



EMODnet

European Marine
Observation and
Data Network

EMODnet Jamboree
16-18 June 2021

Online event

EMODnet dialogue: Citizen Science Setting the Scene

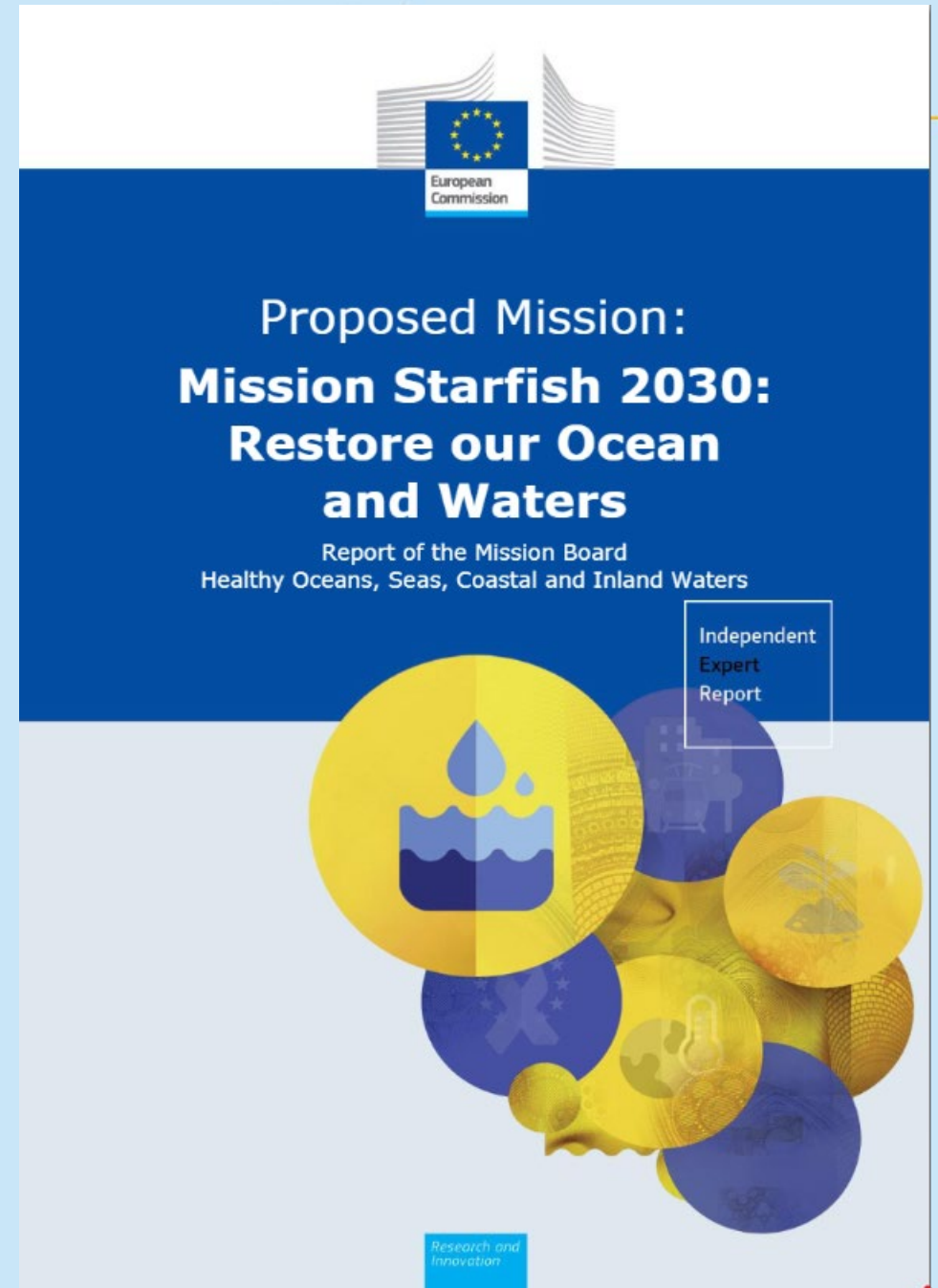
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EMODnet Physics, SMHI



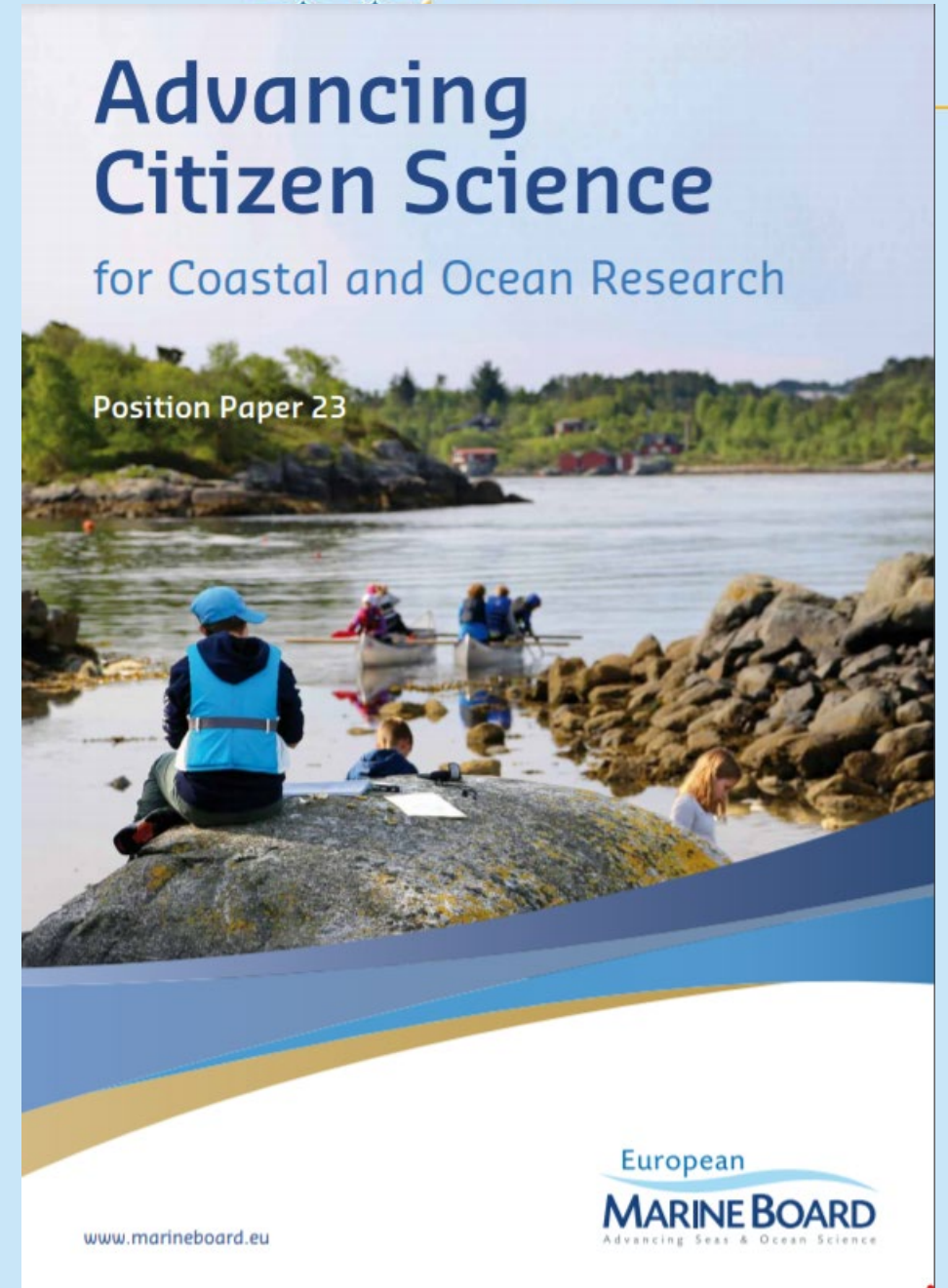
CS: Setting the Scene

- The Mission Starfish 2030 report from the Mission Board on Healthy Oceans, Seas, Coastal and Inland Waters
 - Submitted in Sept 2020
- **checkpoint**: an increased share of ocean data shall come from citizen science initiatives, with a checkpoint target share of **20%** already set for **2025**



CS: Setting the Scene

- Position paper 23 in May 2017
- Policy Brief 5 in October 2017
- Fact Sheet in August 2018
- Impact Report in Nov 2020
- 2 webinars in Nov 2020 and April 2021



CS: Setting the Scene



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Task on Citizen Science



Endorsed Decade Action:

Observing Together: Meeting Stakeholder Needs and Making Every Observation Count

Aim to transform ocean data access and availability by connecting ocean observers and the communities they serve

Article in *Frontiers in Climate*, in which the International Science Council (ISC) provides its perspective on citizen science data generating activities in support to the 2030 Agenda.



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Special issue in *Sustainability* with 18 articles, 18 May 2021



PERSPECTIVE
published: 25 March 2021
doi: 10.3389/fclim.2021.650760



The Critical Importance of Citizen Science Data

Alex de Sherbinin^{1*}, Anne Bowser², Tyng-Ruey Chuang³, Caren Cooper⁴, Finn Danielsen⁵, Rorie Edmunds⁶, Peter Elias⁷, Elaine Faustman⁸, Carolynne Hultquist¹, Rosy Mondardini⁹, Ioana Popescu¹⁰, Adenike Shonowo⁷ and Kishore Sivakumar¹¹

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Citizen science is an important vehicle for democratizing science and promoting the goal of universal and equitable access to scientific data and information. Data generated by citizen science groups have become an increasingly important source for scientists, applied users and those pursuing the 2030 Agenda for Sustainable Development. Citizen science data are used extensively in studies of biodiversity and pollution; crowdsourced data are being used by UN operational agencies for humanitarian activities; and citizen scientists are providing data relevant to monitoring the sustainable development goals (SDGs). This article provides an International Science Council (ISC) perspective on citizen science data generating activities in support of the 2030 Agenda and on needed improvements to the citizen science community's data stewardship practices for the benefit of science and society by presenting results of research undertaken by an ISC-sponsored Task Group.

Keywords: data management, data life cycle, citizen science, sustainable development goals, applied research



Editorial

Citizen Science and the Role in Sustainable Development

Daniel Dörler^{1,*}, Steffen Fritz², Silke Voigt-Heucke³ and Florian Heigl¹

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Citizen science (cs) has manifold potential in generating new knowledge, raising awareness and enabling learning, as numerous studies have shown in recent years [1]. The Stockholm Environment Institute published a discussion brief [2] already in 2017 on how cs could contribute to the SDGs, where the potential for cs was identified in contributing to the definition of new targets and metrics, in monitoring progress and in implementing the SDGs. Fritz et al. [3] identified gaps in traditional data sources for monitoring and implementing the United Nations Sustainable Development Goals and showed the potential of cs to fill these gaps. Consequently, Fraisl et al. [4] showed in a systematic review that cs is already contributing to five indicators and could contribute to 76 more indicators. However, the main contribution of cs seems to be focused on SDG



Divers as Citizen Scientists: Response Time, Accuracy and Precision of Water Temperature Measurement Using Dive Computers

Celia Marlowe^{1*}, Kieran Hyder^{1,2}, Martin D. J. Sayer^{3,4} and Jan Kaiser¹

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There is a lack of depth-resolved temperature data, especially in coastal areas, which are often commonly dived by SCUBA divers. Many case studies have demonstrated that citizen science can provide high quality data, although users require more confidence in the accuracy of these data. This study examined the response time, accuracy and precision of water temperature measurement in 28 dive computers plus three underwater cameras, from 12 models. A total of 239 temperature response times (τ) were collected from 29 devices over 11 chamber dives. Mean τ by device ranged from (17 ± 6) to (341 ± 69) s, with significant between-model differences found for τ across all models. Clear differences were found in τ by pressure sensor location and material, but not by size. Two models had comparable τ to designed for purpose

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Marine Citizen Science: Current State in Europe and New Technological Developments

Carlos Garcia-Soto^{1,2*}, Jan J. C. Seys³, Oliver Zielinski^{4,5}, J. A. Busch⁶, S. I. Luna⁶, Jose Carlos Baez^{7,8}, C. Domegan⁹, K. Dubsky¹⁰, I. Kotynska-Zielinska¹¹, P. Loubat¹², Francesca Malfatti¹³, G. Mannaerts¹², Patricia McHugh⁹, P. Monestiez¹⁴, Gro I. van der Meer¹⁵ and G. Gorsky^{16,17}

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Specialty section:

Marine citizen science is emerging with promising opportunities for science, policy and public but there is still no comprehensive overview of the current state in Europe. Based on 127 projects identified for the North Sea area we estimate there might be as much as 500 marine and coastal citizen science projects running in Europe, i.e., one marine citizen science project per ~ 85 km of coastline, with an exponential growth since 1990. Beach-based projects are more accessible and hence most popular (60% of the projects), and the mean duration of the projects is 18–20 years. Current trends, topics, organizers, aims, and types of programme in terms of participation are presented in this overview. Progress in marine citizen science is specially enabled and promoted

Making the link between Science and Citizen science

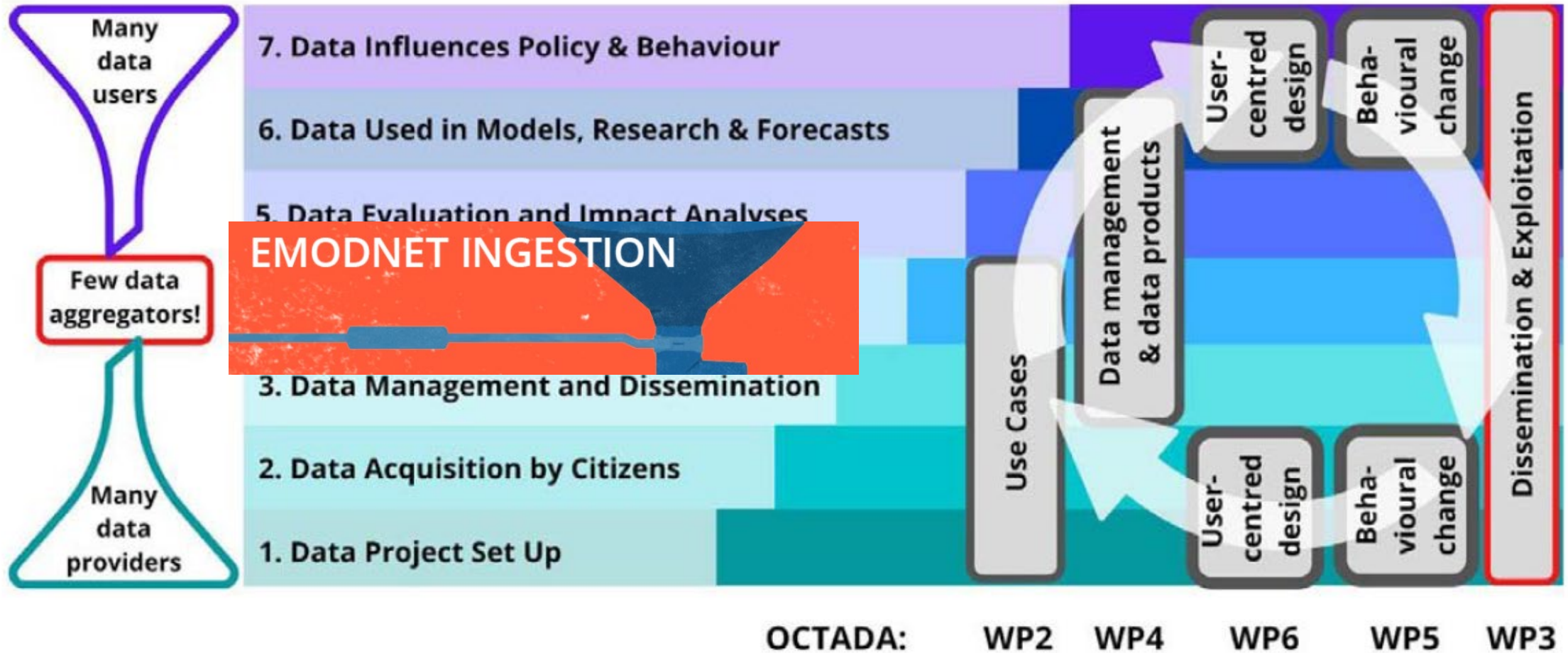
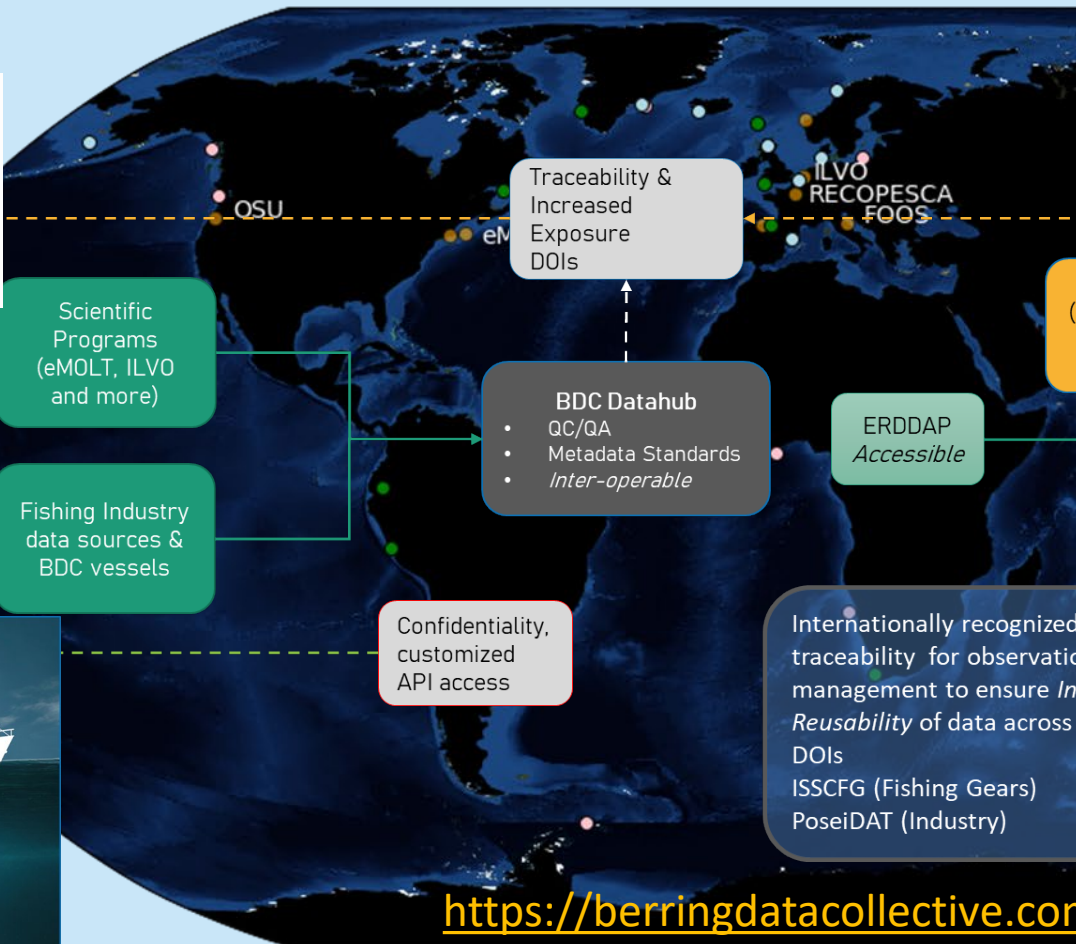
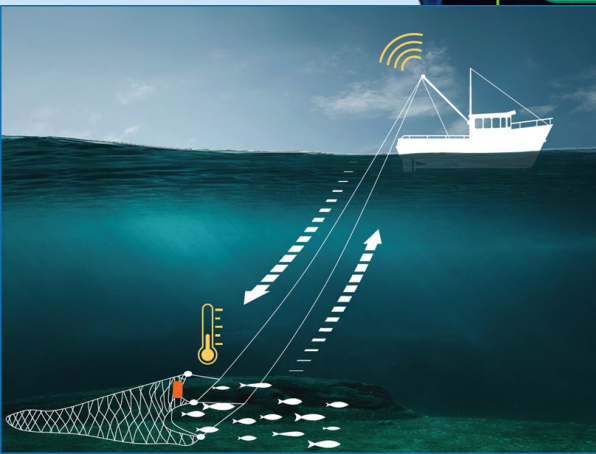


Figure 1: The OCTADA Data Stairway, including OCTADA working packages (WP) and the central role of data aggregators.



<https://berringdatacollective.com>



BDC_61



PLATFORM CODE
BDC_61

PLATFORM NAME
Berring Data Collective Vessel 61

INSTITUTION
Berring Data Collective

ASSEMBLY CENTER
Berring Data Collective

TYPE
Fishing Vessels

DOI
<https://doi.org/10.17882/71>

INFO
Berring Data Collective is an initiative both collecting data via collaboration with fishing vessels, and aggregating and managing data for other similar scientific and industry data collection programs.

FISHING GEAR TYPE
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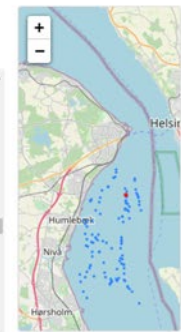
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NKE CTD

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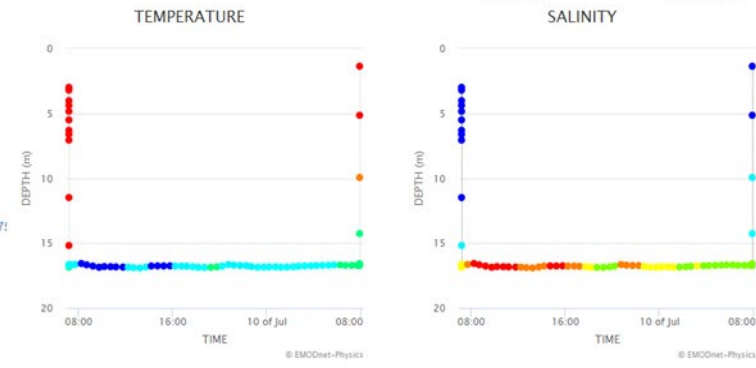
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From 2020/07/10 04:57
To 2020/07/11 08:25

12955
From 2020/07/10 08:13
To 2020/07/11 04:46

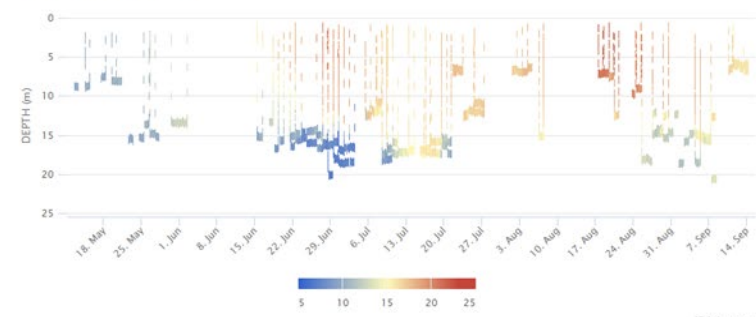
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To 2020/07/10



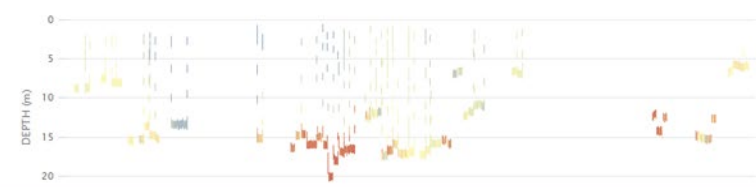
SALINITY/TEMPERATUR PROFILING DOWN SALINITY/TEMPERATUR PROFILING UP

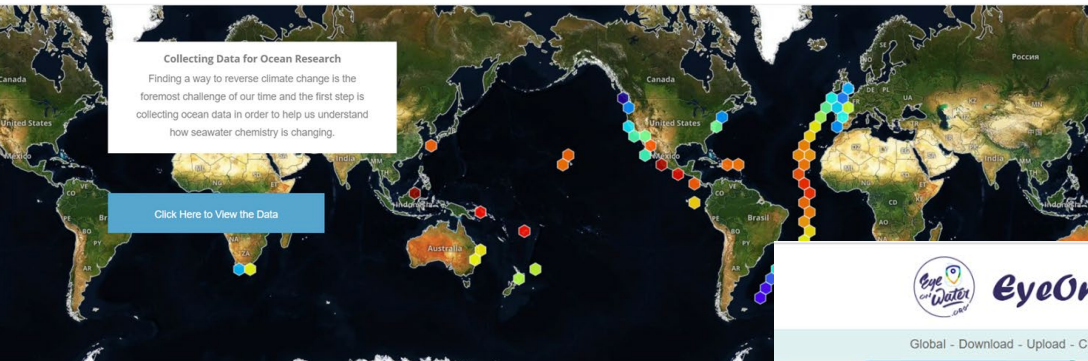


Temperature variation



Salinity variation





Citizen Scientists for Ocean Health

<https://smartfin.org/>



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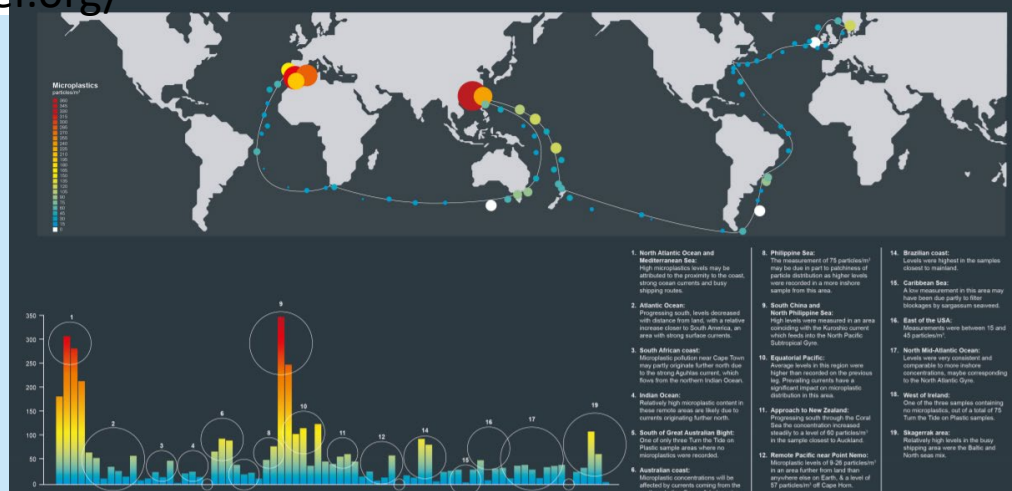


<https://www.eyeonwater.org/>

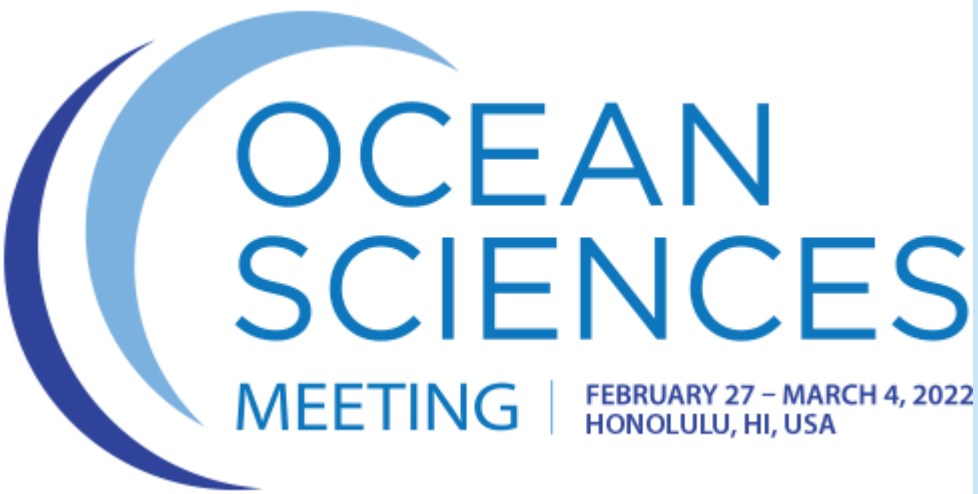


<https://educationalpassages.org/>

Volvo Ocean Race 2017-18
Microplastics Data / Turn the Tide on Plastic preliminary results



<https://yacht-express.net/ocean-race-2021-22-18-teams-already/>



Citizen scientists-
aggregators-end users
interface in data flow:
successes and gaps



Intergovernmental Oceanographic Commission of UNESCO
International Oceanographic Data and Information Exchange



International Ocean Data Conference 2022 - The Data We Need for the Ocean We Want



Conference Programme (provisional)

The following Programme has been prepared (version 20 May 2021):

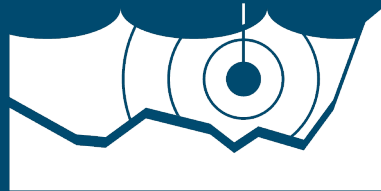
SESSION 1: GLOBAL STRATEGIES AND POLICY

The Global Ocean Data Ecosystem: status and way forward

- 1.1 Identifying data and information user needs at the national level
- 1.2 Global data sharing: changes in data sharing policies
- 1.3 The future of global databases: what's next for WOD, OBIS,...
- 1.4 Representation and inclusiveness in the global commons
 - 1.4.1 The small island dilemma: collecting, managing, sharing and using data with minimum resources
 - 1.4.2 Indigenous knowledge, information and data
 - 1.4.3 Citizen science data and information
 - 1.4.4 LDCs
 - 1.4.5 Digital divide: data and information



- We can show how CS data fits into the larger picture, e.g. alongside Argo, and other well established observing platforms i.e. elevate CS data
- And that's also the big advantage of EMODnet compared with anything comparable, it lets scientists and citizen scientists see the possibilities
- Connect citizen science and research communities
- More data gives improved EMODnet products to citizens mainly in the coastal zone
- Act as a enabler, provide guidance (DM), support, manage data flows, linking and making connections,....
- Marketing



EMODnet



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