

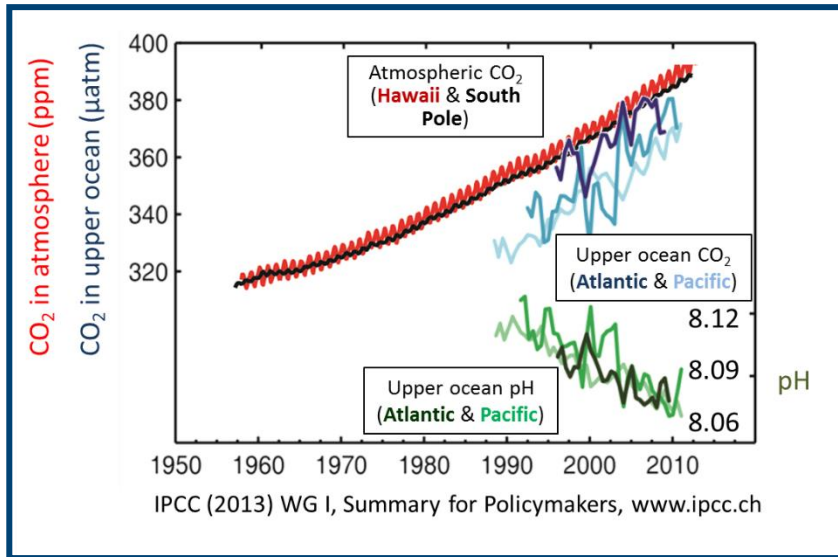
IOC Ocean Acidification

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

**Kirsten Isensee, Katherina Schoo –
Intergovernmental Oceanographic Commission of
UNESCO**

Ocean Acidification – So What?

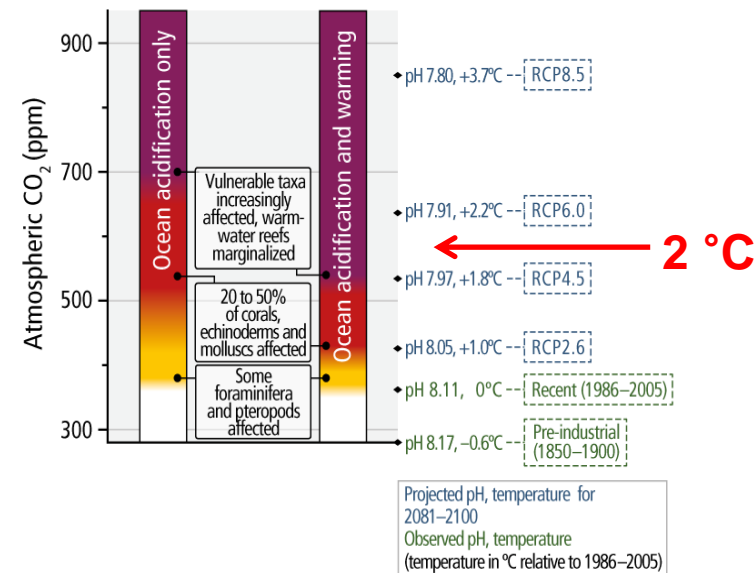
- The ocean has absorbed 1/3 of the fossil carbon released



- Capacity of the ocean to continue to absorb carbon at the same rate is questioned by scientists.
- Absorbed CO₂ increased the acidity of seawater – **26 %** since 1900 and about **150%** in 2100

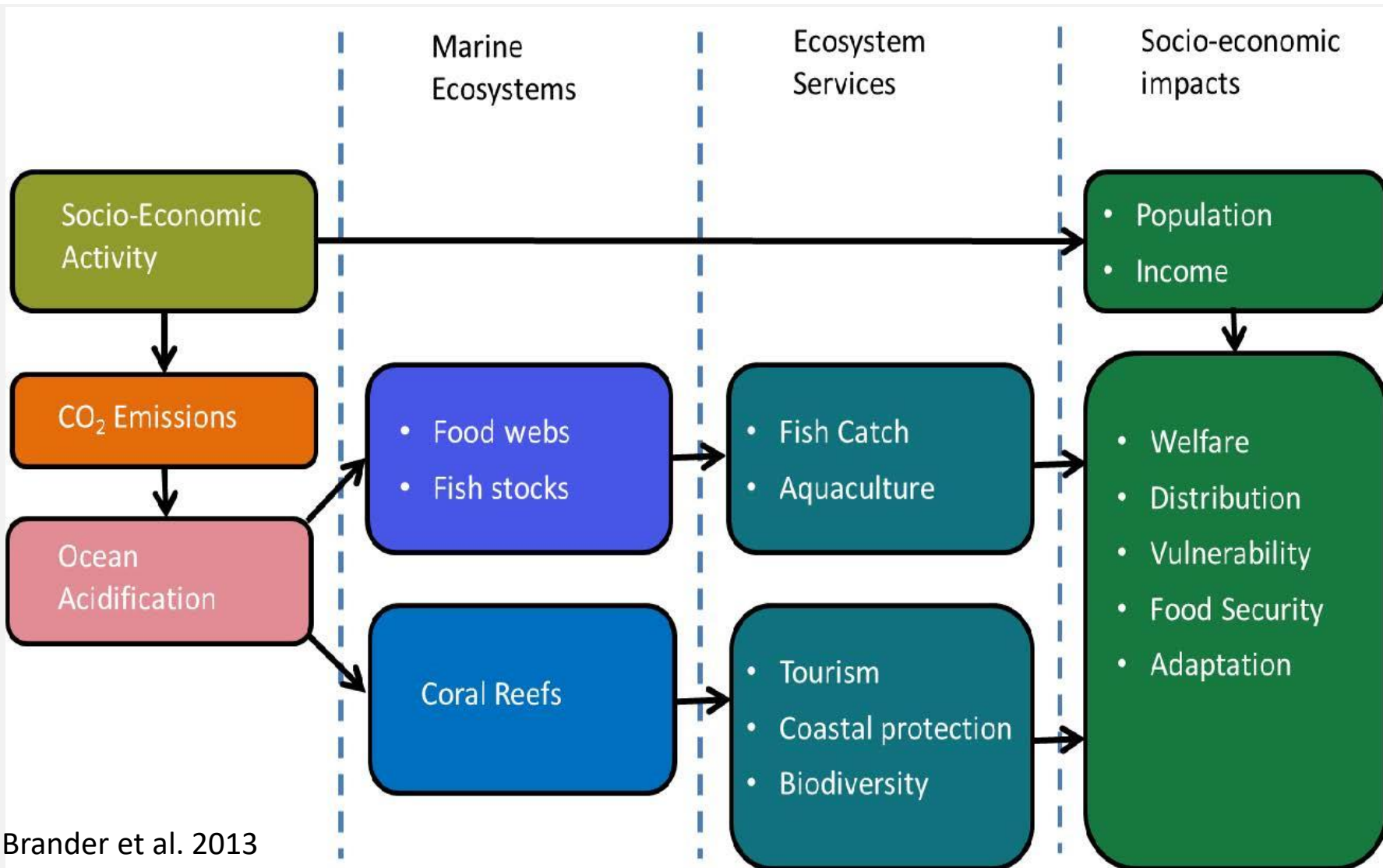
Increasing risk from RCP2.6 to RCP8.5

(b) Risk for marine species impacted by ocean acidification only, or additionally by warming extremes



- 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

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 OAI-RUG 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



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/>

- Home
- Datasets
- Manual

Welcome to the SDG 14.3.1 data portal

Follow the instructions in the manual or continue [here](#) to access your datasets.



SDG 14.3.1 data portal

Home Datasets Manual

← Back **Save**

Edit submission

Data and personal information

Accession no. of related datasets on the 14.3.1 data platform or any other database URL of metadata set URL of associated dataset DOI of dataset (if applicable)

Investigator 1

Investigator 1 name Investigator 1 institution Investigator 1 institution ID

Investigator 1 address Investigator 1 phone Investigator 1 e-mail

Investigator 1 researcher ID Investigator 1 researcher ID type

Investigator 2

Investigator 2 name Investigator 2 institution Investigator 2 institution ID

Investigator 2 address Investigator 2 phone Investigator 2 e-mail

Investigator 2 researcher ID Investigator 2 researcher ID type

Investigator 3

Investigator 3 name Investigator 3 institution Investigator 3 institution ID

Investigator 3 address Investigator 3 phone Investigator 3 e-mail

Investigator 3 researcher ID Investigator 3 researcher ID type

Data submitter

Data submitter name Data submitter institution Data submitter institution ID

SDG 14.3.1 data portal

Platform

Platform name Platform category

Platform ID type Platform owner

EXPCODE Cruise ID

Author list for citation References

Depth

Dissolved Inorganic Carbon

Variable abbreviation Observation type Variable unit

Collection method (e.g. bottle sampling) Analyzing instrument Analyzing information with citation Field replicate information

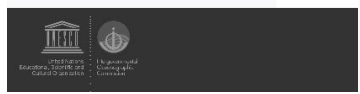
Collection method (e.g. bottle sampling) (specify other) Analyzing instrument (specify other)

Calibration method Frequency of calibration CRM manufacturer

Frequency of calibration (specify other) CRM manufacturer (specify other)

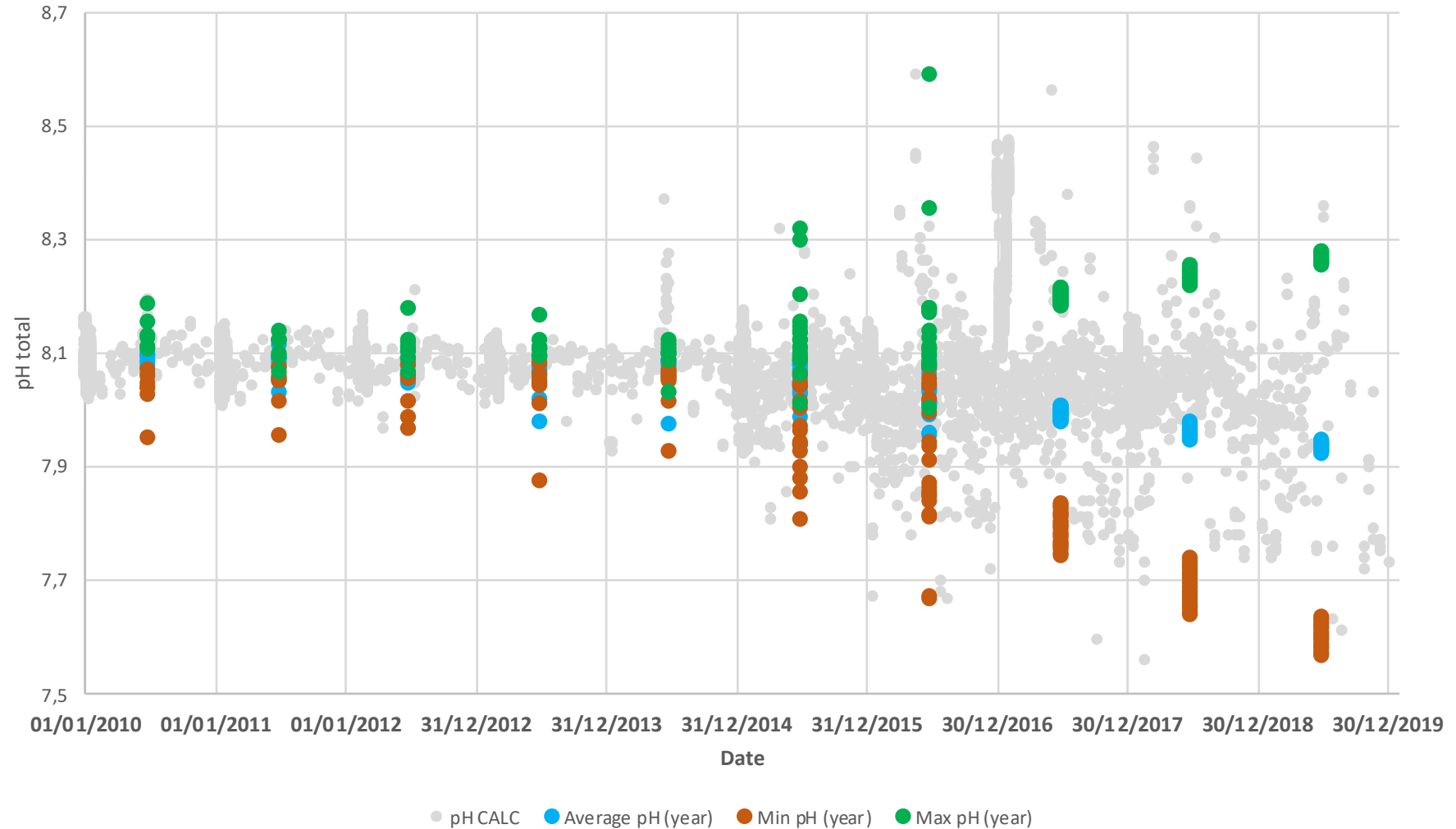
Batch number(s) Poison used to kill the sample Poison volume Poisoning correction description

Poison used to kill the sample (specify other) Poison volume (specify other)



Ocean Acidification – SDG reporting

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.

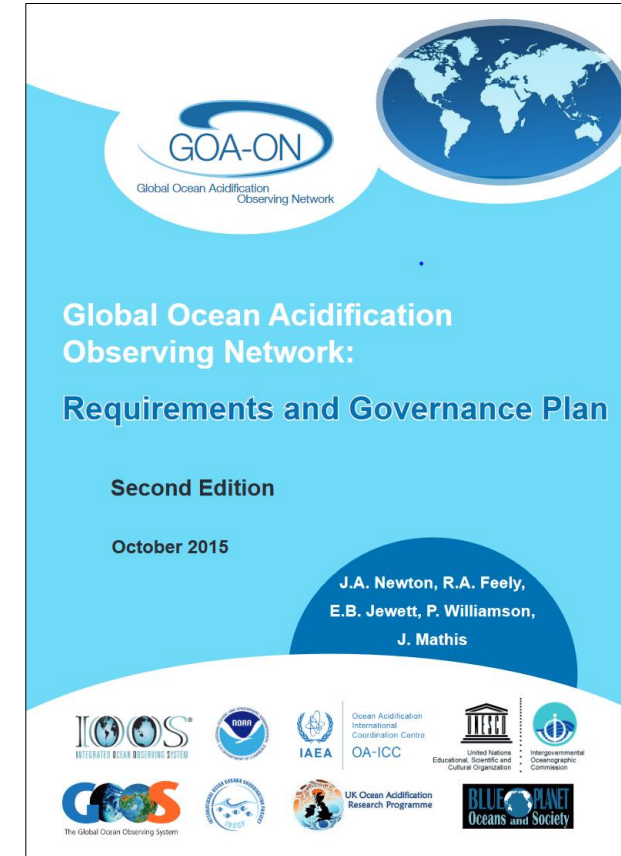


What is GOA-ON ?



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



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



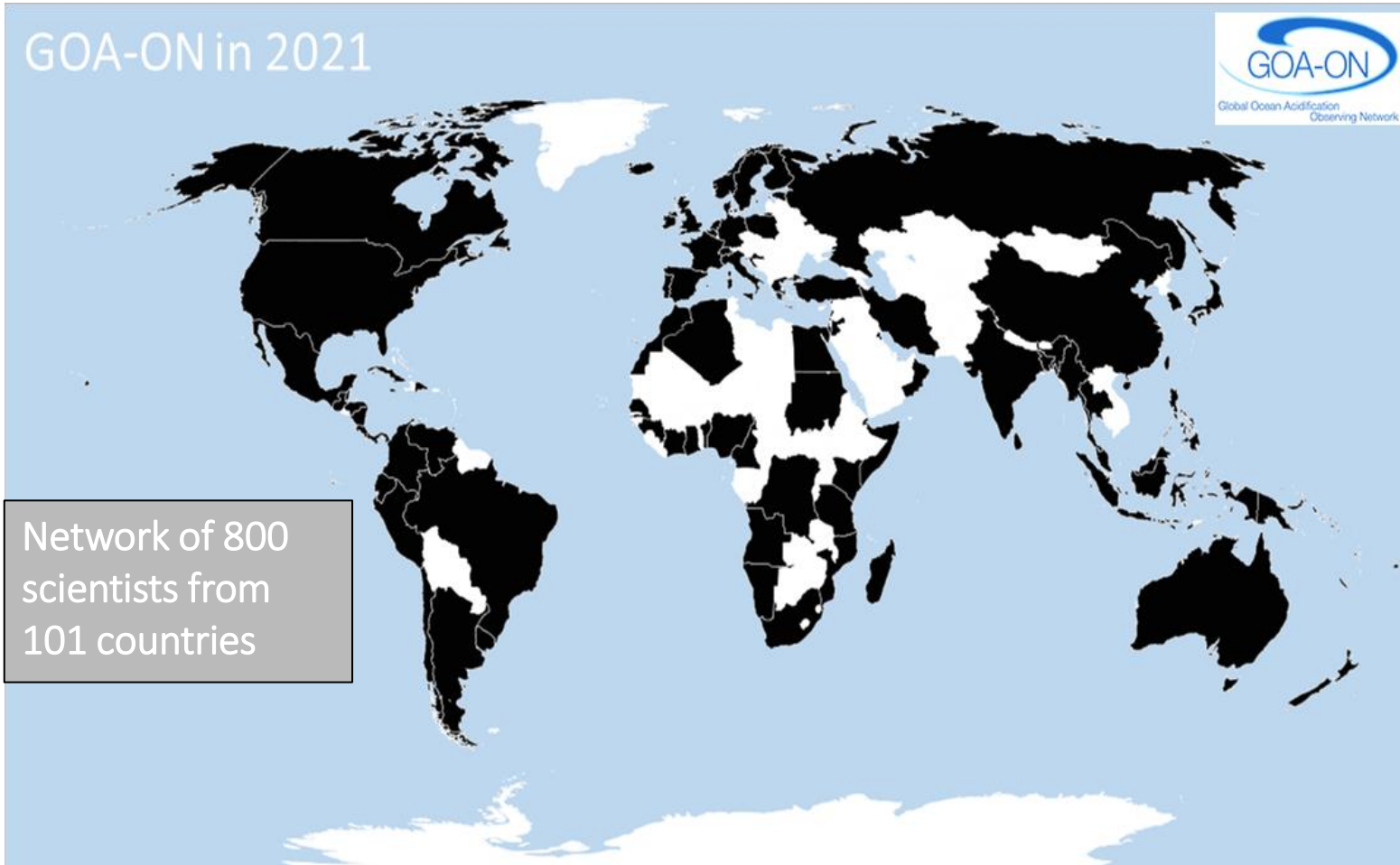
Network of 150 scientists from 31 countries

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

GOA-ON in 2021



Network of 800
scientists from
101 countries



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

- 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,



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