United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

IOC Ocean Acidification

Sixteenth Intergovernmental Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (SC-IOCARIBE-XVI)

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Ocean Acidification – So What?

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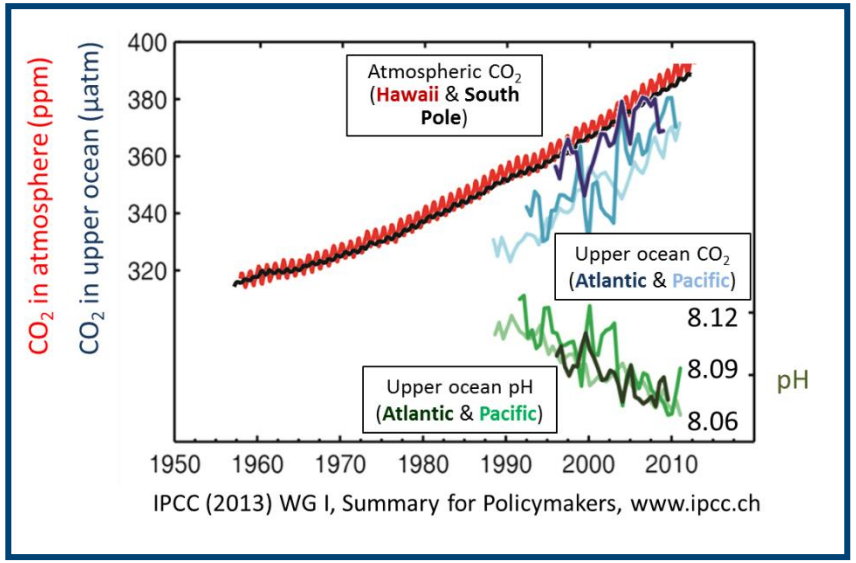
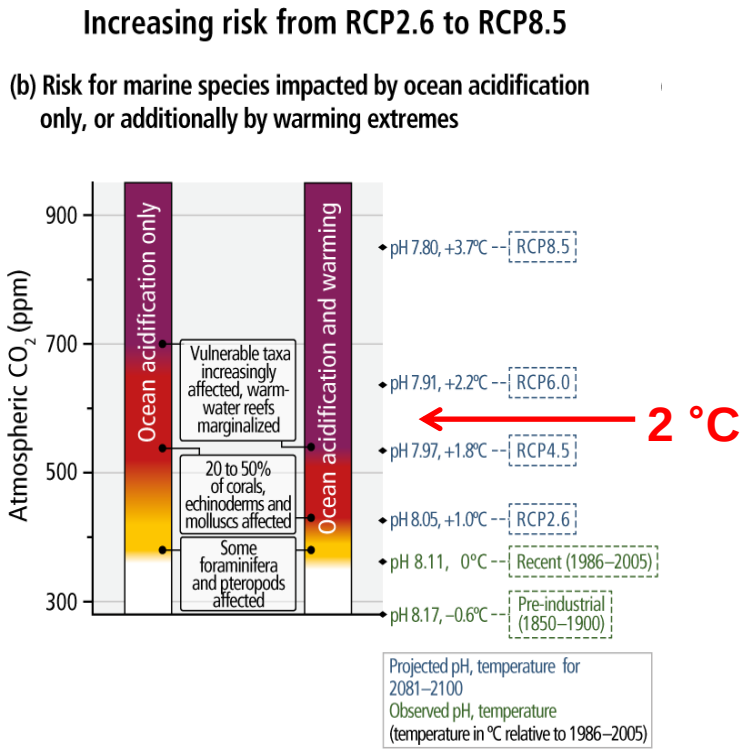
- The ocean has absorbed 1/3 of the fossil carbon released



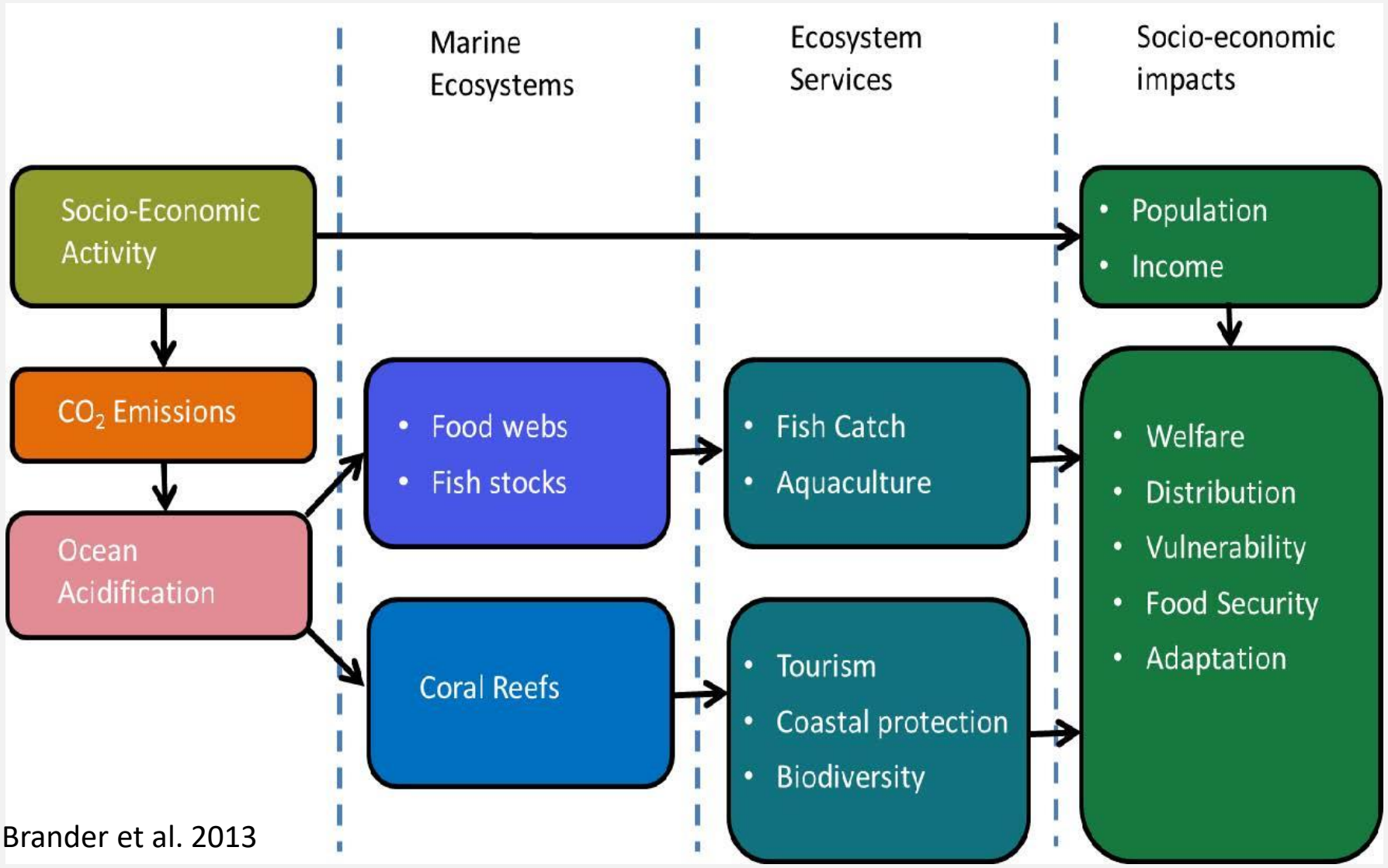
- Capacity of the ocean to continue to absorb carbon at the same rate is questioned by scientists.

- Absorbed CO_2 increased the acidity of seawater – **26 %** since 1900 and about **150%** in 2100



- The **rate of change may be faster** than at any time during the last **300 million years**

OA – Socio-economic impact



Brander et al. 2013

Past events

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Three IOC expert activities organized in Santa Marta, Colombia, supported the development of ocean acidification observation and research capacity in the Caribbean and Latin America:

1. A OAiRUG meeting, in partnership with INVEMAR and IAEA's Ocean Acidification International Coordination Centre (OA ICC) on 19–21 March 2018.
2. A training titled "Latin American and Caribbean Regional Symposium on Ocean Acidification" focusing on the newly established methodology for SDG indicator 14.3.1 and related data and metadata requirements was held in Santa Marta, Colombia, on 21–24 January 2019 at INVEMAR.
3. IOC co-organized the 'Curso Sistemas de Carbonatos: Documentación de conjuntos de datos, su análisis y visualización geográfica, en el marco del Objetivo de Desarrollo Sostenible 14.3 para minimizar los impactos de acidificación de los océanos', at the Centro de Entrenamiento Regional en Ciencias del Mar para Latinoamérica, Ocean Teacher Global Academy - Academia Global IODE-COI-UNESCO, 21-25 October 2019, Santa Marta, Colombia.

SDG indicator 14.3.1 – IOC custodian agency

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Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

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***

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

14.3.1 data portal – Facilitating Reporting https://oa.iode.org/

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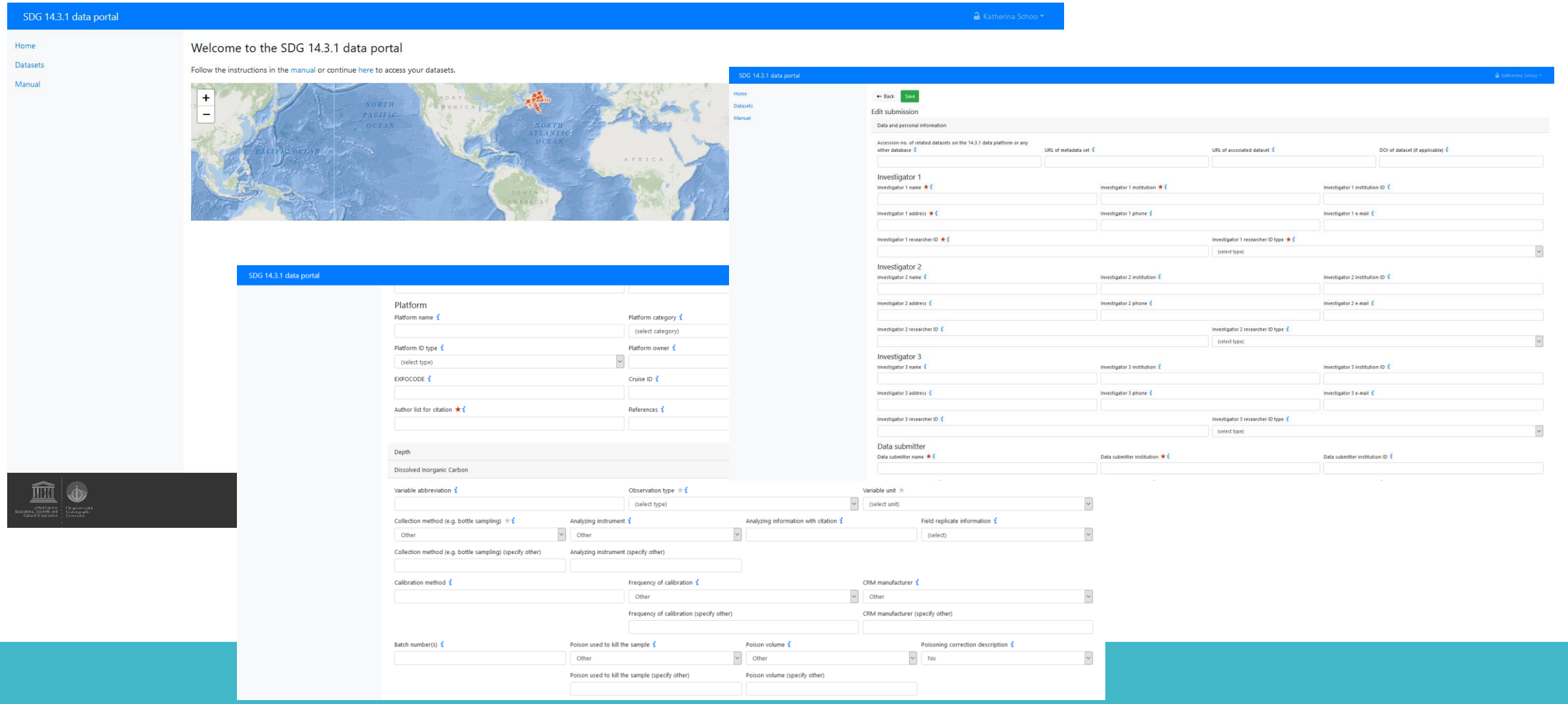

Ocean Acidification – SDG reporting

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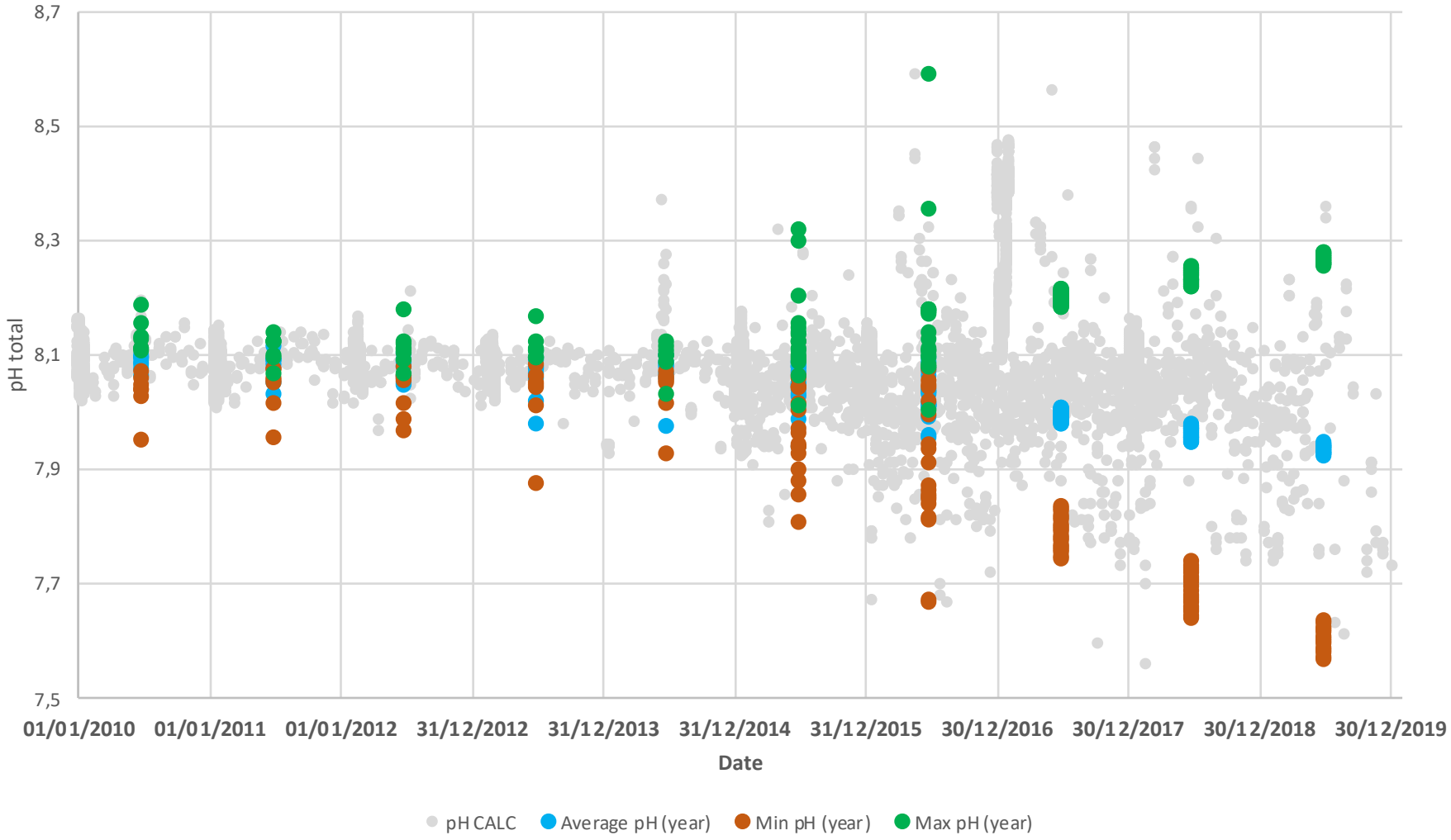
Figure 1: Calculated surface pH values based on ocean acidification data submitted to the 14.3.1 data portal (http://oa.iode.org) for the time period from 1. January 2010 – 8. January 2020. Grey circles – calculated pH of data submissions (including all data sets with data for at least two carbonate parameters); blue circles – average annual pH (based on data sets with data for at least two carbonate parameters); red circles – annual minimum pH; green circles – annual maximum pH.



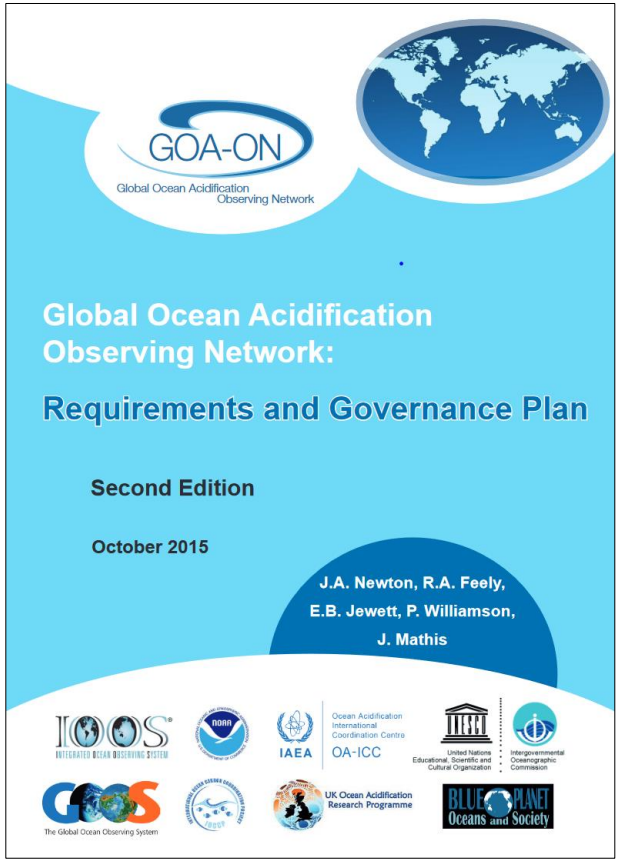
What is GOA-ON ?

GOA-ON is an **international partnership** to:

1. Document the **status and progress of ocean acidification** in open-ocean, coastal, estuarine, and coral reef environments,

2. Understand the **impacts** of ocean acidification on diverse marine ecosystems and societies, and

3. Support **forecasts** of ocean acidification conditions.



Online: goa-on.org/about/plan

GOA-ON has three main goals

GOA-ON
Global Ocean Acidification Observing Network

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Goal 1: Improve our understanding of global ocean acidification conditions

Identify spatial patterns & temporal trends; document & assess variation to infer driving mechanisms; quantify rates of change.

Goal 2: Improve our understanding of ecosystem response to ocean acidification

Measure biological responses to chemical changes; quantify rates of change & identify areas of vulnerability or resilience.

Goal 3: Acquire and exchange data to optimize modeling for OA & impacts

Provide spatially & temporally-resolved chemical & biological data to be used in developing models for societally-relevant analyses & projections.

GOA-ON in 2013

Data from validated 1st & 2nd GOA-ON workshop participant lists (Seattle, Washington 2012 and St. Andrews, UK 2013)

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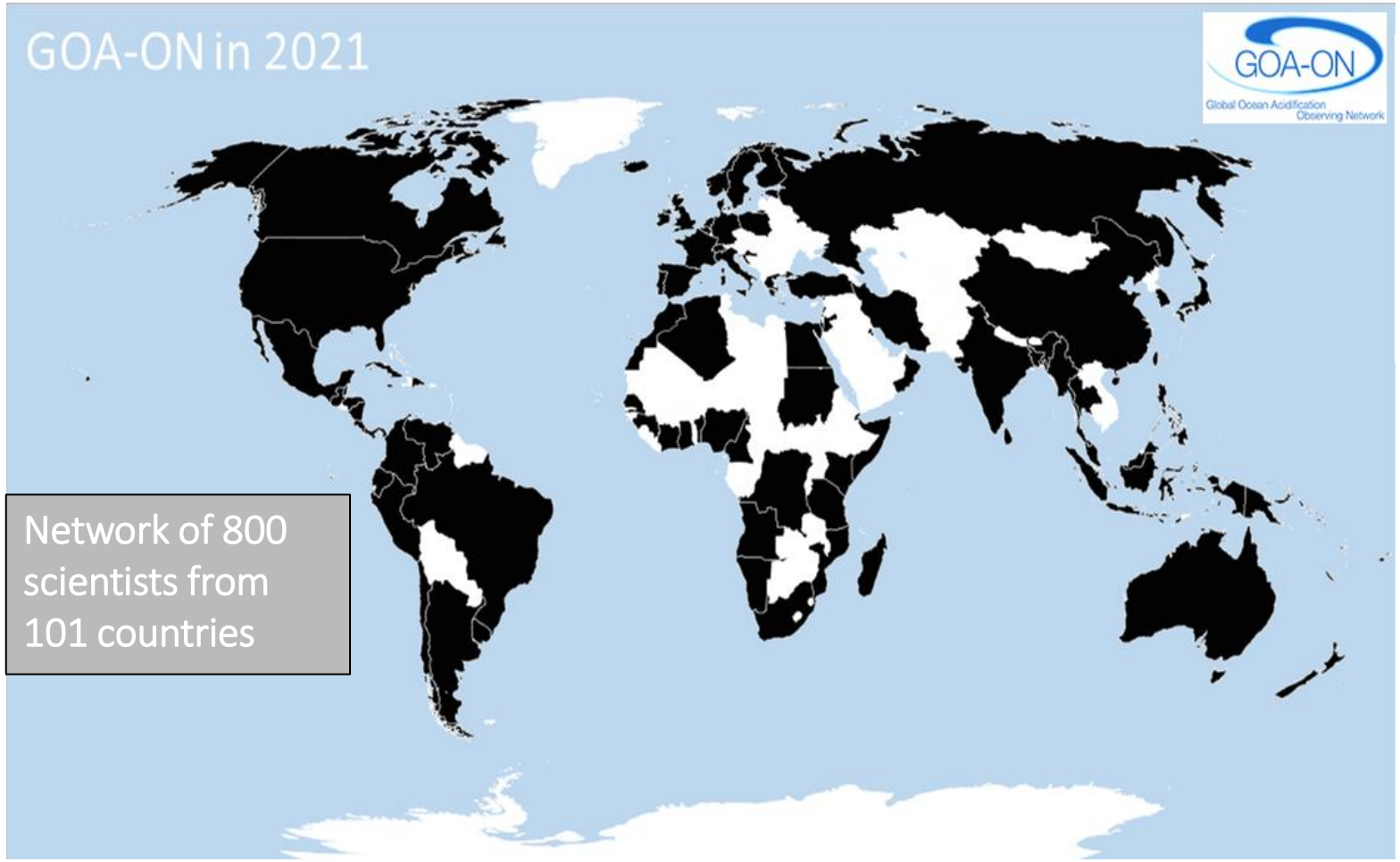

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Pier2Peer

Pier2Peer is a **scientific mentorship program** that matches senior researchers with early career scientists to facilitate an exchange of expertise and to provide a platform for international collaborations.

14 IOCaribe MS participate (11 mentees, 7 mentors)

Next steps

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- Continued ocean acidification training in the region for the period from 2021 to 2023, organised together with its partners and the local experts – format depending on the development of the Covid-19 pandemic.
  - hands-on trainings in sampling
  - analysis and quality control of ocean acidification observations as well as the quality control of data
  - the reporting mechanisms towards the SDG 14.3.1 Indicator.
  - If travel cannot resume, a new OTGA ocean acidification online course can serve as an introductory course and be adapted to include more live lectures, webinars,

5TH INTERNATIONAL SYMPOSIUM ON THE OCEAN IN A HIGH CO2 WORLD

13 - 16 September 2022

Lima, Perú.

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