GROUP ON EARTH OBSERVATIONS

BLUE PLANET Oceans and Society

Ocean Acidification in relation to SDG-14 (and 13)

Working Group 4

SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

BLUE PLANET Oceans and Society

SDGs represent a clear opportunity for generating greater coherence betwenn EO and society, environment and economy policy issues

EO can play key roles in monitoring targets, planning, tracking progress, and helping nations and other stakeholders make information decisions

BLUE PLANET
Oceans and Society

10 TARGETS and 10 **INDICATORS**

"Indicators [are] the backbone of monitoring progress towards the SDGs at the local, national, regional, and global levels. A sound indicator framework will turn the SDGs and their targets into a management tool to help countries develop implementation strategies and allocate resources accordingly, as well as a report card to measure progress towards sustainable development and help ensure the accountability of all stakeholders for achieving the SDGs."

SUSTAINABLE DEVELOPMENT GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

BLUE PLANET
Oceans and Society

10 TARGETS and 10 INDICATORS

Themes

- Marine pollution
- marine and coastal ecosystems

- ocean acidification
- Overfishing
- Illegal, unreported and unregulated fishing
- small-scale artisanal fishers
- Improve ocean health

- Economic benefits to Small Island developing States

Actions

- prevent and reduce
- Conserve, sustainably manage and use, international law
- Minimize
- Regulate,
- Prohibit

- access to marine resources & markets
- research capacity and transfer marine technology
- sustainable use of marine resources

SUSTAINABLE DEVELOPMENT GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

BLUE PLANET
Oceans and Society

TARGETS

14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans

14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

SUSTAINABLE DEVELOPMENT GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

BLUE PLANET Oceans and Society

TARGETS

14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation

14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

14A Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries

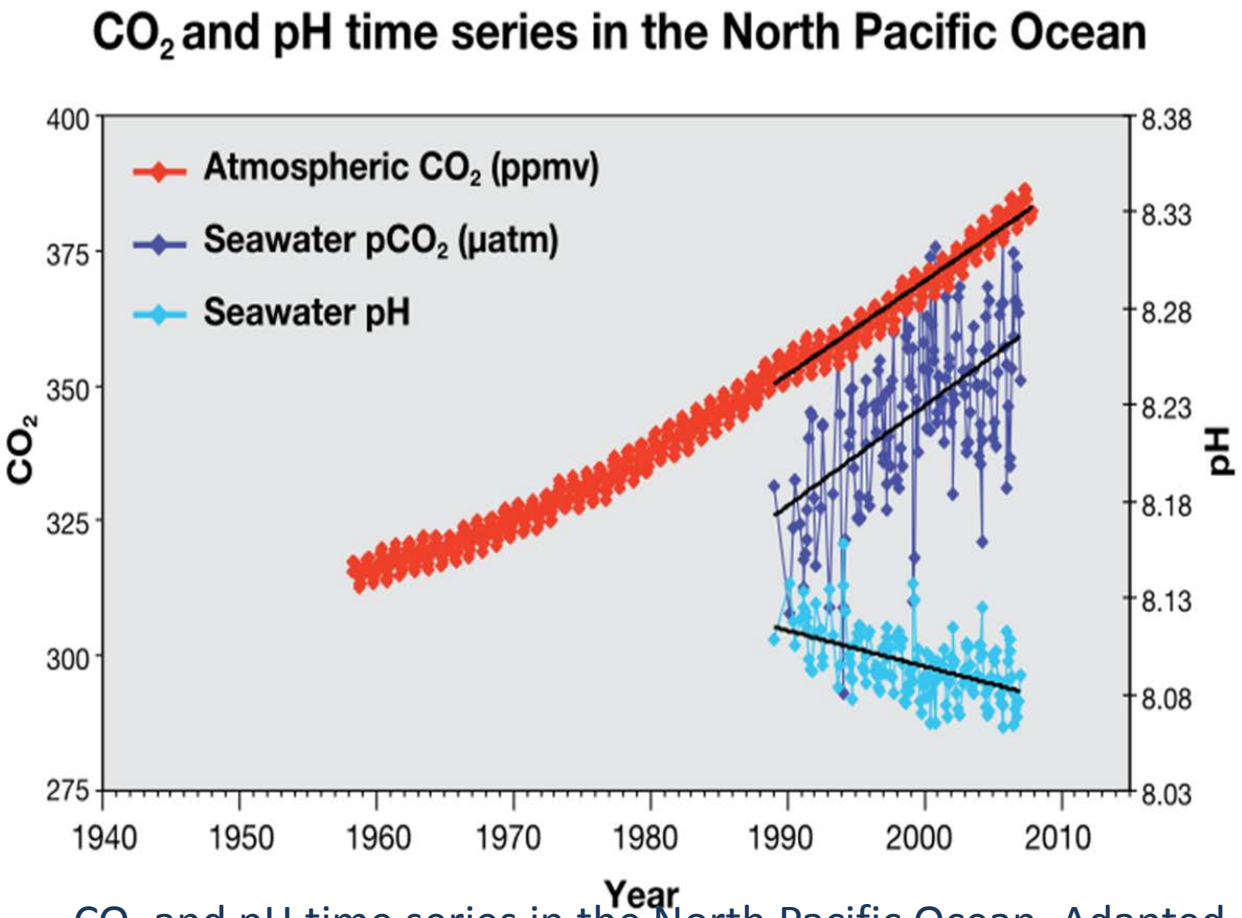
14B Provide access for small-scale artisanal fishers to marine resources and markets

14C Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Wan

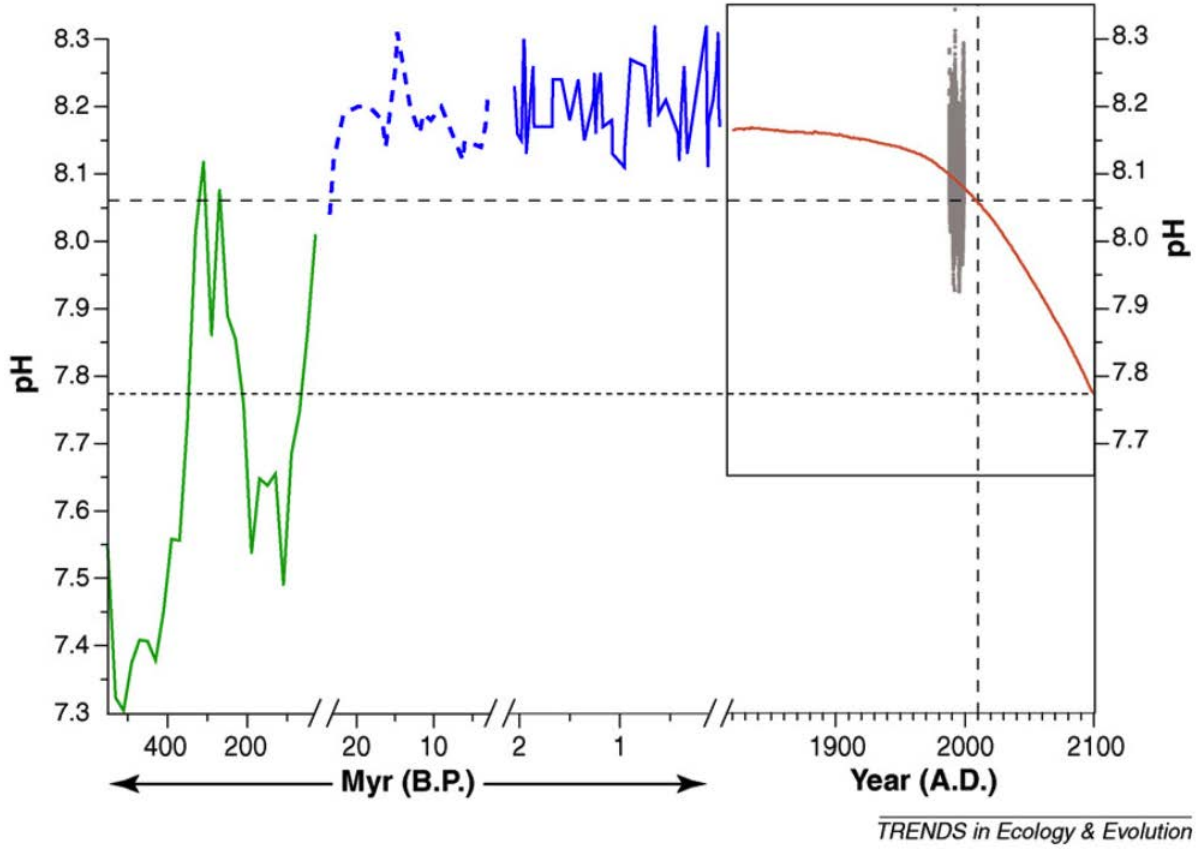
SUSTAINABLE DEVELOPMENT GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

BLUE PLANET
Oceans and Society



CO_2 and pH time series in the North Pacific Ocean. Adapted from Feely (2008)

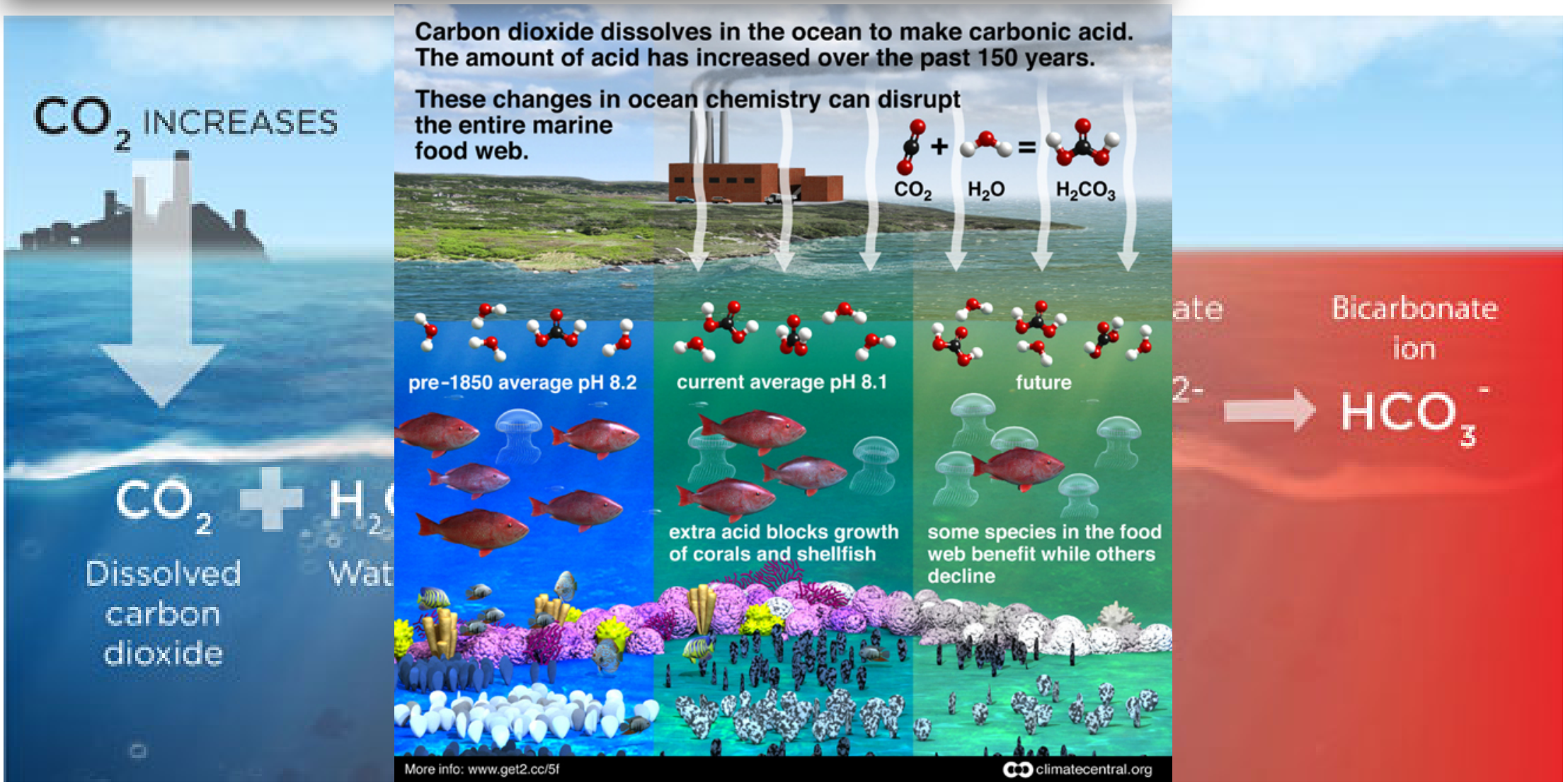


Pelejero et. al. 2010

SUSTAINABLE DEVELOPMENT GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

BLUE PLANET
Oceans and Society

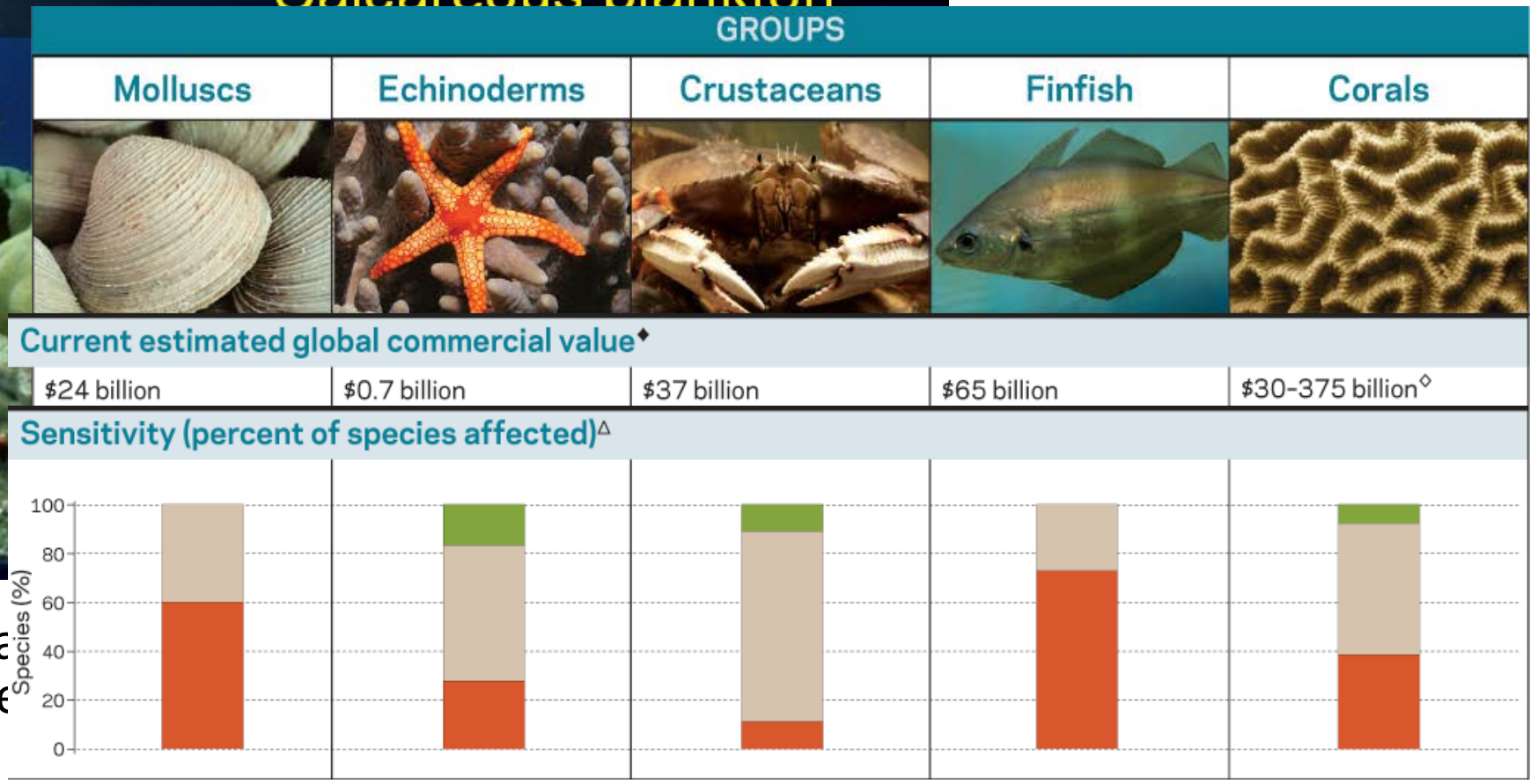


- CO_2 is corrosive to the shells and skeletons of many marine organisms

Corals

Calcareous plankton

BLUE PLANET Oceans and Society



Impacts of Ocean Acidifica
economic use

Ocean Acidification is a Concern for Many Commercially Important Species

Feely et al. ,in prep.

Feely et al. ,in prep.

BLUE PLANET
Oceans and Society

SDG-14 Indicators

- **Tier I**: Indicators conceptually clear, established methodology and standards available and data regularly produced by countries.
- **Tier II**: Indicator conceptually clear, established methodology and standards available but data are not regularly produced by countries.
- **Tier III**: Indicators for which there are no established methodology and standards or methodology/standards are being developed/tested.

2 SDG 14 indicators are classified as Tier I (14.4 and

BLUE PLANET
Oceans and Society

Defining Ocean Acidification targets

Target

14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels

Indicator

14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations

BLUE PLANET
Oceans and Society

Defining Ocean Acidification targets

1. Is the OA target conceptually clear-physically, biologically, socio-economically?
    a) If not what are the gaps?
2. Indicator interpretation
    a. what does average mean?
    b. What what criteria should be used to determine representatives sites
3. What methodologies are there available and what might need to be developed?
    a. Measurement
    b. Analysis and interpretation an reporting
4. Are there standards defined for :
    a. Measurement
    b. Baselines and thresholds
5. Are countries making these measurements
    a. What are the barrier to making these measurements

SUSTAINABLE DEVELOPMENT GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

BLUE PLANET Oceans and Society

Defining Ocean Acidification targets

GOA-ON

Global Ocean Acidification Observing Network

In Region:

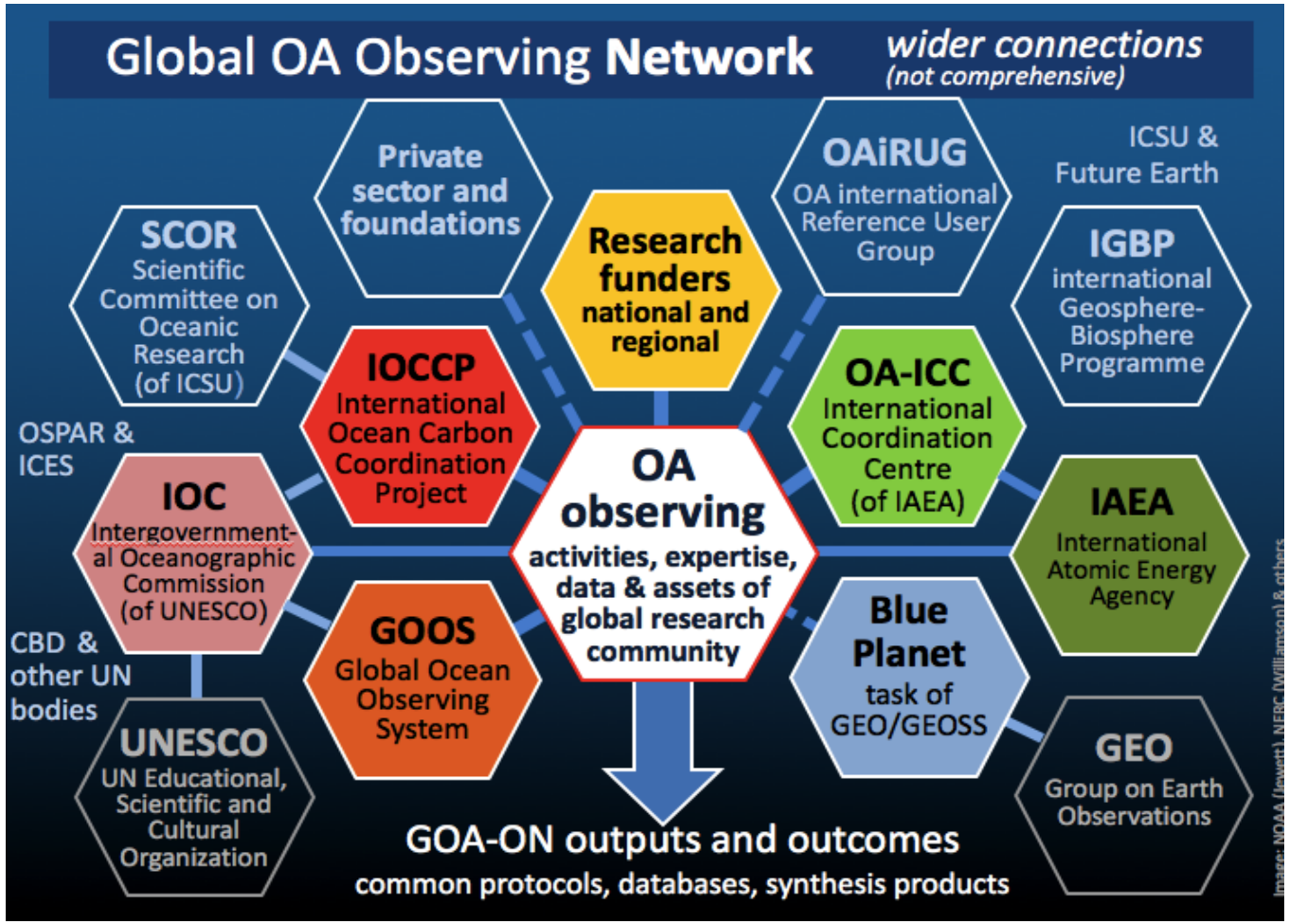
UNESCO-IOC Sub-commission for the Western Pacific (WESTPAC)

IAEA

PICES

Research Institutes

University



BLUE PLANET
Oceans and Society

Designing GOA-ON

Three international workshops, 2012-2103, defined the framework for the observation network

- *Rationale*
- *Goals*
- *Design*
- *Suite of measurement parameters*
- *Regional coverage (hubs)*
- *Data quality and data distribution strategies*
- *International program integration*

BLUE PLANET
Oceans and Society

UNESCO-IOC Sub-commission for the Western Pacific (WESTPAC)

- Develop SOP for pH and TA (sampling and measurement)
- Capacity building
- etc.

IAEA

- Capacity building on carbonate measurement in seawater
- etc.

PICES

- International Calibration of carbonate measurement in the region
- etc.

BLUE PLANET
Oceans and Society

University and Research Institute

- Implement research on related to ocean acidification
- Monitoring programme on carbonate chemistry in seawater / marine biodiversity / response of marine organisms to ocean acidification
- etc.