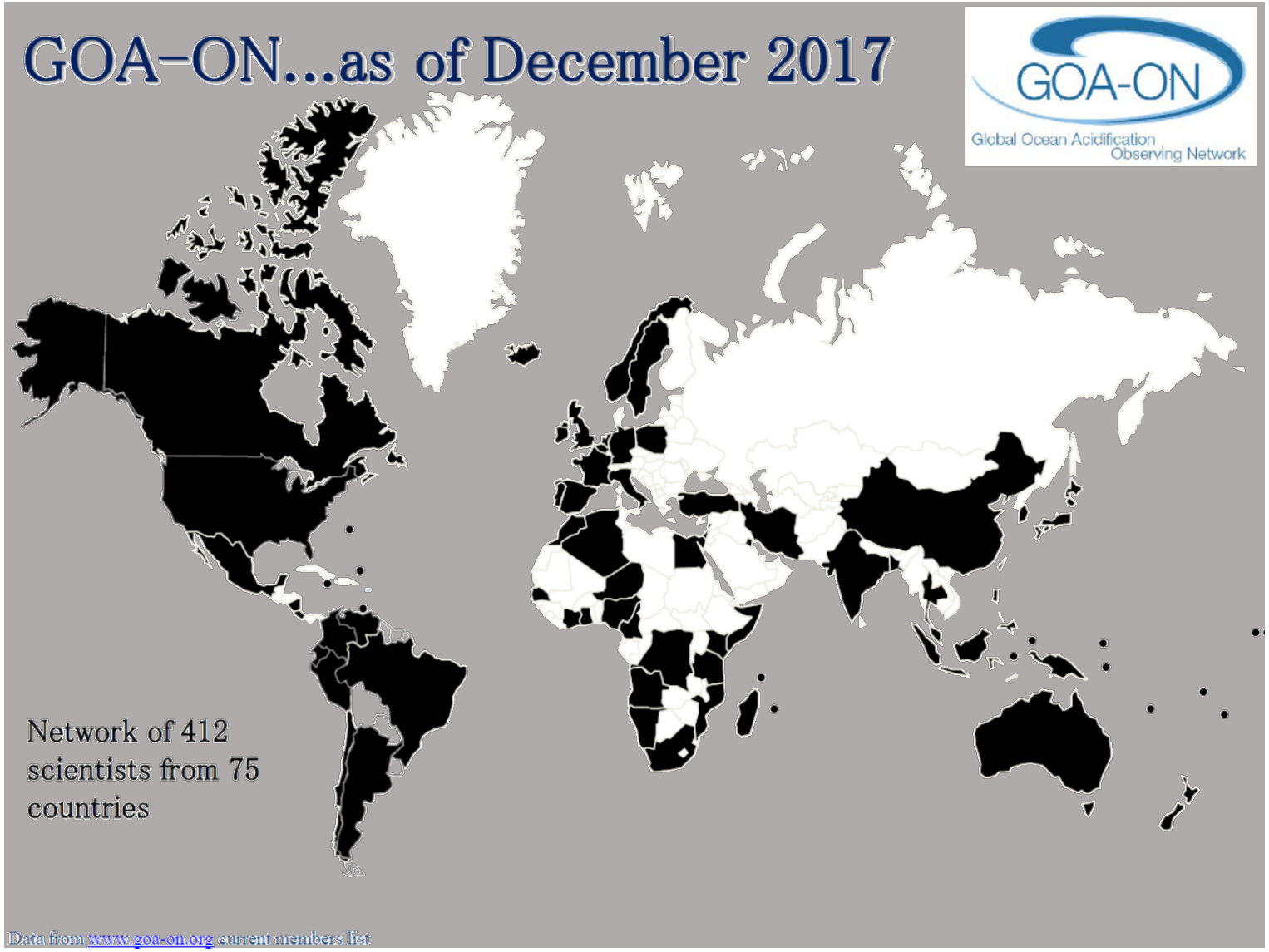

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GEO?

Development of the methodology for indicator 14.3.1

IAEG-SDGs
Inter-agency Expert Group on SDG Indicators

United Nations Educational, Scientific and Cultural Organization
Intergovernmental Oceanographic Commission

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Development of the methodology for indicator 14.3.1

IAEG-SDGs

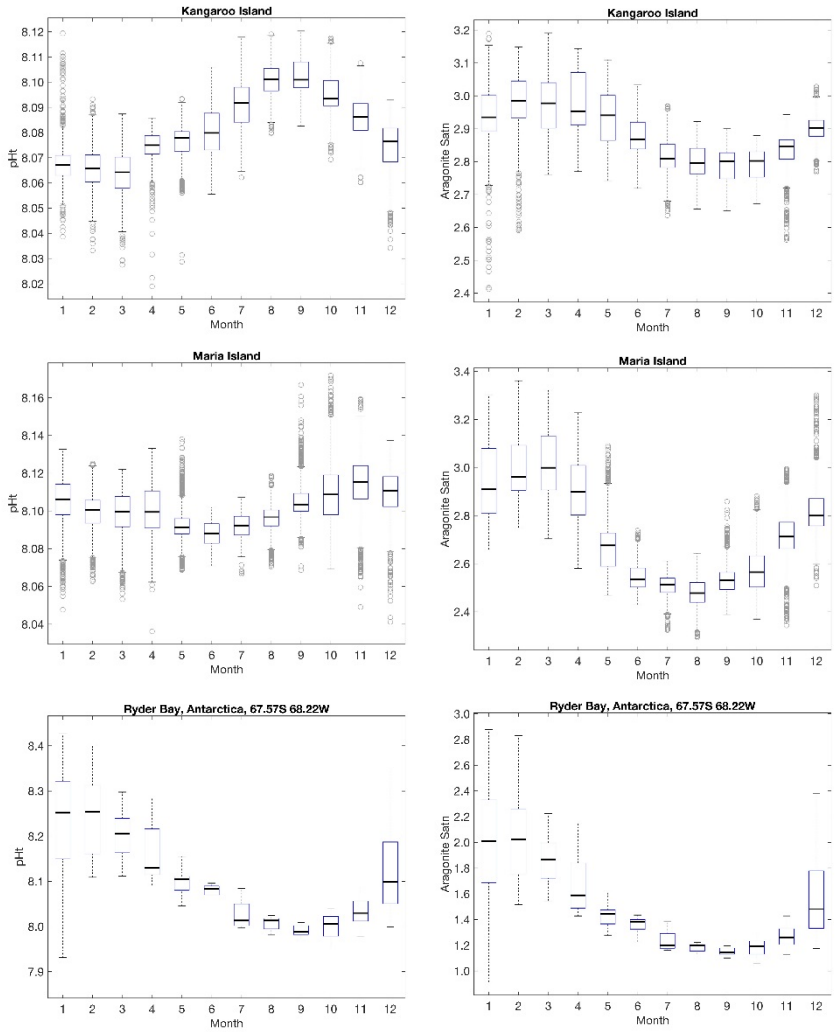
Inter-agency Expert Group on SDG Indicators

United Nations Educational, Scientific and Cultural Organization

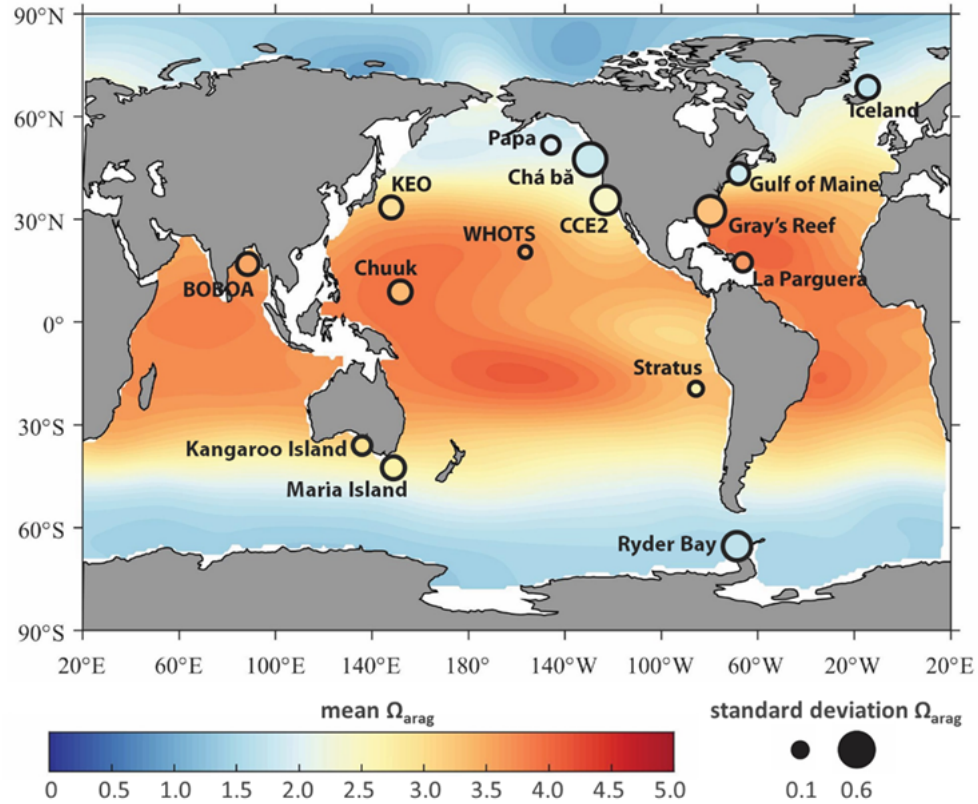
Intergovernmental Oceanographic Commission

Methodology:

Data visualization:



Box and whisker plots of monthly surface seawater aragonite saturation state (left panels) and pH at three selected sites in the Southern Hemisphere (time spans: Kangaroo Island – 2012-2016; Maria Island – 2011-2016; Ryder Bay, Antarctica – 2010-2014). (Data: Kangaroo and Maria Islands, IMOS/CSIRO, B. Tilbrook, and Ryder Bay data from Legge et al., 2016)



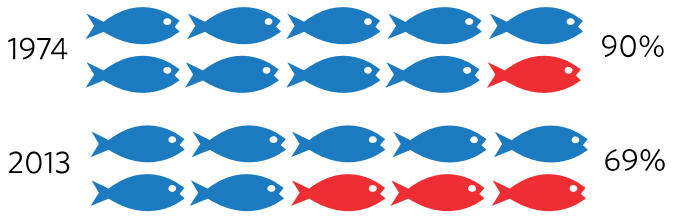
Surface seawater aragonite saturation state (Ωarag) from buoy and ship-based observations. Base map is adapted from Jiang et al. (2015) and shows annual climatological distribution of surface ocean Ωarag. Symbol color for the 15 fixed time series locations denotes annual mean Ωarag, and the size of symbols represents Ωarag variability as measured by 1 standard deviation of the annual mean. Adapted from Sutton et al. 2016 with new contributions from B. Tilbrook.

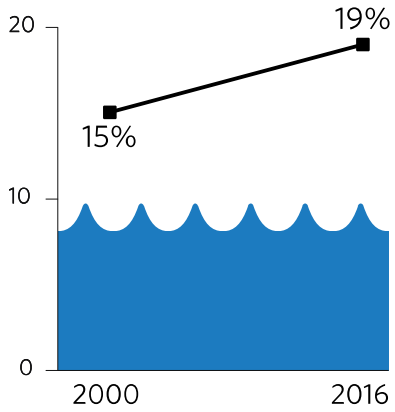
Outcome documents

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

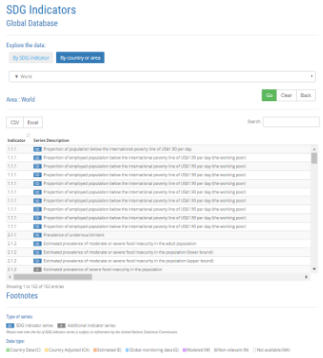
Proportion of fish stocks within biologically sustainable levels





Proportion of marine key biodiversity areas under protection worldwide

SDG Website: http://unstats.un.org/sdgs/



SDG Indicators Global Database
with country-level data

SDG Indicator Metadata

The Sustainable Development Goals Report 2017

United Nations

Development of the methodology for indicator 14.3.1

IAEG-SDGs

Inter-agency Expert Group on SDG Indicators

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

What next:

Indicator (Tier 3): Average marine acidity (pH) measured at agreed suite of representative sampling stations

Methodology fact sheet to be submitted to the next IAEG-SDG meeting in October 2018

Moving from Tier 3 to Tier 2

Tier 1: Indicator is conceptually clear and has an internationally established methodology and standards are available. In addition, data are regularly produced by countries for at least 50 per cent of countries and of the population in every region where the indicator is relevant.

Tier 2: Indicator is conceptually clear, has an internationally established methodology and standards are available, but data are not regularly produced by countries.

Tier 3: No internationally established methodology or standards are yet available for the indicator, but methodology/standards are being (or will be) developed or tested.

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Global Ocean Science Report

Assesses for the first time the status and trends in **ocean science capacity around the world**.

A global record of how, where, and by whom ocean science is conducted.

Information used for reporting torwards **SDG target 14.a** – Agenda 2030

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

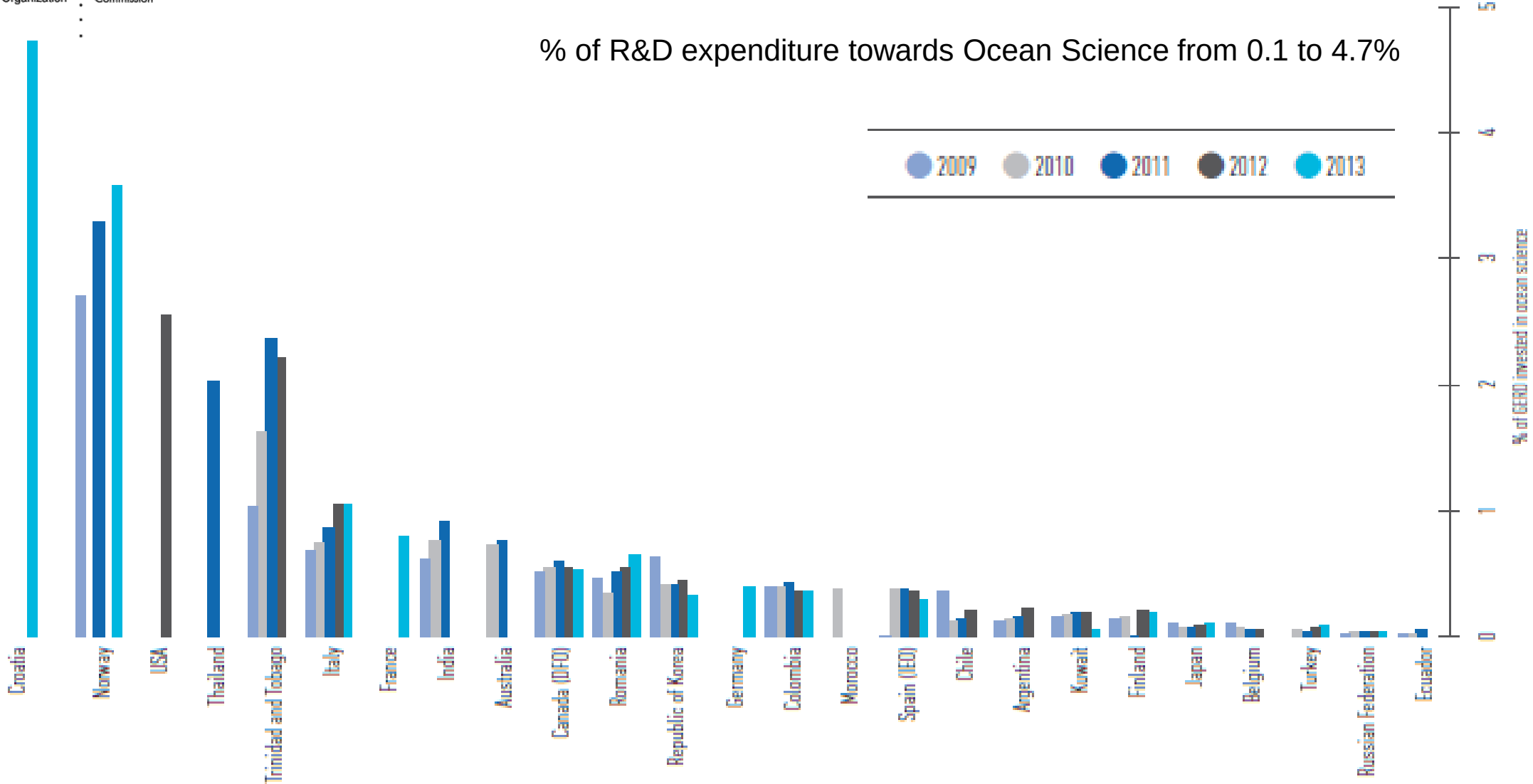
United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

14 LIFE BELOW WATER

How much do we invest in Ocean Science?

% of R&D expenditure towards Ocean Science from 0.1 to 4.7%



United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

14 LIFE BELOW WATER

How ‘big’ is our ocean science?

Global Citation Map for **Ocean Science**

Area of each country is scaled and deformed according to the number of citation receive