



EMODnet



European Marine
Observation and
Data Network

EMODnet Jamboree
16-18 June 2021

Online event

EMODnet dialogue: Citizen Science Case Studies of Citizen Science for EMODnet

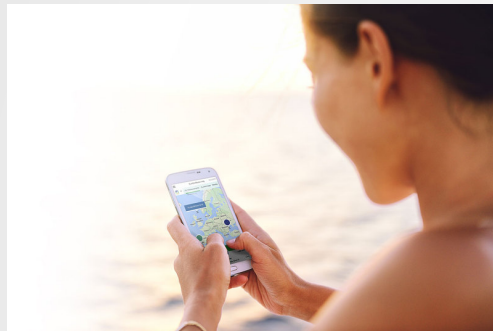
Peter Thijsse
Bert van Bavel
Bernat Perlata
Arianna Liconti
Nathaniel Bensoussan
James Sprinks

JERICO-RI
The Nautilus Project
Urbamar, Anel·lides
Outdoor Portofino
T-MEDnet
EarthWatch

JERICO-S3

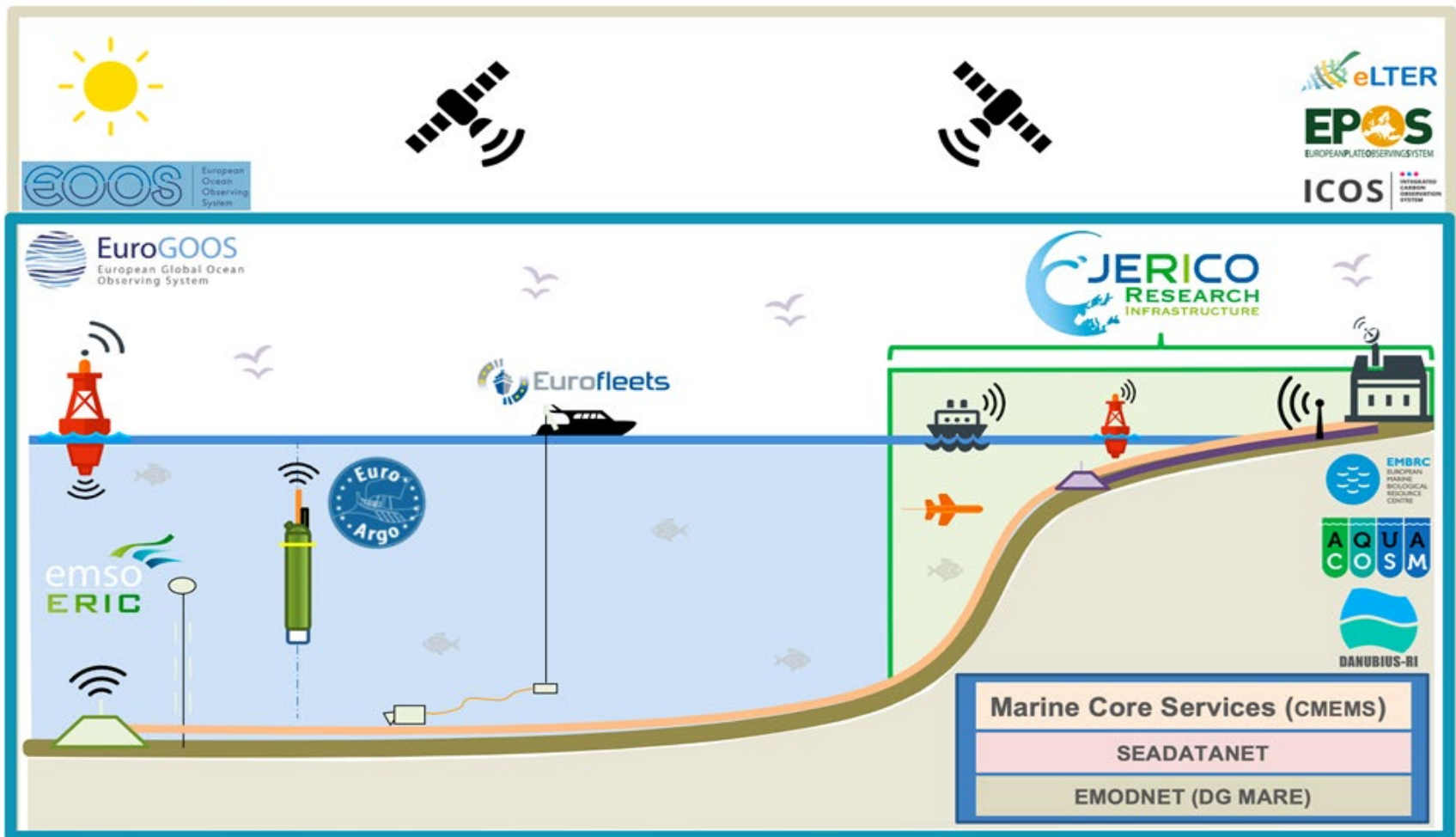
Citizen science for coastal observation

Peter Thijsse (MARIS) peter@maris.nl



JERICO-RI

Joint European Research Infrastructure for Coastal Observation



geah!

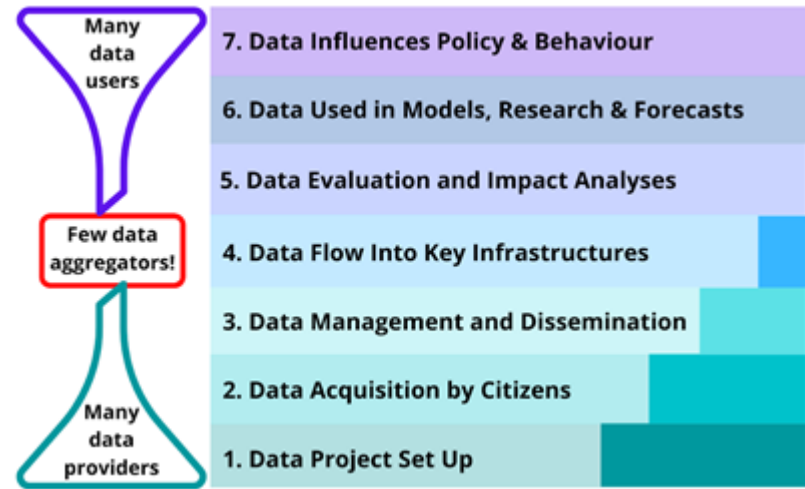
Many initiatives struggle to achieve full uptake, acceptance and sustainability

What we try to achieve in the marine domain in general and in JERICO-S3 particularly?

With increased level of involvement:

- Connect to citizen science initiatives, collect requirements
- Analyse the dataflow and data management
- Evaluate the data itself
- Integrate the data in models, research
- Feedback the dataproducts and credits to citizen science.

- ⇒ Provide feedback on every step
- ⇒ Support in the data stewardship
- ⇒ Support sustainability by proving uptake and feedback of information



Current status:

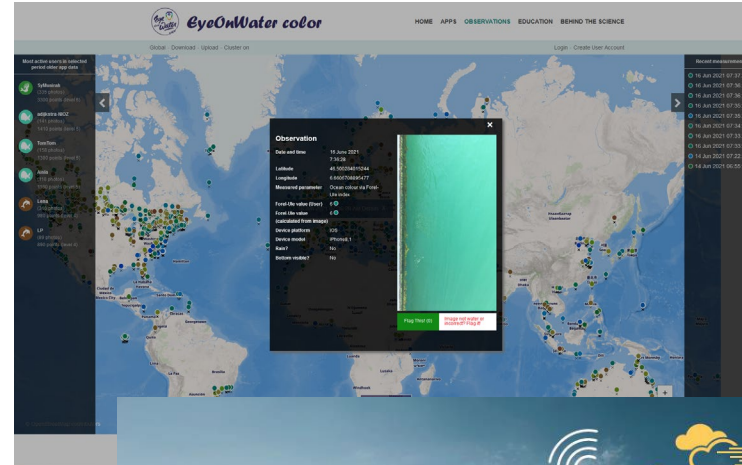
- Analysis of relevant and operational initiatives done (inventory)
- Discussion opened with the regional coordinators in JS3 to explore existing and new connections, integration of citizen data in products
- Focus on pilots, resources limited.



Some examples of operational coastal citizen science initiatives

Eyeonwater.org

- Water color (EOV) and transparency
- Global coverage
- Scientific validation
- MARIS/VU Amsterdam



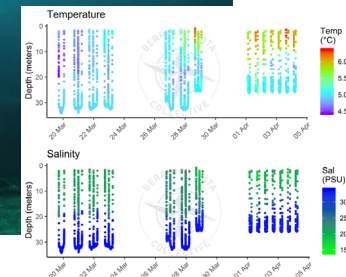
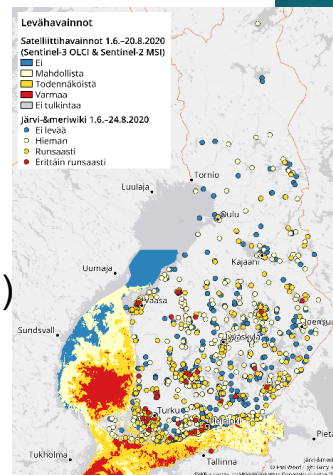
Fishing for data

- North Sea/USA East coast
- Vertical profiles, transects
- Bering Data Collective



Algae bloom monitoring

- Gulf of Finland
- Baltic regional products
- FMI



Others:

- Smartfin (fins under surfboards)
- Boats 2.0 (small)
- ..



Thank you

peter@maris.nl



Citizen Science Marine Litter



Ships of opportunity system modules



Modul 6. Console for Ocean Literacy

Touch screens displaying observational data and ocean related "key stories"

Modul x: Towed/hull-mounted observations

Towed plankton collector (CPR) profiling sensors (XBT), acoustic current meters (ADCP). Ofte 3dje part

Modul 0: FerryBox system

Clean seawater intake, pipes, pumps, computer, electronics, network

Modul 1: FerryBox standard sensors

Inlet temperature, Salinity, temperature, Oxygen

Modul 2: FerryBox optical sensors

Chlorophyll a, cDOM, turbidity, Phycocyanin

Modul 3. FerryBox carbon sensors

pCO₂, pH, Alkalinity,

Modul 7: Metrological and atmospheric observations

Metrological variables of wind direction and strength

Modul 8: Advanced above water observations

Light sensors, sea surface skin temperature, downwardfacing sensors for Ocean Colour

Modul 5. Laboratory

Ranging from proper labs, small lab benches, to citizen science labs. Used for advanced sensors (Flowcytometry, Nutrients)

Modul 4: FerryBox advanced samplers

Water sampler, microplastics, contaminants, sample filter collector

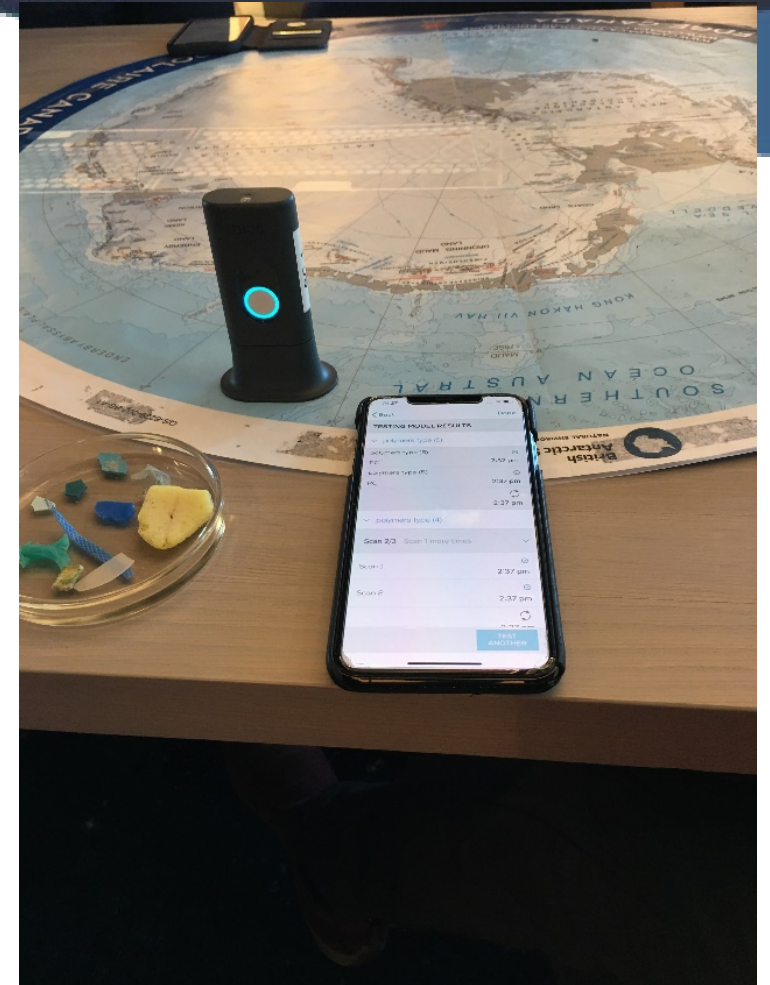




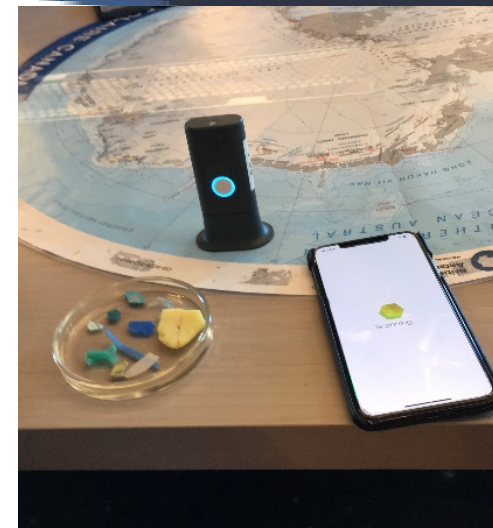
Micro plastic sampling (Ferry Box)



Citizen Science on Board



On board science Center



CITIZEN SCIENCE PROJECTS FOR MARINE URBAN BIODIVERSITY

Anel·lides



*Institut de
Ciències del Mar*



**Citizen Observatory
NATUSFERA**

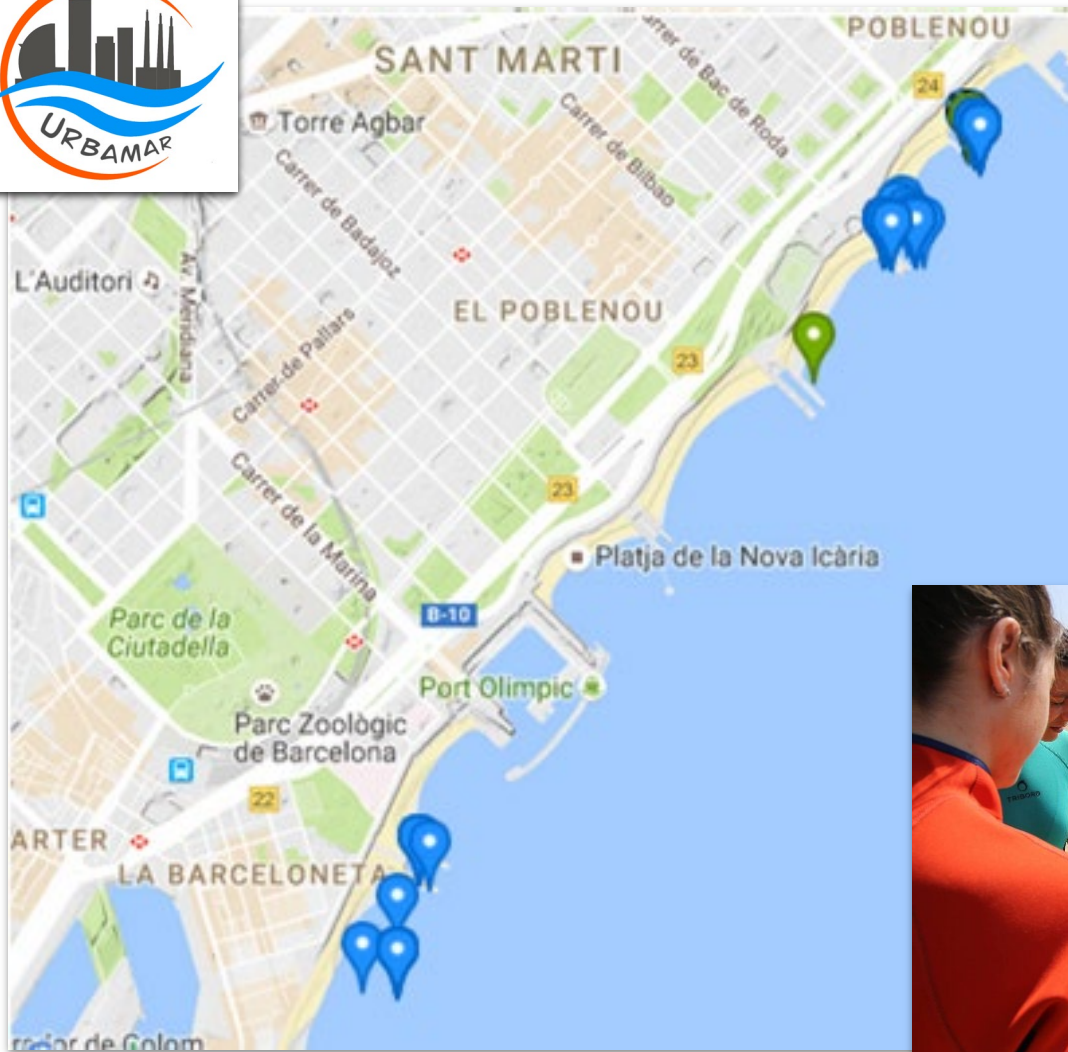


**Project
URBAMAR**

<https://natusfera.org/projects/urbamar>



CITIZEN SCIENCE PROJECTS FOR MARINE URBAN BIODIVERSITY



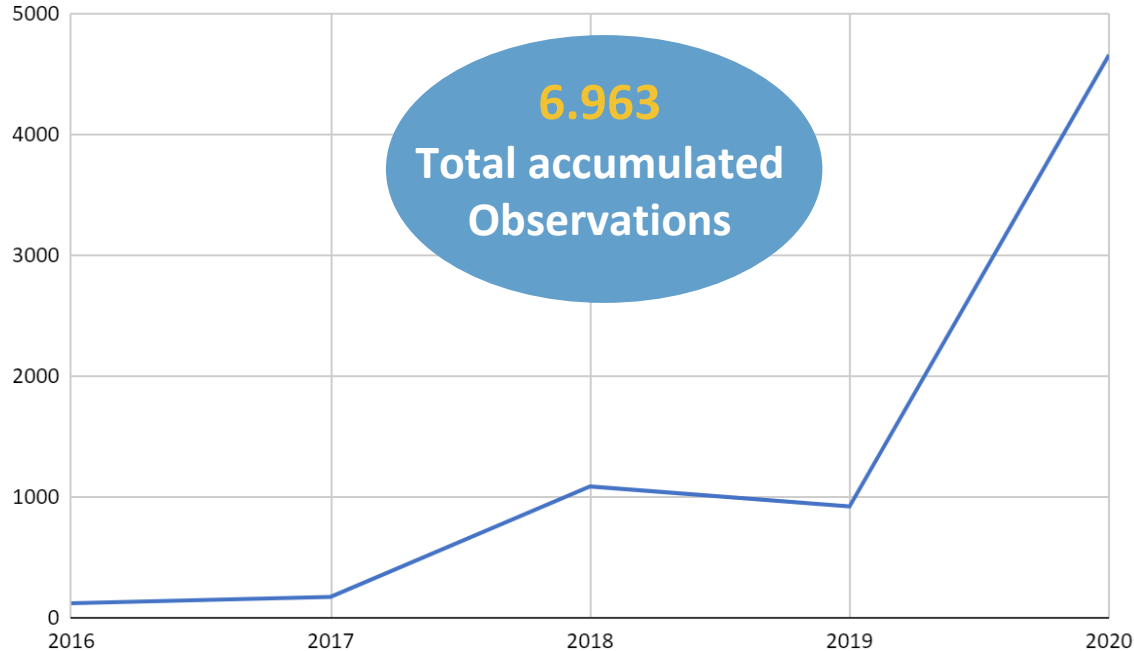
EMODnet Jamboree
16-18 June 2021

Online event

Centre d'Estudis Ambientals
EL CENTRE
DE LA PLATJA
L'Institut de Ciències del Mar

URBAMAR BIO

YEAR	2016	2017	2018	2019	2020 - 2021
Obs. per year	121	173	1087	922	4660

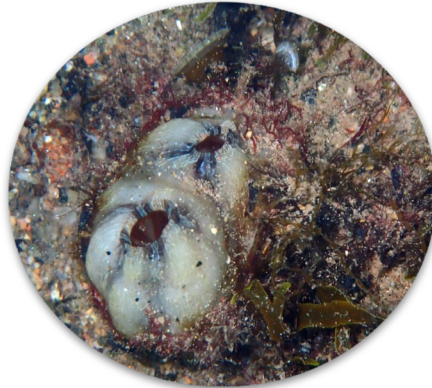


565
identified
species

URBAMAR BIO



Dictyota cyanoloma



Styela plicata



Umbrina cirrosa



Hippocampus guttulatus

17 NON-INDIGENOUS

12 THREATENED



Callinectes sapidus



Maja crispata

FIRST RESULTS

Participatory Guide of Marine Organisms on the Beaches of Barcelona (in Catalan)

Made **with** and **for** the people who loves the beaches of Barcelona

Volunteer



Guia participativa marina del Barcelonès

Feta amb i per a la gent que vol conèixer la biodiversitat del nostre litoral

Inclou 232 espècies



anèl·lides
Serveis ambientals marins

Enabling
Community



Institut de Ciències del Mar

Academic
Community

PADDLING TO MONITOR OR MONITORING TO PADDLE?

A CASE STUDY ON HOW MARINE ENVIRONMENTAL DATA CAN HELP TOURISM AND BE
SUPPORTED BY WATER-SPORTS





OUTDOOR PORTOFINO

PASSIONATE PROFESSIONALS OF THE SEA AND THE OUTDOORS,
COMMITTED TO INVOLVE WATER-SPORT USERS IN MARINE
RESEARCH AND CONSERVATION.

CITIZEN SCIENCE PROJECTS

WATERSPORTS AT THE SERVICE OF MARINE CONSERVATION



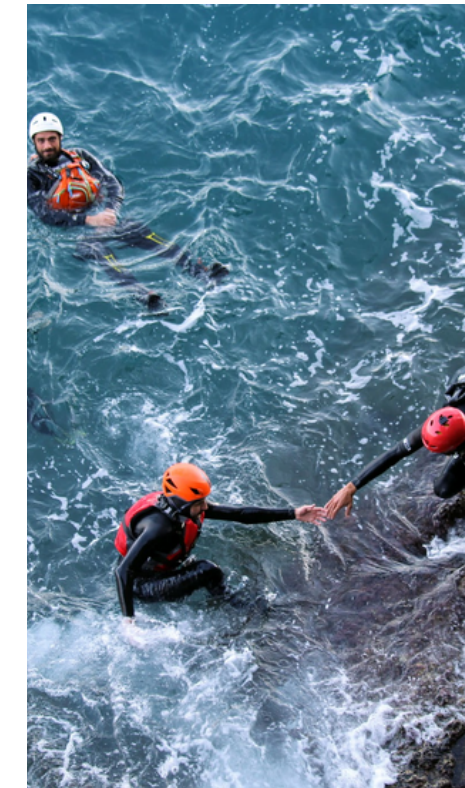
MICRO-PLASTIC HUNTERS

Micro-plastic surveys using mini-manta trawls



BRIZO-WS

Innovative device to monitor oceanographic data while paddling



CRABS

Cleanup, Research and Action for Biodiversity and Safekeeping



PADDLING TO MONITOR OR MONITORING TO PADDLE?



CITIZEN SCIENCE

The large number of water-sport users worldwide are proving fundamental in collecting data over **large temporal and spatial scales** though the implementation of targeted citizen science protocols, especially in times of **climate change and financial difficulties**.



BETTER WEATHER FORECASTING

Oceanographic datasets are relied on by amateurs, recreational water-sport users and other blue economy activities (including fishing) to **plan sea-going activities**, and play a key role in the economic analysis and the correlation with **marine weather conditions**.

LOCAL ECONOMY

Only considering the touristic viability of the coastal zone, tourism accounts for **11.8% of national GDP of Italy** (2), which as a country accounts for ~37% of gross added value generated by **blue economy activities** in the Mediterranean (3).

>4 million people practice watersports in Italy (~7% of the population) (1)

Potential "**armada**" of citizen scientists and Ocean caretakers

Daily witness of a changing Ocean

Practice activities in **coastal zones**, where data is often scarce and of low resolution

WATER-SPORT USERS



OCEAN EXPERIENCE

OCEAN LITERACY

Better **understanding** of the Ocean

Need for **accessible, high resolution** information

Publicly available

Abundant and well-scaled for more accurate predictions

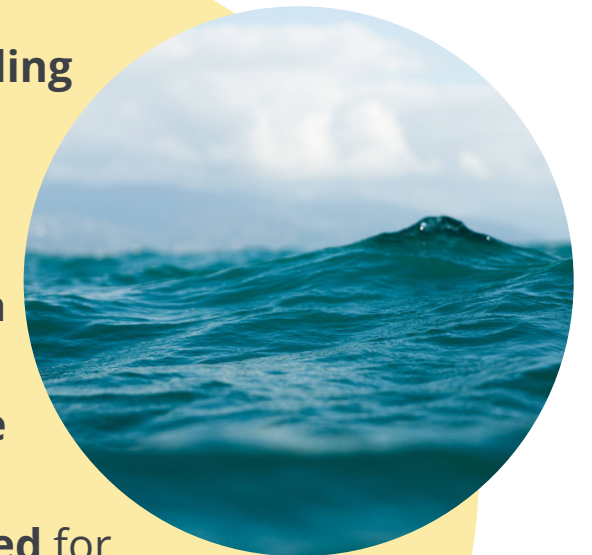
DATA



PROVIDE EVIDENCE

MARINE POLICY

SUPPORTS PUBLIC ACCEPTANCE



SUPPORTS

SUPPORTS

SUPPORTS PUBLIC ACCEPTANCE

Arianna Liconti

SCIENCE PROJECTS COORDINATOR

+39 3471934298

ARIANNA@OUTDOORPORTOFINO.COM

WWW.OUTDOORPORTOFINO.COM



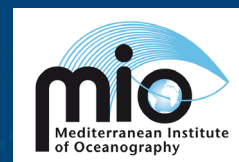


EMODnet Jamboree
16-18 June 2021

Online event

T-MEDNet multi-actor climate change coastal observation network

Nathaniel Bensoussan



MIO

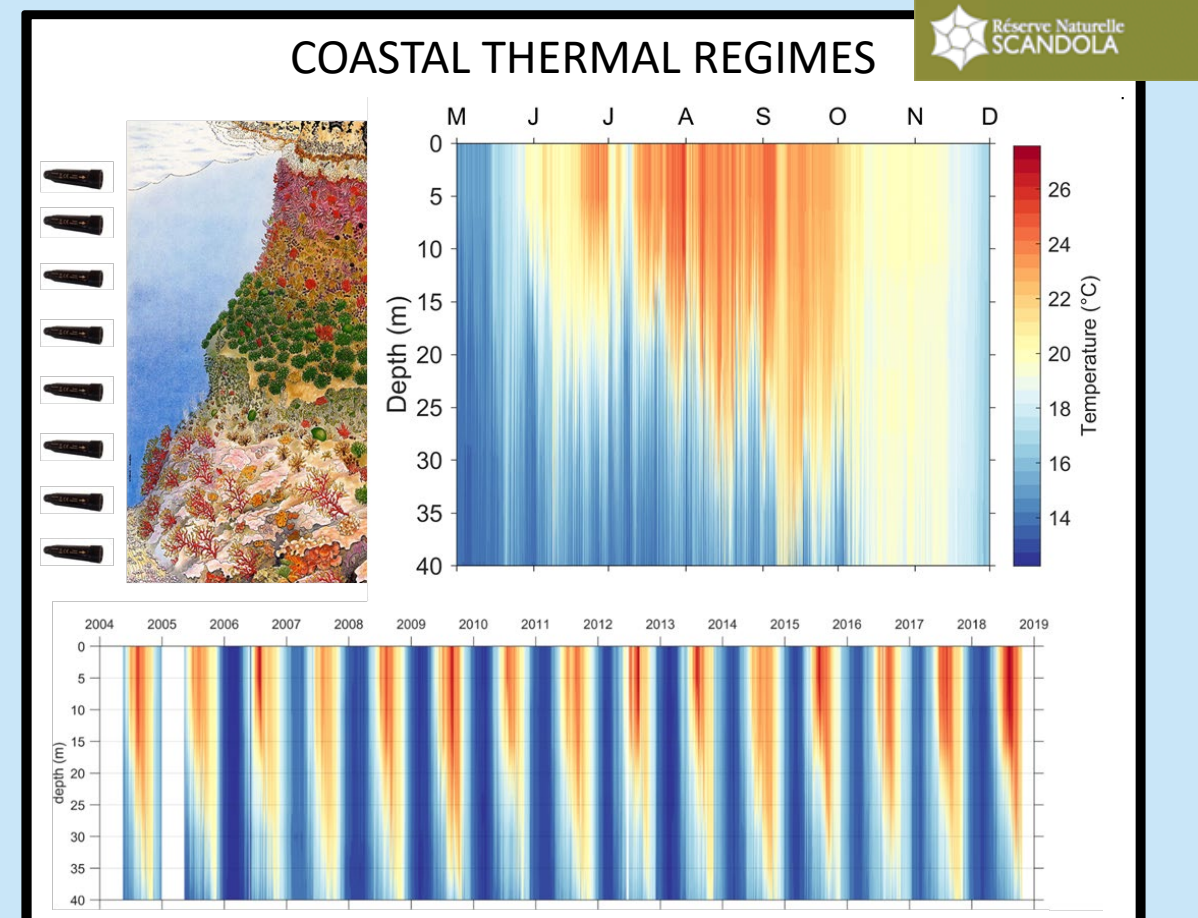
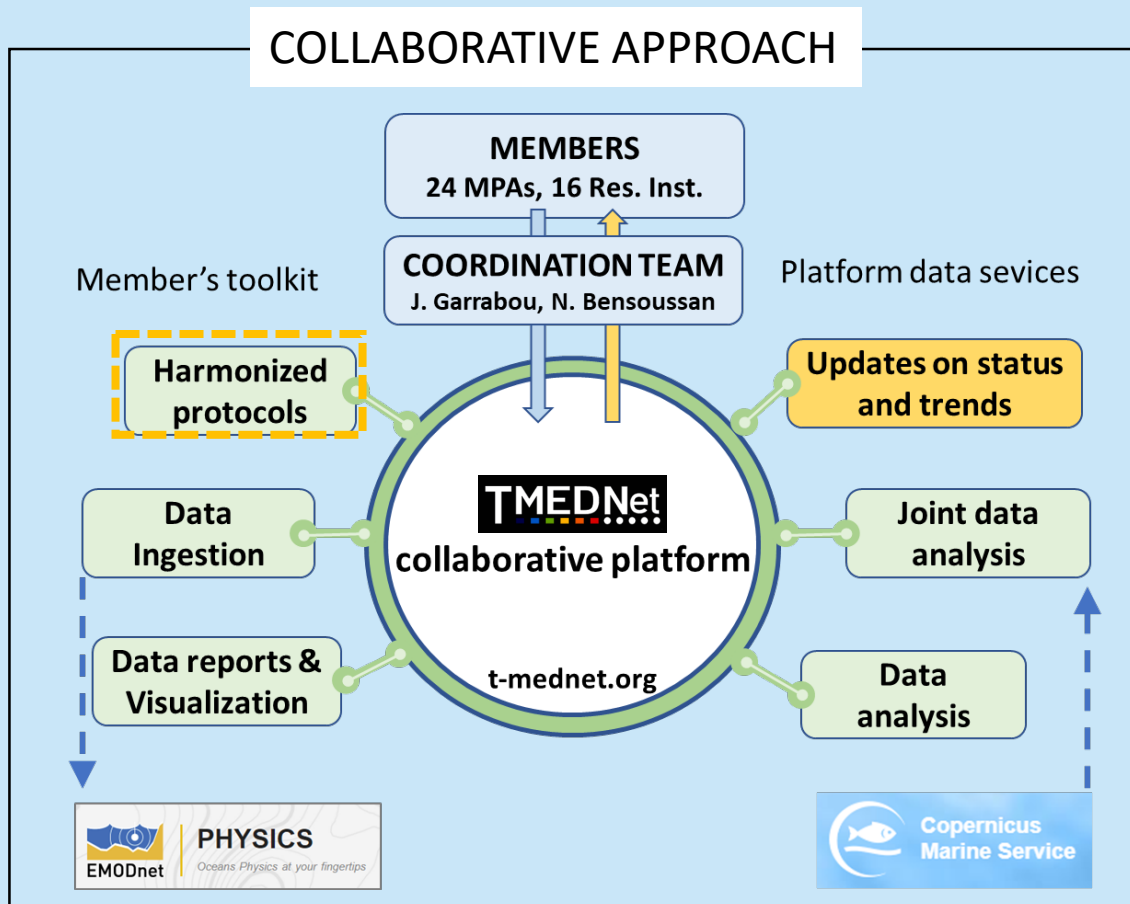
nbensoussan@gmail.com

@nat_bensoussan



Network presentation

- **OUR VISION:** having a fully operative and cost-effective, multi-actor MPA climate change sentinel observation network in Mediterranean **COASTAL** ecosystems based on collaborative approaches



T° Coastal Observation Network



EMODnet Jamboree
16-18 June 2021

Online event

- **OUR MISSION:** foster **PAN-MEDITERRANEAN COOPERATION** and support CC monitoring, build databases, facilitate data and information sharing, capacity building and contribute to national, regional and international monitoring and reporting activities.

TMEDNet

T°-MONITORING SITES

Network of mini-loggers
IN SITU at High-Frequency

Marine Protected Areas
Near-coast Mainland and islands

Multiyear time series
Some 20 years long

Vertical profiles 0 to 40 m
or more (max 67 m)
Also single depth in habitats

Collaborative network

Marine Scientists:

MPA managers:

TEMPERATURE HF
Water column*

5m

40m

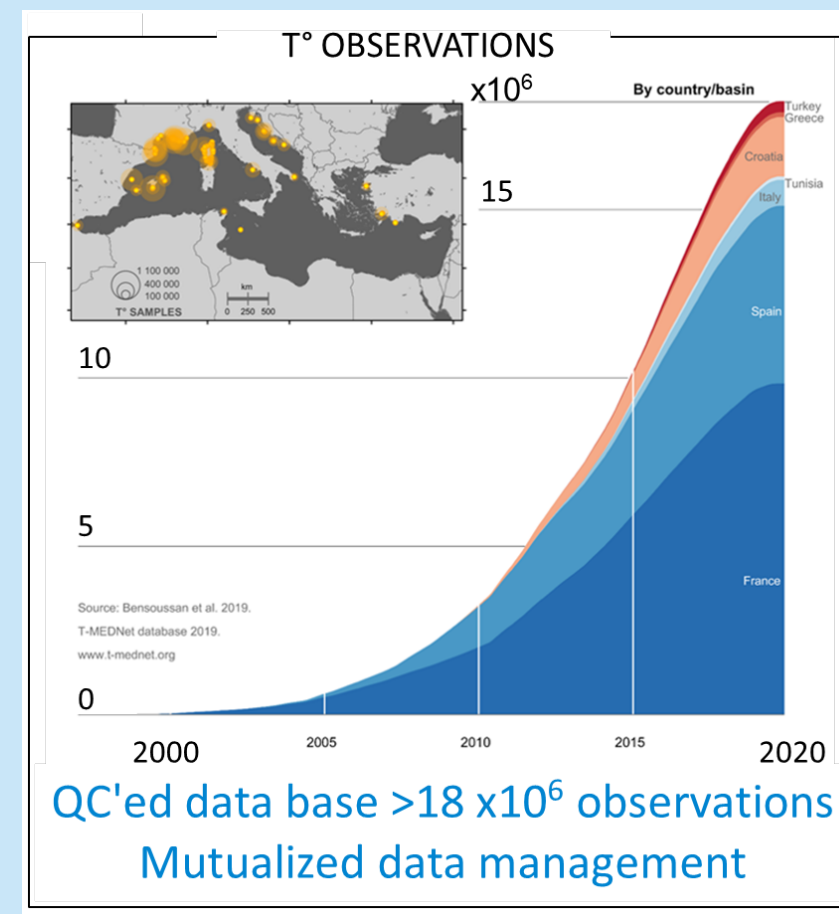
80 Sites

24 MPAs

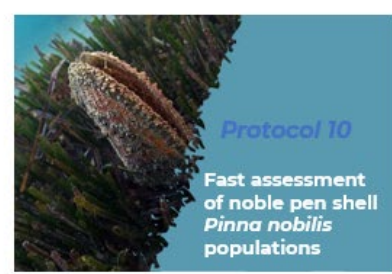
8 Countries

17 Res. Inst.

www.t-mednet.org



Engaging local actors and citizens for monitoring climate-related impacts



Categories of indicators

Temperature

Shifts in species distributions

Range shift of alien / temperature sensitive species

Episodic events

Phenology changes

5 new protocols

- ✓ Ecosystem approach
- ✓ Scientifically robust
- ✓ Cost-effective
- ✓ Public participation

Results

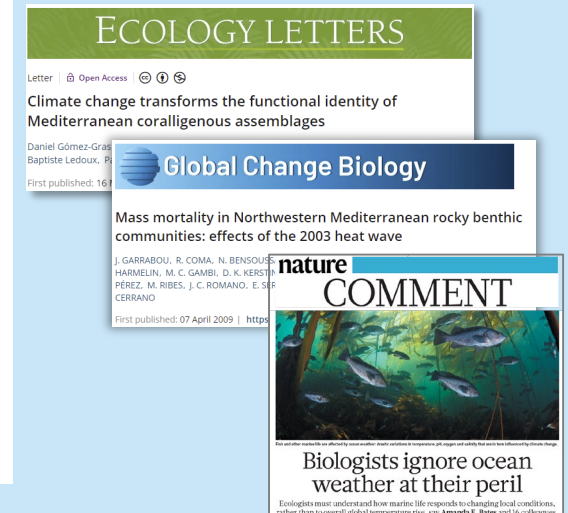
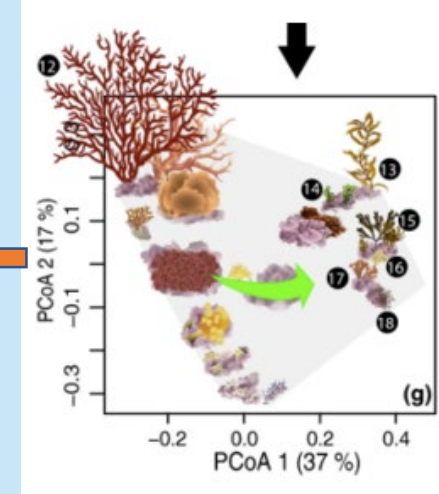
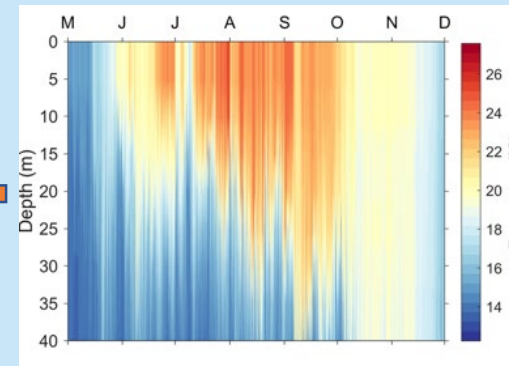
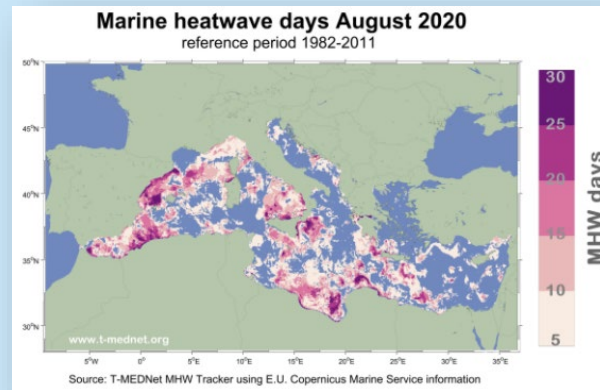
- **OUR RESULTS:** a growing pan-Mediterranean coastal network, data bases, scientific studies for science-based climate change adaptation strategies.

Synergistic approach

Oper.Oceano. - Coastal Obs. – Research - Society
Satellite – *in situ* (cal/val, CC monitoring)
Phy-Bio coastal ocean

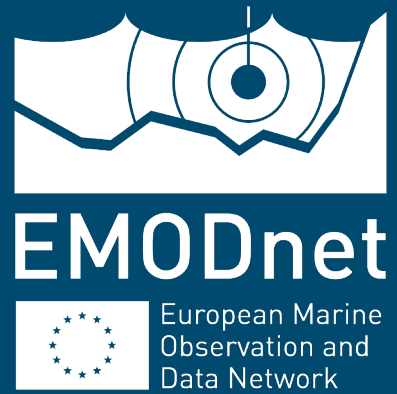
Scientific knowledge

50+ articles
Thermal regimes, CC, physics, ecology, biology, ecophysiology,
ICZM, MSP, marine conservation, ...



- **NEXT STEPS:** sustained observations, enhance representativeness and provision of updated obs. through adequate support to coordination actions

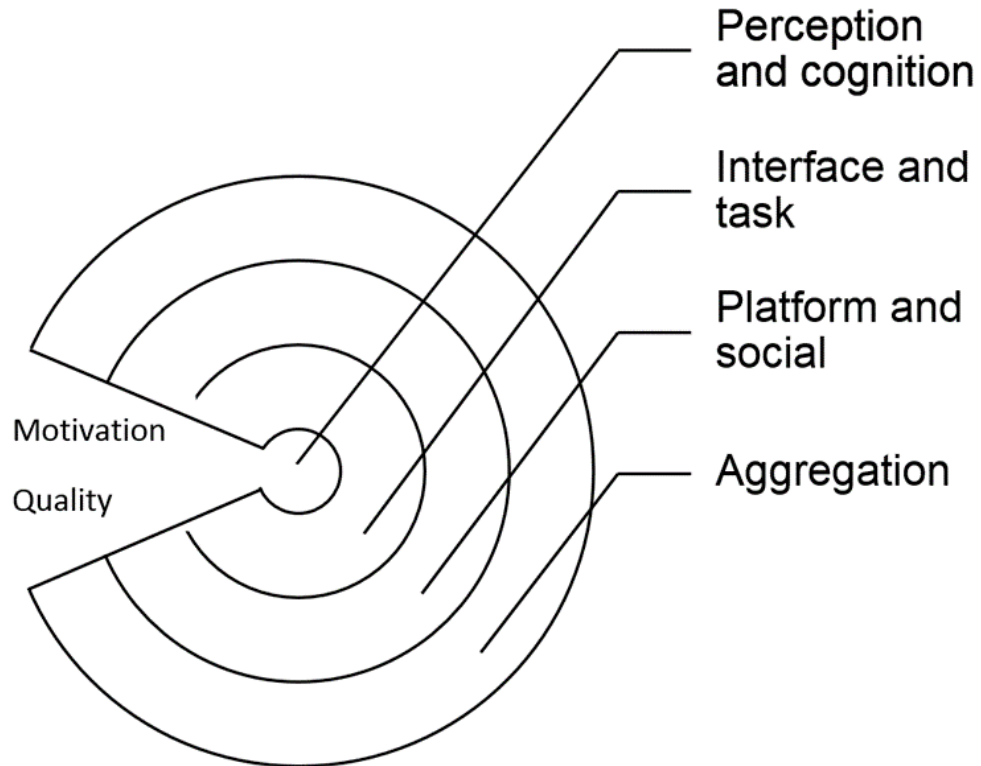
Thank you



Citizen Science at Earthwatch: A Sociotechnical System Approach



Adopt a total system approach...

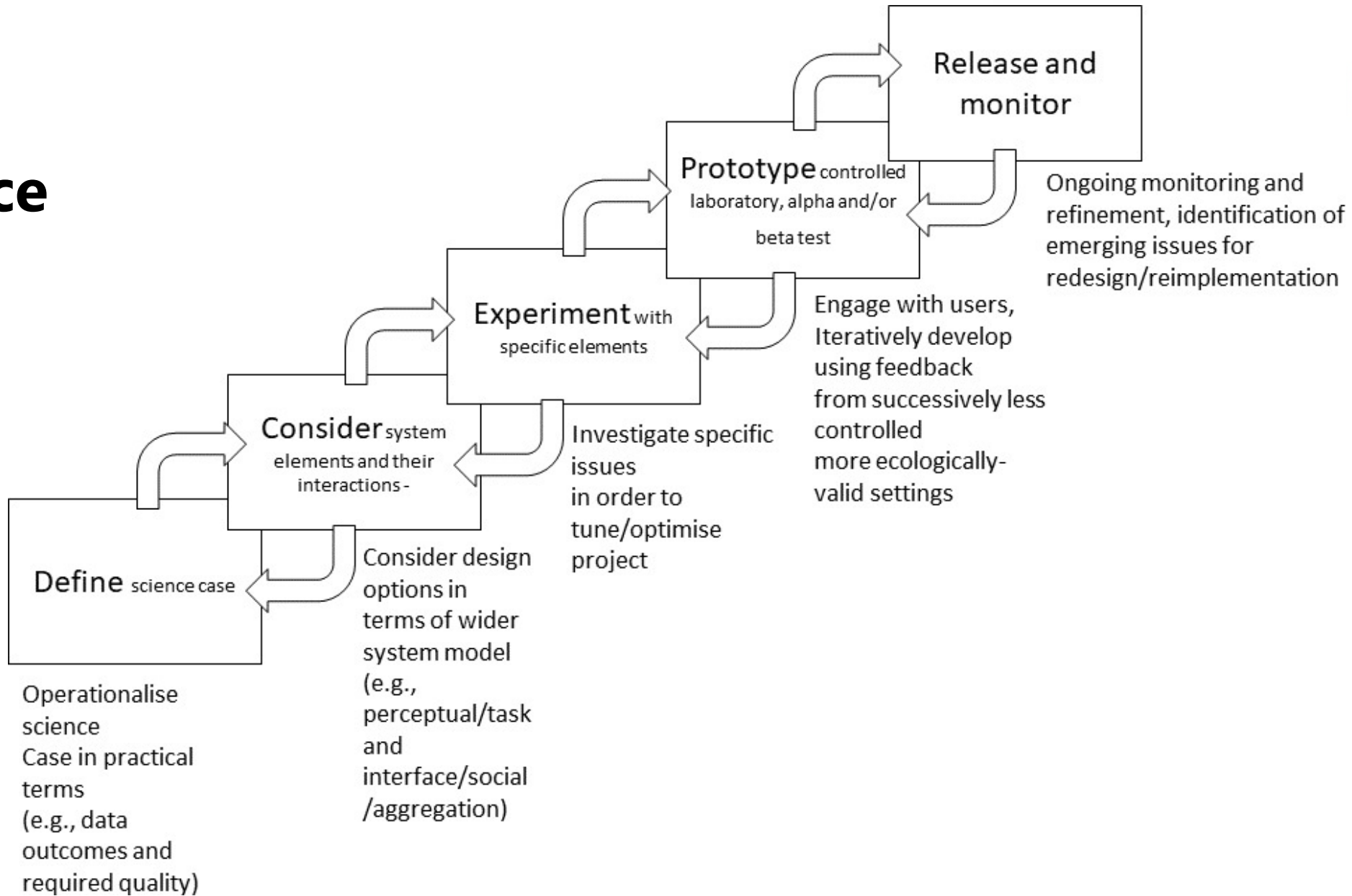


...it is important to think about both social and technical elements of the system being constructed.

Creating a piece of technology we expect people to use or interact with manifests a range of design decisions about how they will have to behave and think; it is *behaviour shaping*.

(Rasmussen and Pejtersen, 1995)

A citizen science project development process in 5 stages...





Fulfilling the project's full potential...



Common

Ties all elements of the standard together into one data model



Project

Describes the purpose for the research, who is coordinating it, and other contextual information about the project



Data Set

Describes how observations are collected, how that data may be used, and other information on the data as a whole.



Observation

Describes the structure of individual observations including: location, date, observer, and attributes specific to the research.