



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Call for Decade Actions No. 04/2022 – Request for Endorsement for a Decade Project linked to an endorsed Decade Programme

1. To which Ocean Decade Programme are you applying to be a project under?

UN5. Ocean Best Practices for the Decade (Primary)

2. Is your project already affiliated with the programme you have selected?

No

3. Lead Institution Name

IFREMER

4. Lead Institution Type

Research institution (publicly funded)

5. Lead Institution Physical Address

Street Address : Technopole Brest Iroise

Town/City : Plouzané

Postal/Zip Code : 29280

6. Lead Institution Country

France

7. Is your institution based in a Least Developed Country, Small Island Developing State, or Africa

No

8. Lead Institution Website www.ifremer.fr

9. Lead Institution Primary Contact

First Name / Lucie

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IEEE	Jay Pearlman	jay.pearlman@ieee.org	US
ECOP Network Programme,	Antony Ndah	a.ndah@ecopdecade.org	Cameroon

full list of partners at the end of the document

15. Name of Decade Action

Ocean Community: Engaging through best practices

16. Short name or acronym of Decade Action

CommunityScience

17. Is the project you are proposing an ongoing initiative or new?

New Initiative

18. When will your proposed Action start and end?

Start Date : 01/07/2023

End Date : 31/12/2030

19. Total Budget estimate for the Decade Action to the nearest whole number with no punctuation.

50 000 000 Euros

21. Estimate of percentage of total budget secured

25%

22. Please tell us who your current funders are and from whom you are seeking or planning to seek additional financial or in-kind support.

Governments, international organizations, NGOs, etc. / Current funders Research institutions: Ifremer, SAEON, SMHI, IIEEE, etc;

23. Please select all countries in which the Decade Action will be implemented.

All Countries

24. Please select all ocean basins in which the Decade Action will be implemented.

All

25. Summary of Decade Action

Global and regional perspectives of the ocean are essential in addressing climate and sustainability. To understand a global ocean, similar and interoperable methods are needed for in situ and remote sensing observations, data management, analyses as well as creation of products and services. To use similar methods in regions with different levels of infrastructure, methods must be adapted to local and regional capabilities, yet remain interoperable and transparent. The project addresses this challenge through active participation of experts, early career scientists, and indigenous knowledge holders in many global regions. This work will leverage the initial pilot in the OBPS Task Team 22:01 “Coastal observation for Under-Resourced Countries” and will be enriched by partners in LDC and SIDS. The efforts address all aspects of the ocean community incl. citizen science in support of broader ocean science, options for lower cost quality instrumentation will also be examined

26. Please provide details on how your proposal aligns with the following Ocean Decade endorsement criteria:

-Contributes to achieving one or more of the following Decade objectives: Objective 1: Identify critical ocean knowledge; Objective 2: Build capacity and generate knowledge; Objective 3: Increase the use of ocean knowledge.

Objective 1.

While ocean knowledge is traditionally thought of as physical, biogeochemical or biological information, underlying this is the foundation for how to collect, manage, analyze and use the knowledge that is gained from ocean science. That knowhow, delivered through established best practices, should be used globally and must accommodate the capabilities at local, national and regional levels. Different levels of infrastructure and human resources must be taken into account for a truly interoperable and sustainable observing and information system. The need and requirement for the specific observations is also important as it will impact the desired accuracy in ocean data measurement. This project focuses on the adaptation of interoperable common practices (“best practices”) for under-resourced nations, Small Island Developing States (SIDS) and regions where gaps in ocean knowledge and data acquisition occur. This also includes the expansion of citizen science.

Citizen science will positively impact ocean knowledge in many ways, filling data gaps, offering new information and expanding outreach and impact of the ocean. For increased effectiveness in the alliance with ocean professionals, citizen science should engage with standardized and transparent practices. While this is understood by some, broadening the value and acceptance of citizen science in developing regions is still a challenge, which is a matter also addressed in this project. Here capacity building is again an essential element as described below. So is the commitment for data and information to be FAIR and truly open (CC-BY).

For both national programs in under resourced countries as well as global citizen science, there is a need to create low-cost sensors that can support quality observations, with a clear message that good science can be done cheaply and portably.

To the extent possible, adaptation of best practices for under resourced countries will align with a similar effort in citizen science, providing a more holistic approach to capturing and using ocean knowledge. This will be described in more detail in the following sections of this proposal. The information will be geared toward benefits in the local and national stakeholders as well as contributing to a global digital twin of the ocean. DITTO, the Ocean Decade digital twin program, is a partner in this project. CoastPredict and its Global Coastal Ocean is a co-lead of the proposed project.

The team that is participating in this project represents many of the regions where adaptation of practices will be addressed and offers an organizational base for validation of and capacity building in the advances in best practices resulting from this project.

Objective 2.

For Objective 2, “Build capacity and generate knowledge”, this project focuses on broadening the production and use of good practices and their sharing to the largest number. This puts widely accepted methods in the hands of all countries (under-resourced or not) so the capabilities are shared and interoperable. The project includes both adoption of best practices and capacity development for their use. It will also include the knowledge transfer in terms of tools and software to facilitate the data management, from collection to sharing. This project will have a formal knowledge sharing/capacity building component which is built around. The Early Career Ocean Professionals (ECOP) program is partner in this project to help build capacity and generate knowledge among the future generation of ocean professionals and ocean stewards, thereby further promoting ocean sustainability.

Objective 3.

For Objective 3, the use of known practices and transparency builds trust in observations, analyses and services which will increase the use of ocean knowledge. Processes for recognized, accessible and transparent (or more broadly FAIR) practices are the core outputs of this project.

-Accelerates the generation or use of knowledge and understanding of the ocean, with a specific focus on knowledge that will contribute to the achievement of the SDGs and complementary policy frameworks and initiatives.

It is important to develop best practices that are best suited to the region. This will involve co-design to understand a country’s needs and resources and the main goal of the observations, hence knowledge sharing becomes more important than straightforward capacity development. Having best practices that are adapted to the local observing capabilities and are also interoperable on a regional and global scale will reduce the efforts needed for effective ocean observing rather than reinventing the wheel each time an observing effort is started. The adoption of a truly open data access policy (CC-BY) is a primary goal of the action. This will accelerate the generation of knowledge and increase the efficiency for observations and analyses, encouraging more efforts in ocean understanding.

It should be noted that Community Science is strongly linked to the Coastal Observing Laboratory in a Box (COLaB) initiative which is being driven at the global scale through an international task team, including members of the OBPS TT. COLaB is an overarching project which looks at the entire life cycle of the data in a co-design approach with under-resourced countries. From the design of the observing equipment through best practices to data accessibility and training. COLaB is currently an Ocean Decade project under Coast Predict and there is necessary overlap in the members of both steering groups.

Is co-designed and/or co-delivered by knowledge generators and users, and thus facilitating the uptake of science and ocean knowledge for policy, decision-making, management and/or innovation.

Co-design is initiated at the beginning of the project - and continues throughout - to clarify local infrastructure and human capabilities for ocean knowledge. Co-design includes the identification of priority issues. These are the driving parameters. They are also matched to global objectives of ocean observing to encourage broader interoperability. The processes of best practices work only if adopted by the stakeholders and thus co-delivery is a core principle of Community Science. Best practices are methods developed by the users for the users.

-Ensures that all data and resulting knowledge are provided in an open access, shared, discoverable manner

Using known and widely available methods adhering to the FAIR principles, best practices will be open access and deposited in the IOC Ocean Best Practices System repository. FAIR is a fundamental principle of OceanPractices and this project. The second is the true adoption of a CC-BY data policy: the Creative Common BY license allows the sharing and downloading of an original work while crediting the author for his work.

-Strengthens existing or creates new partnerships across nations and/or between diverse ocean actors, including users of ocean science.

This project addresses methods and their inter-relation across the value chain and thus covers observations through users of ocean science information. The methods should be shared and replicated across developed and developing regions. Capacity building and inter-regional workshops will build networks and partnerships among project participants and beyond, propagating the lessons learned in implementing good practices. The capacity building will encourage a network of citizen scientists which will expand on the existing active citizen science programs.

-Contributes toward capacity development, including, but not limited to, beneficiaries in SIDS, LDCs and LLDCs.

Yes. This project is focused on ocean observing and applications in SIDS, LDCs and LLDCs as active participants in the documentation and use of globally recognized methods. The project will work with ECOPs and Indigenous communities. This includes formal and informal capacity development.

-Overcomes barriers to diversity and equity, including gender, generational and geographic diversity.

Diversity engagement in this project will follow the principles of OBPS and its OceanPractices programme, which actively promote diversity and equity, ensuring inclusivity in all areas of the work.

-Collaborates with and engages local and indigenous knowledge holders.

Yes (also see above). The project will create a panel from Indigenous communities to guide the definition of methods applicable to these communities. Prof. Maui Hudson of the New Zealand Maori community will guide the panel in forming recommendations. Also, Ocean Networks Canada has an active engagement with Canadian Indigenous Communities and will thus help guide the Project through their field experience.

27. Please select which of the Decade Outcomes your Decade Action contributes to (max. 3)

- **Outcome 4:** A predicted ocean where society understands and can respond to changing ocean conditions.
- **Outcome 6:** An accessible ocean with open and equitable access to data, information and technology and innovation.
- **Outcome 7:** An inspiring and engaging ocean where society understands and values the ocean in relation to human wellbeing and sustainable development.

28. Please select which of the Decade Challenges your Decade Action contributes to (max. 3)

- **Challenge 3:** Generate knowledge, support innovation, and develop solutions to optimise the role of the ocean in sustainably feeding the world's population under changing environmental, social and climate conditions.
- **Challenge 7:** Ensure a sustainable ocean observing system across all ocean basins that delivers accessible, timely, and actionable data and information to all users.
- **Challenge 9:** Ensure comprehensive capacity development and equitable access to data, information, knowledge and technology across all aspects of ocean science and for all stakeholders.

29. In addition to SDG 14 (Life below water), which we assume is relevant to all Decade Actions, please indicate which of the other Sustainable Development Goals your Decade Action contributes to:

GOAL 4: Quality Education

GOAL 9: Industry, Innovation and Infrastructure

GOAL 12: Responsible Consumption and Production

GOAL 17: Partnerships to achieve the Goal

30. What is the high-level objective of your Decade Action? (max. 1000 characters)

CommunityScience aims to identify/develop globally interoperable, accepted best practices for coastal & open ocean observation that are adaptable to local and regional conditions, notably in under-resourced countries.

For continuation after the Ocean Decade, this project relies on 3 main concepts:

*Strong sustainability: refocus on the essentials & technological optimum, minimize energy and resource consumption, short, medium and long term.

*Collective resilience:

maintained /fixed by users themselves \ with standard parts and materials, maximum ease of use and a wide production range, made from resources harvested and processed as locally as possible.

*Cultural Change: Facilitate engagement by the greatest number, empowering citizens and territories, P

promote knowledge and know-how sharing including training, cooperation, social cohesion between communities, Decomplexed society at the socio-economic and organizational levels based on a reflection on needs and vulnerabilities.

31. What are key outcomes of your Decade Action? (max. 2000 characters)

Key outcomes include:

1. Guidelines and processes for adaptation of best practices to local infrastructure and human capabilities
2. Improved interoperability for ocean observing across nations with differing infrastructure capabilities
3. Motivating the connections between citizen science and advances in science
4. Facilitating uniform methods for community science (citizen science) contributions to the Ocean Decade
5. Capacity building through training, both formal and informal with adapted practices for LDC and SIDS.
6. Improved understanding of methods across regions of different capabilities
7. A co-design process defined and tested with sub-projects in Africa, South America, South Pacific Islands, Malaysia and other regions
8. Capacity development, both formal and informal, relevant and applicable to solve local issues but can address regional needs
9. Facilitating learning loops, so that work in developing regions can feedback valuable insights about lower cost instrumentation to well-resourced countries
10. Fostering sustainable processes where the deployment of observation systems and programmes in under-resourced countries is an opportunity for knowledge transfer, co-creation and a driver for local entrepreneurship
11. Taking into consideration both the technical challenges and the social and cultural challenges that come into play in the deployment of ocean observing devices in under-resourced countries
12. Motivate the formation of decisional information by including all aspects of the information value chain from observations and analyses to applications using a co-design/co-production approach

An OBPS task team “TT22:01 Coastal observations in under-resourced countries” (here after OBPS TT22:01) is a pilot for the current proposal. The task team is focused on Africa and is addressing many of the key issues of the proposed project. The proposed project will extend the work to a global scale in selected countries and regions.

32. What are key discrete activities that you will carry out in the first 3 years of your Decade Action? (max. 5000 characters)

There is a common misperception that modern oceanographic observations require expensive “high-end” facilities and infrastructure, such as a dedicated research vessel and laboratory, and advanced, automated analytical instruments. With the evolution of modern sensors and electronics as well as communications, there can be a new paradigm for coastal monitoring. COLaB, a project for portable low-cost sensors and end to end data and information, has defined an approach for coastal observations.

Expand upon the existing OBPS task team on “Standard operating procedures/best practices for coastal observations in under-resourced countries”. This includes the following activities.

1. Assessment of existing standard operating procedures and best practices (SoPs and BPs) to determine key BPs that would be a priority for local support and general globalization of practices to support interoperability and trust. This will draw on the work of OBPS in collecting SOPs, BP and standards.

- 1.1. Interviews, questionnaires and workshops with existing research entities, citizen science groups and observation programmes active in coastal and open ocean observation and research
- 1.2 The project will engage with Ocean Practices and GOOS including the GOOS Co-design and CoastPredict Programmes to understand the engagement and endorsement processes that can support the proposed project activities

2. Initiate expert panels for the co-design of an ecosystem of SoPs and BPs for improving interoperability and transparency of observing outcomes from under-resourced countries

2.1. Define demonstration sites in selected regions from Europe, Africa, South America, Caribbean Islands, South Pacific Islands, Southeast Asia and India. This will be done in phases with an initial selection of three sites for process development, validation and demonstration

2.2 Develop new SOPs and BPs based on results from Task 1 resulting from the work of expert panels created under this project

2.2. Publish the outcomes in the OBPS repository

2.3 Facilitate the adoption and use of BP in the initial pilot regions through regional workshops and capacity development activities (see also section 3 just below)

Beyond year 3, expand the number and geographical distribution of demonstration sites.

3. Publish and test results

3.1. Write a summary paper for Frontiers in Marine Science special topic Best Practices.

3.2 Organize regional workshops in demonstration regions and expand outreach to additional pilot areas

3.3 Organize training and capacity development actions in coordination with existing international capacity development activities

3.4 Participate in key conferences and workshops including the annual OBPS workshop, coastal workshops and ocean decade and other international and regional conferences.

3.5 Actively participate with OceanPractices, CoastPredict, MarineLife 2030, DCC operational oceanography

33. How does your project align with your chosen Decade Programme's priorities? (max. 3000 characters)

CommunityScience aligns closely with OceanPractices Programme (OP), engaging diverse communities of practice & interlinking them through FAIR digital technologies. OP aims to transform how science & other stakeholders align their interests/capacities in best practices creating better practices, promoting sustainable human & ocean well-being. These practices improve interoperability and facilitate training so broader global participation naturally evolves. The OBPS (managing OP) & its task team 22:01 initiated the work in the proposed efforts to broaden the adoption of best practices through adaptation of practices to local capabilities. The TT22:01 focused on a demonstration in Africa. This project supports this direction & expands to a global dimension by engaging regions in South America, the Caribbean, South Pacific Islands, East Asia and India. Indigenous Peoples in the Arctic and the southern Pacific will also be a focus of this project.

3 main outcomes of OP are specifically supported:

1. A participatory ocean where all ocean stakeholders can discover, understand, and co-develop the next generation of ocean practices with increased equity, accelerating inclusive capacity exchange and development. This project focuses on the engagement of LDC and SIDS and Indigenous people.

2. An oceanwide community of practice where local, regional, and global stores of evolving ocean knowhow and methodology are collectively safeguarded as a shared resource and trust for current and future generations to draw from in the creation of new practices for opportunities and threats we have yet to imagine. This project engages communities at a local level (incl.citizen scientists) and works at the national level to provide open sharing of practices (following FAIR principles) adapted to local infrastructure and helping them to be interoperable with practices on a global scale. The transparency and connectivity will support creation of trust in the quality and value of these local/national observations.

3. A new commons of practitioner wisdom through which diverse experience across ocean stakeholders is available to guide the selection and endorsement of practices for use across regions, operational realities, and value systems of ocean communities in their support of science and sustainable development converge innovative methodologies into endorsement of methods. The project best practices will be included in the OBPS repository to be easily available and accessible on a global scale. Processes for endorsement developed by OBPS/GOOS will be incorporated into the project to identify those practices that are of particular relevance for EOVs and sustainability goals.

34. Please describe the management structure which will be used to coordinate your Decade Action (max. 2000 characters)

The Project will use traditional management structures and procedures. Lucie Cocquempot (Ifremer), Patrick Gorringer (SMHI) and Anthony Ndah (ECOP from a developing country) will be the project managers. Emilie Breviere (SMHI), an experienced project manager, is the operations manager. The project managers are responsible for the progress of the project, securing of funding, outreach and delivery of outcomes. The project managers are supported by a steering committee and an advisory board. The steering committee (SC) has global representation and consists of a senior person from each of the demonstration/validation sites and a representative from OceanPractices and CoastPredict. It advises strategic and operational decisions. The advisory board (AB) is constituted by experts with experience in observations, data management, modeling and selected applications. It provides technical insight and it reviews and provides feedback on the project through annual reviews. The AB will be led by Jay Pearlman (IEEE). An Indigenous Communities Panel provides inputs on oceans and common practices representing the needs and priorities of Indigenous Peoples. This will be facilitated by Maui Hudson (New Zealand) and Maia Hoeberecht (Canada). Both the SC and the AB will meet virtually. One or more of the project managers or their appointees will participate in OceanPractices and CoastPredict management meetings and regularly report to the Programmes on progress of the project. More detailed assignments and staff positions will be done when sufficient funding is available. OBPS, OceanPractices emphasize the inclusion of early career professionals. CommunityScience will have an ECOP lead who will facilitate and encourage ECOP participation. OBPS has an ECOP Ambassador program with representatives on five continents. CommunityScience will engage these ambassadors as part of the project outreach efforts

35. Decade Actions that will enhance the sustainability of ocean science, including infrastructure or individual or institutional capacity, in light of the COVID-19 pandemic are welcome in response to this call. If applicable, please describe here how your proposed Action responds to the impacts of the COVID-19 pandemic? (max. 1000 characters)

Not applicable

36. Please provide any supplementary information you would like reviewers to take into account as they review your Decade Action. This may include details of additional partners. There is a character limit of 5000.

This project will be co-led by The Ocean Decade CoastPredict Programme. This project supports major initiatives of CoastPredict. CoastPredict (CP) can make a real difference to the outcomes for vulnerable, currently underserved coastal communities. CP supports sustainable

marine activity and adaptation around climate change as well as warnings and preparation for extreme weather and coastal events. CP spreads the ability to put systems designed as a global framework and implemented locally in place to other coastal locations worldwide. The Project adaptation of best practices, support of citizen science and a focus on low cost, effective instrumentation are core contributions to CP.

full list of partners

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