



## JERICO-DS DELIVERABLE

Joint European Research Infrastructure of Coastal Observatories - Design Study

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## EXECUTIVE SUMMARY

The aim of the JERICO Design Study project deliverable 4.2 “National Commitment Framework and Strategy Report” is to look into and analyse the landscape in terms of capacity and coordination mechanisms in the various European countries. Operating in a broader global and European system, information and actions in the framework of the European Ocean Observing System (EOOS) Operations Committee, were considered thanks to the established links through the assignment of JERICO-RI representatives to this committee. Moreover, in the formulation of a proposed action plan, GOOS activities particularly in the area of GOOS national focal points were also considered together with many other activities that have taken place and are presented in this document. The ultimate goal of these activities is to have a strong coastal observing element embedded in the national coordination mechanisms.

The key mechanism of the J-DS, the Nation Committee, an interim organisation that aims to bring national perspectives into the development of the JERICO RI, is presented here, while throughout the process towards D4.2 a close collaboration was achieved. Mapping the existing landscape in terms of the national coastal research infrastructures involved in JERICO-RI is done. Moreover, the national coordination mechanisms and national forums related to marine research infrastructures, scientific research and funding for each JERICO-RI member country are also presented. In addition, two questionnaires were prepared and distributed for the purposes of this document. The first questionnaire was distributed among the GOOS National Focal Points (NFPs) of all countries involved in the JERICO-RI, while the second questionnaire was distributed among the national representatives in the JERICO Nations Committee. The results are presented and discussed in detail together with the current status of efforts to ensure their nation's commitment to the upcoming JERICO-RI application to the ESFRI Roadmap in 2024. Furthermore, as the connection and engagement with countries is a long-term and continuous process, specific strategic actions are foreseen and proposed to highlight the added value of JERICO-RI for each country.

### 1. Introduction

This document is the Deliverable (D4.2) “National Commitment Framework and Strategy Report” of the JERICO- Design Study project (Grant Agreement No.: 951799), funded by the European Union's Horizon 2020 research and innovation program. JERICO- DS is a 3-year project analysing the needs and proposing a design for a state-of-the-art, fit-for-purpose, visionary, and sustainable observational European RI providing expertise and high-quality data on European coastal and shelf seas, supporting world-class research, high-impact innovation, and visibility of European excellence worldwide. JERICO-DS builds on nations' will and involvement to co-construct the JERICO-RI, from the scientific and technical design to the business plan and governance strategy, supporting future engagement during the ESFRI process.

This document has been produced by the Hellenic Centre for Marine Research (HCMR) with input and review from MI as well as from Ifremer, EuroGOOS, and the JERICO Nations Committee.

The Deliverable is the product of the activities carried out within the frame of Task 4.2 of the JERICO DS project. The aim of this task is to establish a roadmap for capturing and tracking national commitments to observing Europe's coastal seas. Strong linkages with the emerging Operations Committee of the European Ocean Observing System (EOOS) will be established by assigning JERICO-RI representatives to this Committee for the duration of the Design Study. Coordination of Global Ocean Observing System activities are undergoing enhancement at present and the roadmap will include an assessment of GOOS national coordination for each country represented in JERICO-RI. The ultimate aim of such a task (post-project) is to have a strong coastal observing element embedded in national coordination mechanisms aligned with GOOS. The scope of National Infrastructures being included in JERICO-RI will also be defined.

This Deliverable has progressed thanks to the organisation of a workshop on long-term national commitment framework (MS4.1) which took place on the 19<sup>th</sup> November 2021 (details can be found in JERICO-DS MS.21 – WP4 - “Workshop on long term national commitment framework” Report). The 1.5-hour online workshop was divided into two parts. The first half of the Workshop's time slot was dedicated to JERICO Nations Committee (NC) work. The JERICO NC current work as well as the outcomes from the ESFRI application in 2021 were presented by Dominique Durand. A first analysis of the evaluation of the ESFRI committee results shows that the proposal did not clearly demonstrate how the initiative will go beyond a network concept to establish a common JERICO-RI and how JERICO-RI will fit into the current European landscape. A weakness on the financial dimensions beyond the EU funding was also recognized. The general conclusion of the evaluation report is that: “On the basis mainly of weaknesses in implementation issues (preparatory work, governance and finances), JERICO is not recommended at this stage to enter the ESFRI Roadmap. After finalisation of the design study and better developed and supported plans for the infrastructure, it is likely for JERICO-RI to be in a good position to apply for the next ESFRI Roadmap.”.

The second part of the Workshop was dedicated to Task 4.2 of the JERICO DS “Design of national commitment framework”. The first goal of this Task is to strongly link JERICO-RI to EOOS (European Ocean Observing System) which has been successfully achieved as Laurent Delauney is now the chair of EOOS Operations Committee. The second activity/goal is for JERICO-RI to build at a national level a strong coastal observation component. For this, GOOS (Global Ocean Observing System) National Focal Points (NFPs) have been taken as the reference point. Assuming that each European country has an NFP, the ultimate goal of this activity is to connect it to the JERICO-RI and the coastal component.

Anna Lara Lopez from EuroGOOS has been invited to present the work done in the framework of the EuroSea project associated with reviving the National Focal Points idea which was initiated many years ago. The presentation given was entitled: “GOOS NFP for Europe and EOOS Operations Committee”.

Based on the workshop's outcomes and to establish a roadmap for capturing and tracking national commitments to observing Europe's coastal seas, two surveys have been contacted and presented below. Furthermore, to better highlight the engagement given by Member States to show the sustainability of JERICO-RI as a research infrastructure, the NC members have been asked to provide a brief description of the methods being employed and the current status of their efforts to ensure their nation's commitment to the upcoming

JERICO-RI application to the ESFRI roadmap (spring 2024). The strategy forward is presented.

## 2. Terms of Reference of the JERICO-Nations Committee

JERICO-RI has two projects running in parallel, aiming at consolidating the RI towards a long-lasting sustainable European RI.

Through Task 9.5, JERICO-S3 (J-S3) aims at progressing on the long-term governance of the infrastructure. In the task the interaction process with nations and national RIS was planned to be implemented through a dedicated Long-Term Governance (LTG) committee, gathering representatives of national RIs and key persons related to the ESFRI roadmap at ministries. The LTG Committee was initially planned to meet once a year at the occasion of the JERICO Week.

The Design Study project JERICO-DS (J-DS) aims at preparing the RI towards entering the ESFRI roadmap and is built around nations and nation representatives. J-DS has established a Nation Committee as a key mechanism for progressing with the J-DS action plan. The J-DS Nation Committee meets once a month virtually.

The JERICO coordination suggested merging the J-S3 LTG Committee into the J-DS Nation Committee, under the name Nation Committee (NC). This was accepted by the national JERICO representatives.

### **Scope and objectives of the NC**

The Nation Committee is an interim organisation aiming at bringing the nations' perspectives into the development of the RI.

While the initial objective was to ensure a strong and efficient relationship between the ongoing JERICO-RI projects, the NC members and the JERICO coordination decided to use the NC as an Executive Committee for JERICO-RI, reporting to the General Assembly of the J-S3 project, which is the most comprehensive assembly of JERICO members and stakeholders, thereby supporting the development of an application to enter the next ESFRI roadmap (supposedly by 2026).

In this context, the specific objectives of the NC are:

1. to jointly decide on the contour and strategic orientation of JERICO-RI, addressing all aspects of the RI development and operation, i.e., services to science and society, governance model, business case and business model, invitation of new nations to be part of the JERICO community, and relationships to external stakeholders. To achieve this, the NC (each national representative):
  - reviews the findings/results/recommendations/strategies elaborated in J-S3 and J-DS, and provides a national perspective on challenges and opportunities in the implementation of the strategies at national level.
  - discuss key achievements of the J-DS WPs (Deliverables), and jointly decide what and how they should further be communicated and disseminated to the nations.
  - informs on progress and bottlenecks for the commitment of nations to JERICO-RI

- exchanges on practices and methods for approaching/convincing decision-makers
- 2. Provides support and recommendation to the ESFRI Task Force for the elaboration of the ESFRI application.
- 3. Ensures the visibility and promotion of JERICO-RI in the nations
- 4. Identifies and shares funding opportunities at national European and global level, that JERICO-RI could benefit from.

### Composition of the NC

Nation	Name (institute)
France	Lucie COCQUEMPOT (IFREMER)
Italy	Marcello MAGALDI (CNR)
The Netherlands	Anouk BLAUW (Deltares)
Greece	Leonidas PERIVOLIOTIS (HCMR)
Germany	Holger BRIX (HZG)
Portugal	Joao VITORINO (IH)
Norway	Helene FRIGSTAD (NIVA)
Croatia	Martin PFANNKUCHEN
Ireland	Alan BERRY (MI)
Belgium	Sébastien LEGRAND (RBINS)
Sweden	Kari EILOLA (SMHI)
Spain	Joaquin TINTORE (SOCIB)
Finland	Jukka SEPPALA (SYKE)
Estonia	Taavi LIBLIK (Taltech)
UK	Véronique Creach (CEFAS)
Denmark	Jun She (DMI)
Observers	Inga LIPS (EuroGOOS), Kees BORST (WVL, NL), George PETIHAKIS (HCMR, GR), Laurent COPPOLA (CNRS, F), Martin VODOPIVEC (NBI, SL)
Chair	Dominique DURAND (COVARTEC)
co-Chair	Henning WEHDE (EuroGOOS)
Coordination Team, Ifremer	Laurent DELAUNEY

### Mode of operation

#### Tasks of the chair

- Organise the work in the NC in collaboration with the coordination team at Ifremer and the NC members
- Establish meeting agendas based on inputs from the NC members
- Chair the NC meetings



### Role of the NC members

- Give inputs to the priorities and agenda of the NC
- Provide a national position on the topics addressed by the committee
- Contribute to the NC meetings with expertise and insight on Nations' strategies, priorities and approaches
- Contribute in designing powerful dissemination measures for maximising visibility and impact of the JERICO-RI in nations.
- Jointly decide on key outcomes of the two ongoing projects to be to be further synthesised for their nation
- Disseminate information and results in their nation (with WP6 of JDS)
- Report to key users and stakeholders in their nation
- Report to the JERICO coordination on the progress in nations
- Report values for indicators of the JDS and the JS3 projects' impact, every 6 months

The NC meets every 2nd Friday of the month in ordinary meetings.

Extraordinary meetings can be called by the Chairpersons as appropriate and under request from NC members and /or the RI coordination.

The NC can produce different kinds of outputs, such as:

- position papers to be used in mobilising authorities in nations
- inputs and comments to relevant draft deliverables from both J-S3 and J-DS
- inputs and comments to relevant national and/or EU consultations.

### 3. National Infrastructures

The national coastal research infrastructures involved in JERICO-RI are:

**France:** ILICO, created in 2016, is the French federative research infrastructure for coastal ocean observations, aiming to observe and understand coastal ocean and seashore environments in a comprehensive manner. ILICO comprises, in a pluridisciplinary approach, eight distributed network-systems of observation and data analysis that are accredited and financially supported by French research institutions (IFREMER and CNRS) and the French Ministry for Higher Education, Research, and Innovation.

**Italy:** The Italian network of coastal observing systems consists of 2 National Research Infrastructures; CNR created in 1923 and OGS created in 1958. The National Research Council (CNR) is the largest public research institution in Italy, the only one under the Research Ministry performing multidisciplinary activities. The National Institute of



Oceanography and Applied Geophysics (OGS) is also a public research institution, monitored by the Ministry of University and Research.

**The Netherlands:** The Dutch National monitoring programme consists of 2 National Infrastructures; the Monitoring Waterstaatkundige Toestand des Lands (MWTL) and the Wageningen Marine Research (WOT).

**Greece:** Greece has a limited number of actors involved in the observation and monitoring of seas. The Greek National Research Infrastructure POSEIDON/ HIMIOFoTs (Hellenic Integrated Marine Inland Water Observing, Forecasting and offshore Technology System) was created in 1997 and is coordinated by HCMR. HIMIOFoTs is a large-scale national infrastructure aiming to apply an interdisciplinary management approach through the implementation of state-of-the-art technologies and techniques together with innovative solutions to support the sustainable development and the provision of relevant services to the society.

**Germany:** The German network of Observing systems, COSYNA, was created in 2010 as a scientific Networking project. Other networking associations such as the German Marine Research Consortium (KDM, <https://www.deutsche-meeresforschung.de/en/about-us/>) and the German Alliance for Marine Research (DAM, <https://www.allianz-meeresforschung.de/en/>), who aims to strengthen the sustainable use of coasts, seas and oceans, complete the German coastal research infrastructures landscape.

**Portugal:** The Portuguese MONIZEE monitoring infrastructure started to be implemented in 2009. The infrastructure integrates networks of coastal tidal gauges, wave buoys, multiparametric buoys and HF radar stations and covers the complete shelf and slope waters offshore continental Portugal, from the southern coast (Gulf of Cadiz area) to western coast (up to the border with NW Spain).

**Norway:** The Norwegian integrated coastal observing system, COASTWATCH, has three main partners IMR, NIVA and NORCE, and is coordinated by the Institute of Marine Research (IMR).

**Croatia:** The Croatian network of Observing Systems consists of 3 national Research Infrastructures, namely, the Ruder Boskovic Institute (RBI), the Institute for Oceanography and Fisheries (IOR), and the University of Dubrovnik, Institute for Marine and Coastal Research (UniDU). Committed to long term observations of the Adriatic Sea and to continued research on its marine ecosystems, they produce the basis for knowledge based sustainable management for Croatia and the Adriatic Sea.

**Ireland:** In Ireland, the National Research Infrastructure is the Irish Observing System, EirOOS, coordinated by the Marine Institute and was created in 2018 to enhance Ireland's national capacity for monitoring and observing ECV while providing state-of-the-art research platforms for the Irish and international research communities.

**Belgium:** Belgium has a limited number of actors involved in the observation and monitoring of seas and oceans. The Belgian network of observing systems consists of 3 Research

Infrastructures; the RBINS/ OD which is governmental, the Meetnet Vlaamse Banken which is a Flemish agency, and VLIZ which is a non profit association.

**Sweden:** In Sweden there is a network of observing systems, MOS, created in 2001, and is coordinated by the Swedish National Oceanographic Data Centre (SMHI).

**Spain:** In Spain the National Research Infrastructure Network consists of two Public Consortium Legal entities, namely ICTS-SOCIB and PLOCAN and a public regional infrastructure, EuskOOS. AZTI is responsible for EuskOOS, the Basque coastal operational oceanography coastal observatory.

**Finland:** The Finnish distributed National Marine Research Infrastructure, FINMARI, created in 2014, is a network consisting of 4 Governmental Research Infrastructures (Finnish Environment Institute (SYKE), Finnish Meteorological Institute (FMI), Geological Survey of Finland (GTK) and Natural Resources Institute Finland (Luke)) and 3 Universities (University of Helsinki (UHEL), University of Turku (UTU), and Åbo Akademi (ÅAU)) and is coordinated by SYKE.

**Estonia:** The Estonian network of experimental stations of the Environmental Observatory is a unified system of geographically and climatically integrated field laboratories and automatic stations. The Marine component of the Estonian Environmental Observatory was created in 2010 and is coordinated by TALTECH (Tallinn University of Technology).

**UK:** Several Organisations, Agencies, Associations, Research Institutes and Universities complete the network of marine observing systems in the United Kingdom. One of the main actors is the National Oceanography Centre (NOC), funded by UK Research and Innovation to work on National Capability programmes, and manages, on its behalf, the National Marine Equipment Pool. NOC works collaboratively with over 40 other UK marine institutions through the NOC Association for Marine Science National Capability Beneficiaries.

**Denmark:** The Observations Network System in Denmark consists of three Infrastructures; The Danish Meteorological Institute (DMI), The Danish Coastal Authority (KDI, is the official coastal government agency) and GEOMETOC (Defence Ministry Oceanographic Centre).

## 4. National Coordination Mechanisms and National For a

The National Coordination Mechanisms and National Fora related to Marine Research Infrastructures, scientific research, and funding for each country member of the JERICO-RI, are presented below.

**France:** CNRS and Ifremer are carrying out the French Ocean Observing System (Fr-OOS) project, due 2030, in order to build a major research infrastructure for observing the global ocean, from coastal to deep sea and offshore, bringing together at the national level ILICO, EMSO, EURO-ARGO as well as a possible offshore infrastructure. This infrastructure could mirror the European Ocean Observing System (EOOS). Moreover, the French GOOS NFP participates in the Argo / Euro-Argo, the Space observations (CNES/TOSCA), and the modelling (MOi) National Fora.

**Italy:** The Italian Oceanographic commission (COI) has been established since 2008 to fulfil the functions of the "National Coordination Body" provided for in the Statute of the International Oceanographic Commission-IOC of UNESCO. Representatives of all the relevant Italian ministries are invited to participate to the COI meeting. The Italian COI established Working Groups (WG) for the major IOC programmes including GOOS. GOOS WG is composed of representatives of the Italian COI organizations expert in GOOS. The members of the Italian GOOS WG are nominated by Italian COI based on their expertise. The GOOS National Focal point chairs the Italian GOOS WG. The GOOS WG is consulted when required and it is also a table to discuss national strategy for observations. The GOOS National Focal point reports to Italian COI and to GOOS The following Italian organizations are member of the Italian COI: The following Italian organizations are member of the Italian COI:

- ISPRA (Istituto Superiore per la Ricerca e la Protezione Ambientale)
- CNR (Consiglio Nazionale delle Ricerche)
- CoNISMa (Consorzio Nazionale Interuniversitario per Le Scienze del Mare)
- DPC (Dipartimento della Protezione Civile)
- ENEA (Ente per le Nuove Tecnologie, l'Energia e l'Ambiente)
- IIM (Istituto Idrografico della Marina)
- INGV (Istituto Nazionale di Geofisica e Vulcanologia)
- OGS (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale)
- SZN (Stazione Zoologica "Anton Dohrn")
- CMCC (Centro Euro-Mediterraneo sui Cambiamenti Climatici)

Moreover, in Italy, ITINERIS coordinates a network of national nodes from 22 RIs (17 from the environmental domain, 3 from agri-food with strong link with the environment and 2 from the PSE domain -problem solving environment-, supporting services for the marine domain). The participating RIs are the Italian nodes of the ESFRI Landmarks ACTRIS, EMSO, Euro-Argo, ICOS and LIFEWATCH, from the ENV domain and ANAEE from the H&F domain and closely linked to the ENV domain; the Italian nodes of the ESFRI projects DANUBIUS, DISSCO, e-LTER, from the ENV domain, and EMPHASIS and EUIBISBA from the H&F domain and also relevant for ENV; the EU RIs ECORD, EUFAR, Eurofleets, JERICO and SIOS, all from the ENV domain; and the national RIs ATLAS, CeTRA, Laura Bassi, and SMINO, from the ENV domain, and Geosciences and LNS, both from the PSE domain, that in ITINERIS support services in the marine domain.

**The Netherlands:** The Dutch National Committee named “Living Oceans Consultation Group” chaired by the Dutch Ministry, discusses on a regular basis Ocean Strategies, research challenges, State of Affairs on Oceans etc with presentations from (advised) Policy, Research and development, Universities etc.

**Greece:** The implementation of the national scale research Infrastructure, named HIMIOFoTs (Hellenic Integrated Marine Inland Water Observing, Forecasting and offshore Technology System), is coordinated by HCMR and funded by the General Secretariat of Research. Moreover, in Greece there are several other fora for national and international activities, such as Copernicus, EuroGOOS, MONGOOS, as well as, National fora for the ESFRI infrastructures such as EMSO ERIC and Euro-Argo.

**Germany:** In Germany, there is a wide range of federal and state authorities tasked with observations of the coastal, estuarine, river and ocean system. The efforts resulting from these tasks are largely uncoordinated. A working group of the Konsortium Deutsche Meeresforschung (KDM, consortium German marine research) on coastal observation is dedicated to coordinate German coastal observation and provide a platform for exchange into the wider (and diverse) German observation community. Furthermore, the German GOOS NFP participates in the strategy group "Sustainable Ocean observations" in KDM and in the "Future Forum on the Ocean", also managed by KDM. Several other fora for national and international activities exist, such as Copernicus, EuroGOOS, ICES, HELCOM and others.

**Portugal:** Although there is no formal national coordination mechanism established in Portugal, there is a very good interaction with the different groups that are developing activity in the areas of marine science and technology. Close collaboration within projects and national committees, task forces or think tanks, allows a clear and rapid identification of the experts that must be contacted to provide feedback on given questions but also facilitates the direct approach to these experts. The Portuguese GOOS NFP also participates in National Fora related with Marine Research Infrastructures. Recently, a proposal was submitted to the national research infrastructure roadmap, which has gathered 12 of the main Portuguese institutions involved in coastal ocean observations and technology and aimed to insert a broad national infrastructure (MONIZEE infrastructure) in the roadmap.

**Norway:** There is no formal national coordination mechanism established in Norway. However, there are some groups formed on the national level, trying to coordinate divers' issues, such as a Research Council formed group on Research Infrastructure, which includes all infrastructures established or under development. The development of a national roadmap for infrastructure is a subject to be updated within 2023 and the Research Council has organized several workshops towards this. Furthermore, the Norwegian GOOS NFP participates in the national group for Earth observation and is a member of the national reference groups for climate, energy and mobility, as well as, food, bioeconomy, natural resources, agriculture and environment.

**Croatia:** In Croatia, because of the limited actors in Ocean Observations, there is no National Coordination Mechanism or other National Fora related to Marine Research Infrastructures.

**Ireland:** In Ireland, because of the limited actors in Ocean Observations, there is no National Coordination Mechanism but, there are other National Fora related to Marine Research Infrastructures, such as the Ireland SCOR committee and the Irish Historical Sea Level group.

**Belgium:** In Belgium although there is no National Coordination Mechanism, information is satisfyingly circulating because of the limited actors in Ocean Observations, and thanks to their participation in: the Belgian monitoring program for MSFD (coordinated by RBINS, but also involving ILVO, INBO and VLIZ); the BICePS, which stands for "Belgian ICES people" (the general aim of the initiative is to offer a platform to the Belgian ICES community to get to know each other, to improve collaboration and to share information, and to promote ICES to the wider scientific community in Belgium); the Belgian experts participating to OSPAR working groups; the common call for ship time on the RV Belgica (RBINS) and RV Simon Stevin (VLIZ); the Belgian participation to Eurofleet (Lieven Nauds from RBINS represents Eurofleet at EOOS OC); the EuroGOOS (RBINS, MDK), the NOOS (RBINS and MDK) and the SeaDataNet (RBINS, VLIZ); Belgian nodes to EMBRC (RBINS, VLIZ, + several universities), ICOS (RBINS, VLIZ) and LifeWatch (RBINS, VLIZ). The Belgian actors in Ocean Observations also collaborate closely through national research projects.

**Sweden:** Sweden is getting increasingly coordinated thanks to national activities under the UN Ocean Decade and other national projects, programs and initiatives. In April 2023, a national Marine Research Infrastructure workshop took place, gathering 45 attendees from approximately 20 different initiatives. In May 2022 the SMHI Team organized a Swedish marine infrastructures mapping workshop with 23 national oceanographic organizations present to start exploring this question and related issues. The results indicated that existing coordination mechanisms are not adequate enough. There is a need for a national coordination-information Centre/ hub and users support.

**Spain:** In the III Conference of Presidents in 2007, the Autonomous Communities and the State, in the context of the need to promote science, research and new technologies in Spain, agreed on the Map of Singular Scientific and Technical Facilities (ICTS). 24 new facilities were approved, one of which is the Canary Islands Oceanic Platform (PLOCAN). The Balearic Islands Coastal Observation and Prediction System (SOCIB) was created in 2007 and has formally formed part of the Singular Scientific and Technical Infrastructures (ICTS) map since 2014. AZTI, responsible for EusKOOS, is accredited as a Sectoral Technology Centre by the Basque Government and as a Technology Centre by the Spanish Ministry of Economy. National fora for ESFRI infrastructures such as EMSO ERIC and Euro-Argo also exist.

**Finland:** FINMARI is the Finnish national marine RI that gathers all main components of national marine RI together (4 research institutes, 3 universities, in the national RI roadmap).

**Estonia:** The Estonian autonomous observations are part of the Estonian Environmental Observatory which includes and coordinates all the components (land, inland waters, atmosphere) of the environment.

**UK:** IMON provides centralised coordination for United Kingdom sustained ocean observing across marine sectors to enable a sustainable and stable integrated marine observing network, capable of meeting UK national and international marine science obligations and commitments. There are also several groups with different focuses: MEDIN, DASSH, UKDMOS, NPOP.



**Denmark:** At the national level, there are no formal coordination mechanisms but only some informal cooperations on marine modelling and monitoring. More specifically, DMI, KDI (Coastal Agency) and GEOMETOC (Defense Ministry Oceanographic Centre) cooperate on operational monitoring. DMI, AU-BIOS and DTU-Aqua have cooperation on marine modelling. The Danish Meteorological Institute (DMI) is an institution under the Ministry of Climate and Energy of Denmark. DTU Aqua, National Institute of Aquatic Resources is an institute at the Technical University of Denmark (DTU). The Danish Coastal Authority (Kystdirektoratet) is the official coastal government agency - a division of The Danish Ministry of the Environment and part of The Danish Nature Agency. Acts also as adviser for The Danish Minister of the Environment. The Department of Bioscience, Aarhus University (AU-BIOS) performs basic and applied research within all aspects of marine ecology. The department hosts the national marine monitoring database and is scientific advisor for the Ministry of Environment and Food of Denmark. The Dutch GOOS NFP participates in the board of the Danish Centre for Marine Research and the Advisory board for our next ocean-going research ship, Dana V, connected to the National Centre for Climate Research with a strong focus on the North Atlantic. DMI is leading the initiative to establish a UN Ocean Decade Committee for the Kingdom of Denmark.

## 5. The Global Ocean Observing System (GOOS)

GOOS was created in March 1991 by the Intergovernmental Oceanographic Commission (IOC) of UNESCO in response to calls from the Second World Climate Conference in Geneva, 1990. Since 1991, GOOS has been leading the development of a truly global ocean observing system that delivers the essential information needed for our sustainable development, safety, wellbeing, and prosperity. GOOS is currently led by the Intergovernmental Oceanographic Commission (IOC) of UNESCO and co-sponsored by the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP), and the International Science Council (ISC).

Although initially, GOOS was focused on building a system to support climate science and be the observational backbone for operational forecast systems, in 2011, GOOS began implementing the Framework for Ocean Observing. This is a guide for multiple stakeholders that reflects concerns about ocean health and the demand from nations for information to manage their global economies.

GOOS's mission is to lead the ocean observing community and create partnerships to grow an integrated, responsive, and sustained observing system that serves users as effectively as possible. The GOOS ocean observing community is made up of local, national, and regional ocean observing systems and programs, principal investigators, scientists and technicians making long-term observations within national programs and global ocean observing networks, and many individuals. The core principles are to:

- Implement through user-driven design.
- Maintain sustained observations.
- Ensure regular evaluation.
- Set global standards and best practices.

By 2030, GOOS's vision is to have a global ocean observing system truly responsive to the needs of end-users, able to mitigate mounting pressures on the ocean and enable resilient and sustainable blue economies.

The National Focal Points are the appropriate contact points in each Member State for affairs regarding the implementation of the Global Ocean Observing System (GOOS) at national and global levels.

More specifically, GOOS National Focal Point (NFP) is the person designated by a Member State to:

- ✓ Promote the work of GOOS and GOOS Regional Alliances at the national level by promoting GOOS' plans and documents where relevant, publicising opportunities for engagement with GOOS structures and activities, including its panels, the JCOMM Observations Coordination Group, GOOS Regional Alliances, and GOOS Projects, and advocating for national ocean observing systems activities that contribute to GOOS;
- ✓ Promote regionally and nationally coordinated strategies and implementation for a sustained ocean observing system delivering the needed information to users, including suggesting pilot projects;
- ✓ Ensure that national needs and gaps related to sustained ocean observing systems are brought to the attention of the GOOS Programme;
- ✓ Supply information to IOC on ocean observing capacity development needs in the context of the IOC Capacity Development strategy and plan.

GOOS Focal Points are nominated via one of three channels: IOC National Focal Point, Ministry of Foreign Affairs or Permanent Delegation to UNESCO.

## 6. Surveys

Two questionnaires were prepared and distributed from late April until early July 2022. The 1st questionnaire was distributed among GOOS National Focal Points (NFPs) of all countries related to the JERICO-RI, while the 2nd was among the national representatives in the JERICO Nations Committee. The countries of the respondents of the two questionnaires are presented in Table 6.1. It should be underlined that in 5 out of the 16 countries, members of the JERICO-RI, the respondents act as GOOS NFP and National representatives in the JERICO Nations Committee. More specifically, in Belgium, Estonia, Greece, Portugal, and Norway, the GOOS NFPs and Nations' Representatives coincide.

**Table 6.1:** list of countries respondents participating in the two surveys

#	COUNTRY
1	France
2	Italy
3	The Netherlands



4	Greece
5	Germany
6	Portugal
7	Norway
8	Croatia
9	Ireland
10	Belgium
11	Sweden
12	Spain
13	Finland
14	Estonia
15	United Kingdom
16	Denmark

The list of questions asked to the two groups are presented in Tables 6.2 and 6.3. The respondents have been asked to emancipate from the questions and provide any additional information they wanted to share.

**Table 6.2:** list of questions asked to the GOOS NFPs

<b>A. i.</b>	IS THERE A NATIONAL COMMITTEE OR A GROUP OF EXPERTS THAT SUPPORTS YOU?
ii.	If NO do you consult experts in different fields according to your needs when necessary?
iii.	If NO do you intend to create a National Committee in the near future (1-5 years)?
<b>B.</b>	DO YOU PARTICIPATE IN OTHER NATIONAL FOR A RELATED TO MARINE RESEARCH INFRASTRUCTURES, SCIENTIFIC RESEARCH AND FUNDING? If YES please describe briefly.
<b>C.</b>	ARE YOU AWARE OF THE JERICO-RI?

**Table 6.3:** list of questions asked to the National representatives in the JERICO-RI Nations Committee

<b>A. I.</b>	ARE YOU CONNECTED TO YOUR GOOS NATIONAL FOCAL POINT - DO YOU PARTICIPATE IN THE NATIONAL COMMITTEE OR GROUP OF EXPERTS THAT SUPPORT GOOS NFP?
<b>II.</b>	If YES please provide some more details on the organization mechanisms (physical/ virtual meetings, frequency of meetings, material production e.g. whitepapers, reports etc.).
<b>III.</b>	If NO, how could JERICO-RI help you to connect to your GOOS NFP?
<b>B. I.</b>	ARE YOU AWARE OF ANY OTHER NATIONAL COORDINATION MECHANISMS RELATED TO THE COASTAL SEAS IN YOUR COUNTRY? If YES please specify.
<b>II.</b>	Do you participate in these national coordination mechanisms?
<b>C.</b>	ARE EXISTING NATIONAL COORDINATION MECHANISMS (e.g GOOS AND/OR OTHER NATIONAL MECHANISMS) ADEQUATE FOR THE COASTAL COMPONENT (JERICO-RI) OR SOMETHING ELSE IS REQUIRED?

## 6.1. GOOS NFPs survey

The questionnaire was sent to the 16 GOOS NFPs of the country's members of the JERICO-RI. All have replied and the answers are presented and analysed below.

The majority of the GOOS NFPs (12 out of 16) are not supported in their role by a group of experts or a National Committee (Figure 6.1). Only two -namely Sweden and Italy- gave a positive answer to this question. More specifically, in the case of Italy, the Italian Oceanographic commission (COI), has been established since 2008 to fulfil the functions of the "National Coordination Body" provided for in the Statute of the International Oceanographic Commission-IOC of UNESCO. Representatives of all the relevant Italian ministries are invited to participate to the COI meeting. The Italian COI established Working Groups (WGs) for the major IOC programmes including GOOS. The members of the Italian GOOS WG are nominated by Italian COI based on their expertise. The GOOS National Focal point chairs the Italian GOOS WG. The GOOS WG is consulted when required and it is also a table to discuss national strategy for observations. The GOOS National Focal point reports to Italian COI and to the GOOS.

The situation is less clear for Netherlands and the United Kingdom (UK). In Netherlands there is "Living Oceans Consultation Group" chaired by the Dutch Ministry, that discuss on

regular basis Ocean Strategies, research challenges, State of Affairs on Oceans etc with presentations from (advised) Policy, Research and development, Universities etc but do not fully attend to matters relating to the activities of the GOOS NFP. Similarly, the UK has a national committee that forms a community of national centres and agencies that are carrying out marine observing for the UK (UK IMON). However, as in the case of Netherlands, the UK IMON does not fully attend to matters relating to the activities of the GOOS NFP. There are a number of roles in NOC and elsewhere that work within GOOS networks, within national programmes, and within engaged communities, that I consult with as NFP. The NOC performs the role of national leadership within the marine research community and several people contribute to that activity.

**Question A1: Is there a National Committee or a group of experts that support you?**

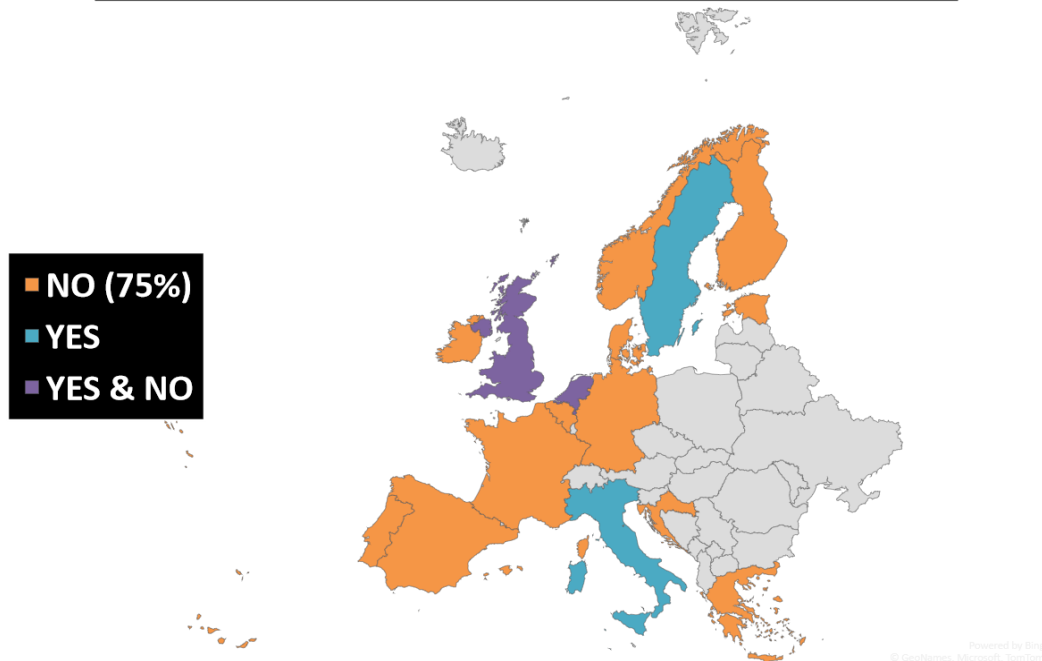


Figure 6.1: Geographical distribution of the answers to the GOOS NFPs on the question: Is there a National Committee or group of experts that support you?

According to the replies all GOOS NFPs (100%) answered that they are not supported by a National Committee or a group of experts in their activities, consult experts in different fields according to their needs and when this is necessary (Figure 6.2).

**Question Aii: If NO do you consult experts in different fields according to your needs when necessary?**

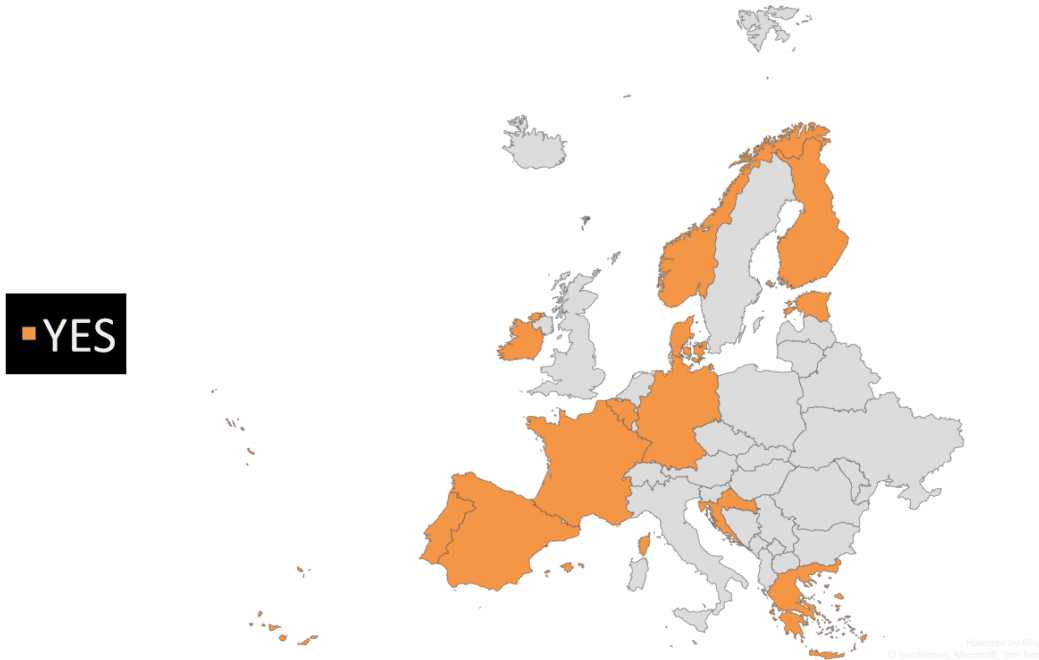


Figure 6.2: Geographical distribution of the answers to the GOOS NFPs on the question: If NO do you consult experts in different fields according to your needs when necessary?

With regards to the question: “do you intend to create a National Committee in the near future (1-5 years)?”, apart from Sweden and Italy, that already have in place a formal National Committee, and Netherlands and the United Kingdom that are supported unofficially by a committee, 4 more countries (Finland, France, Norway and Spain) are in an initial process phase for the creation of a National Committee (Figure 6.3). Additionally, for Ireland and Portugal this is something they are discussing/exploring at the moment. Moreover, in Denmark, the establishment of a National Committee for the UN Ocean Decade is foreseen. Three GOOS NFPs from Belgium, Croatia, and Estonia replied that the creation of a National Committee is not in their active plans for the near future. Finally, we had no answer from two countries, namely Germany and Greece.

**Question Aiii: If NO do you intend to create a National Committee in the near future (1-5years)?**

- YES
- Thinking/Discussing
- NO
- ?

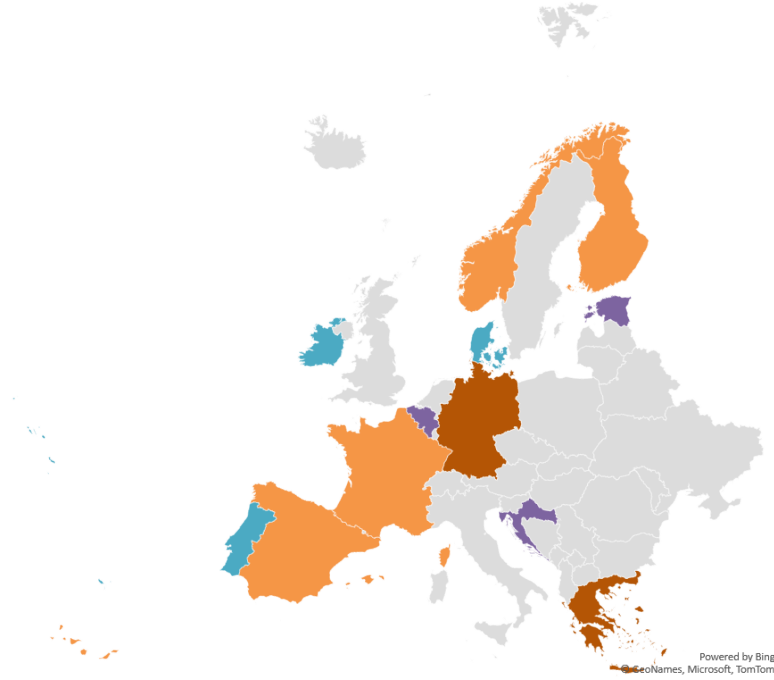


Figure 6.3: Geographical distribution of the answers to the GOOS NFPs on the question: If NO do you intend to create a National Committee in the near future (1-5 years)?

**Question B: Do you participate in Other National Fora related to Marine Research Infrastructures, scientific research, and funding?**

- NO (~30%)
- YES (~70%)

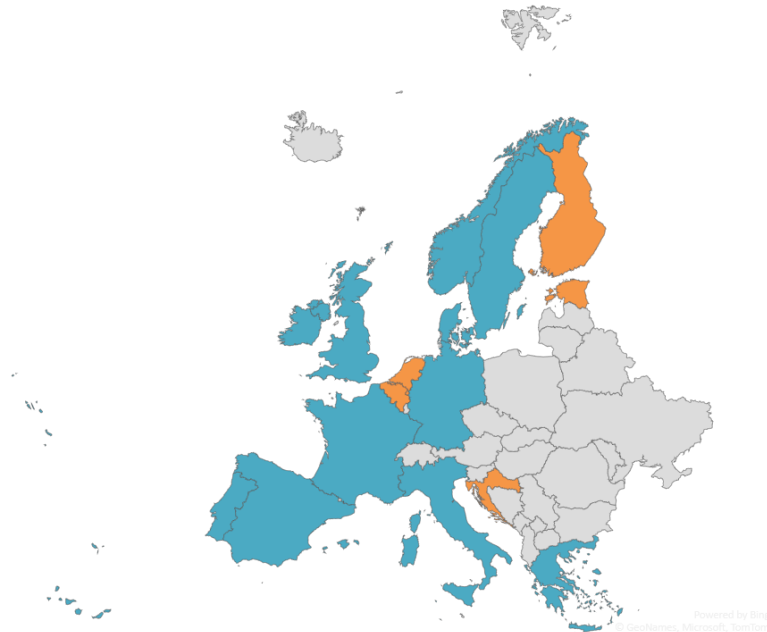


Figure 6.4: Geographical distribution of the answers to the GOOS NFPs on the question: Do you participate in other National Fora related to Marine Research Infrastructures, scientific research, and funding?

For the question: “Do you participate in Other National Fora related to Marine Research Infrastructures, scientific research, and funding?”, the majority of the respondents replied positively (~70%) (Figure 6.4).

Five GOOS NFPs (~30% of the respondents) from Belgium, Croatia, Estonia, Finland and Netherlands gave a negative answer. For Belgium, Netherlands and Finland, GOOS NFPs do not participate personally in other National Fora but colleagues from their Institutes do. In the case of Croatia there is no other National Fora related to Marine Research Infrastructures. Lastly, for Estonia, the GOOS NFP replies that although he participates in the BOOS steering committee, he does not participate in National coordination mechanisms. In Estonia, the autonomous marine observatories are part of the Estonian Environmental Observatory. It includes all the components (land, inland waters, atmosphere) of the environment. The funding from there is quite small (compared to our costs to keep the systems running).

Regarding the final question: “Are you aware of the JERICO-RI?”, almost all GOOS NFPs gave a positive answer (Figure 6.5) because of their participation (direct or indirect) to the JERICO projects. Only two gave a negative answer. More specifically, the Dutch GOOS NFP replied that he is aware of the JERICO-RI only indirectly, while the UK GOOS NFP replied that “he is aware, but perhaps not as well informed as he might be”.

### Question C: Are you aware of the JERICO-RI?

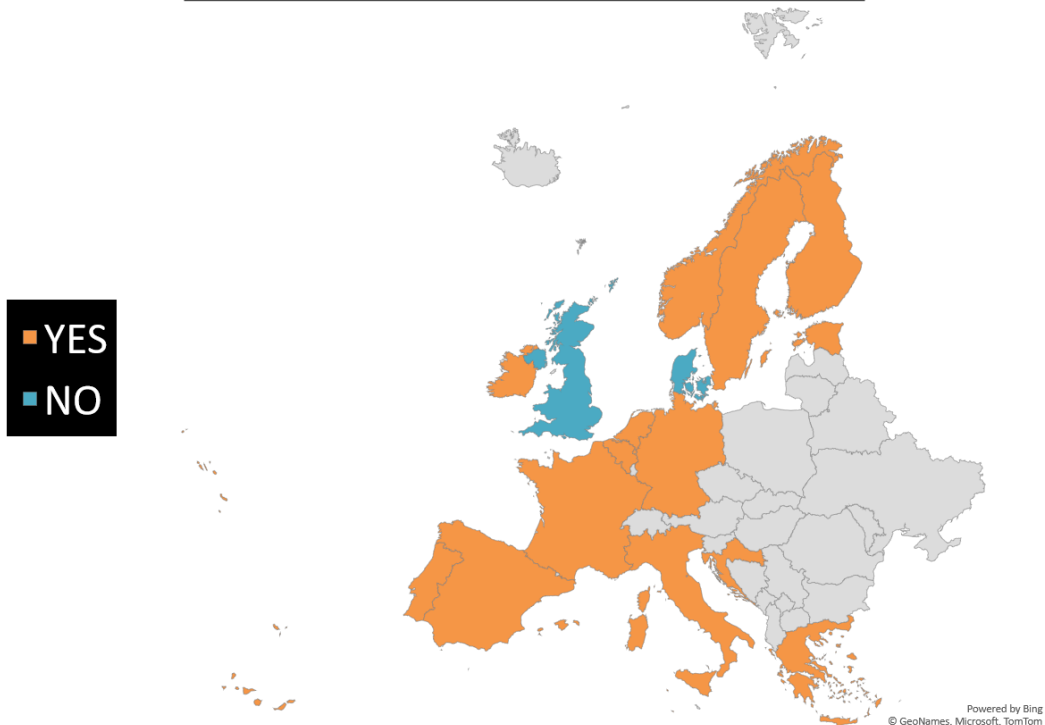


Figure 6.5: Geographical distribution of the answers to the GOOS NFPs on the question: Are you aware of the JERICO-RI?

## 6.2. JERICO-Nations Committee survey

The questionnaire was sent to the 16 National Representatives of the JERICO-RI. Fifteen (15) out of sixteen (16) have replied and the answers are presented and analysed below. The majority of the National Representatives in the JERICO-RI (14 out of 15) are connected to their GOOS National Focal Point, with 5 of them (Belgium, Estonia, Greece, Norway and Portugal) having both roles in their countries. Only Denmark gave a negative answer (Figure 6.6).

**Question Ai: Are you connected to your GOOS National Focal Point - do you participate in the national Committee or group of experts that support GOOS NFP?**

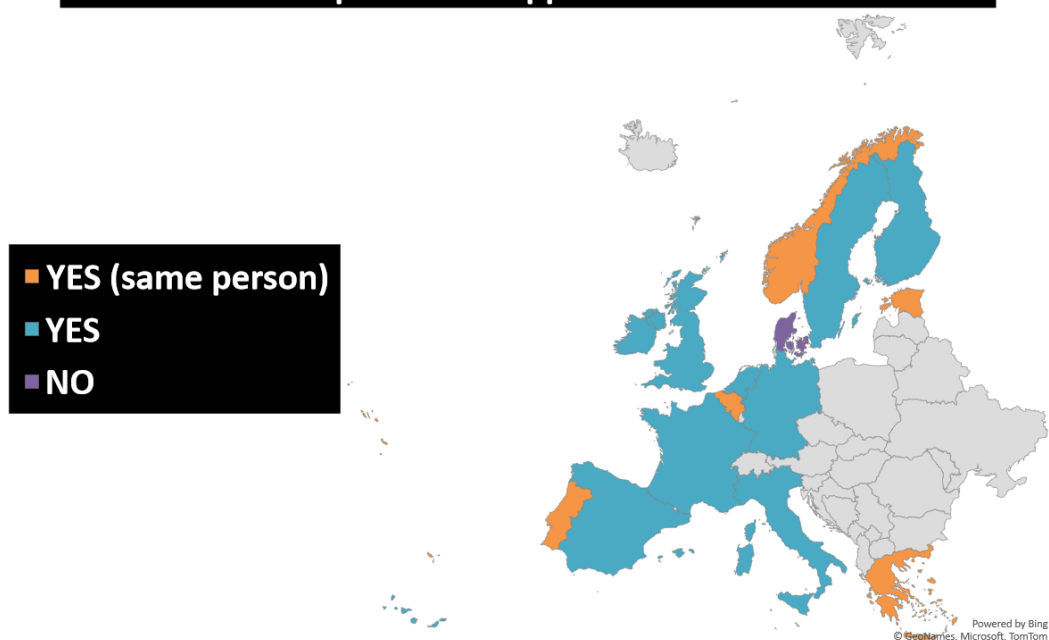


Figure 6.6: Geographical distribution of the answers to the GOOS NFPs on the question: Are you connected to your GOOS NFP – do you participate in the national Committee or group of experts that support GOOS NFP?

From those nine National representatives that are connected to their GOOS NFPs, in three cases (Sweden, Portugal and Italy) they meet regularly while in six cases (Finland, France, Germany, Ireland, Netherlands and Sweden) they meet when necessary or needed (Figure 6.7). The Spanish and the English National Representatives replied that no meetings are organised between them.

In continuation to this question, the National representatives have been asked: "If NO, how could JERICO-RI help you to connect to your GOOS NFP?". Three answers were given, namely from, Spain, Denmark and the United Kingdom. The first two replied that JERICO-RI could enhance the links between the National representative and the GOOS NFPs of these countries (e.g. by contacting the GOOS NFP directly) while the English National representative don't believe that JERICO-RI can help in this matter (Figure 6.8).



**Question Aii: If YES please provide some more details on the organization mechanisms (physical/ virtual meetings, frequency of meetings, material production e.g whitepapers, reports ect)**

- Meet regularly
- Ad - hoc
- No meetings

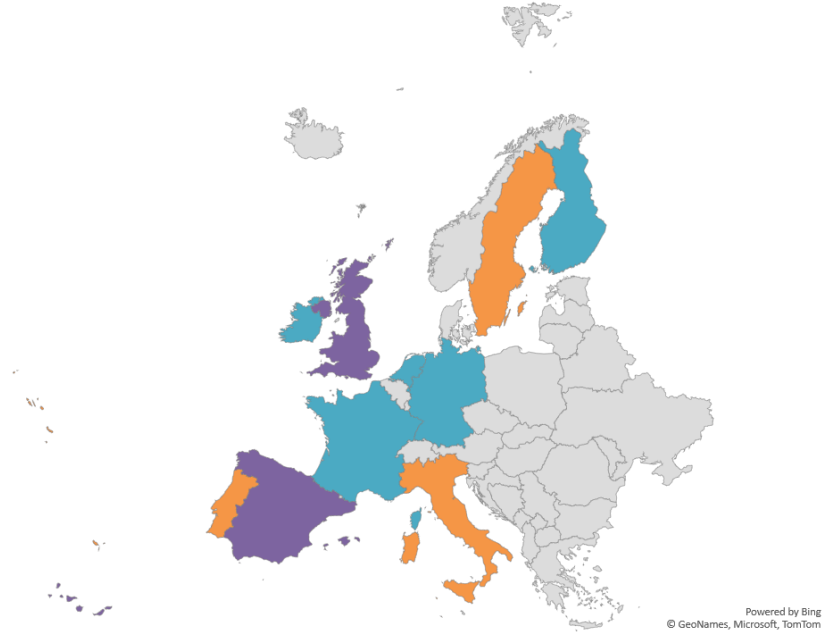


Figure 6.7: Geographical distribution of the answers to the GOOS NFPs on the question: If YES please provide some more details on the organisation mechanisms (physical/ virtual meetings, frequency of meetings, material production e.g whitepapers, reports etc)?

**Question Aiii: If NO how could JERICO RI help you to connect to your GOOS NFP?**

- JERICO can enhance the links
- JERICO can not help
- Direct contact

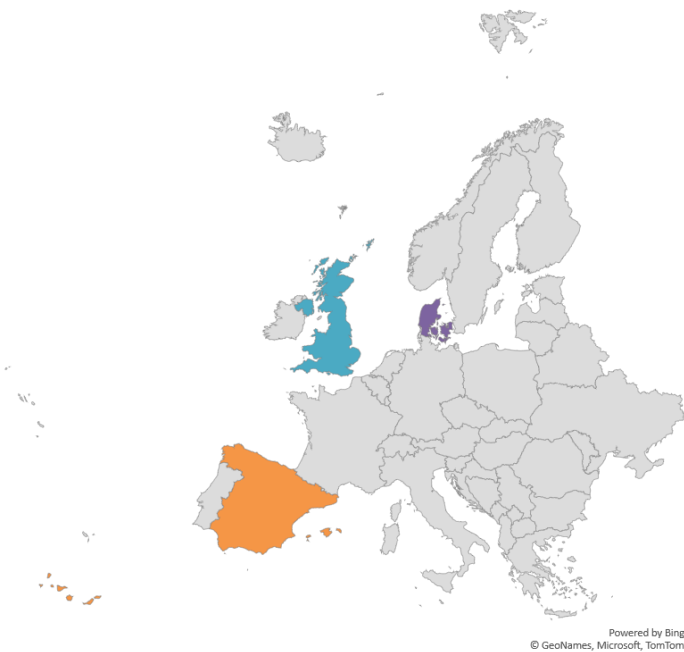


Figure 6.8: Geographical distribution of the answers to the GOOS NFPs on the question: If NO how could JERICO-RI help you to connect to your GOOS NFP?

To the question: "Are you aware of any other national coordination mechanisms related to the coastal seas in your country? If YES please specify.", 80% of the respondents (12 out of 15) replied positively giving the corresponding information (Figure 6.9). In three cases (Denmark, Spain and Greece) there are no formal national coordination mechanisms related to coastal seas. From those that are aware of other national mechanisms, nine (Finland, France, Germany, Ireland, Netherlands, Norway, Portugal, Sweden and the United Kingdom) participate in these national coordination mechanisms (Figure 6.10). The other 3, namely Belgium, Estonia and Italy, do not participate directly but their colleagues do.

**Question Bi: Are you aware of any other national coordination mechanisms related to the coastal seas in your country? If YES please specify.**

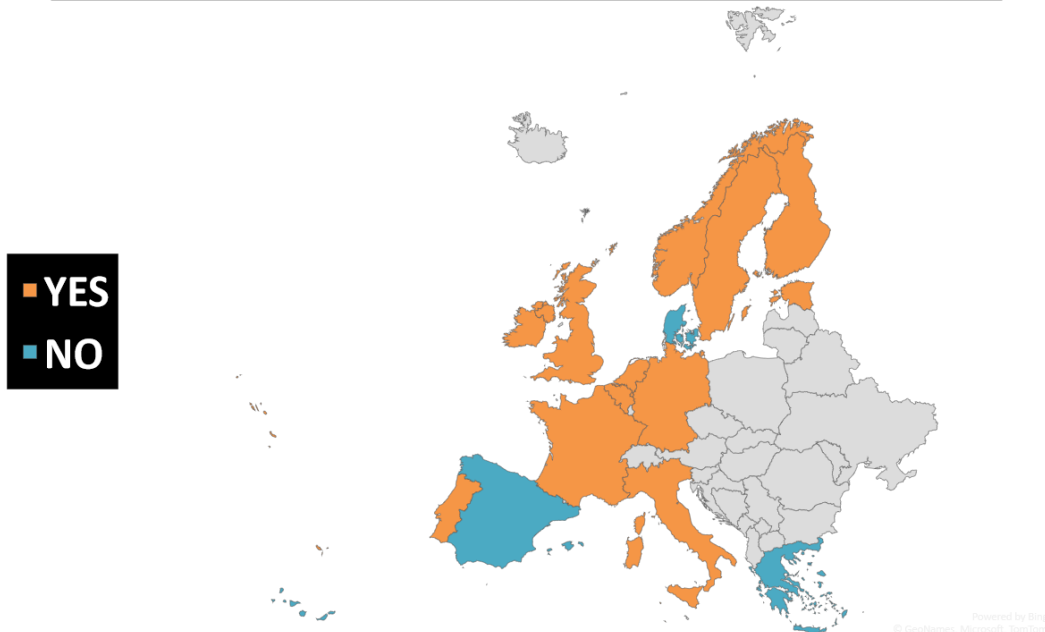


Figure 6.9: Geographical distribution of the answers to the GOOS NFPs on the question: Are you aware of any other national coordination mechanisms related to the coastal seas in your country? If YES please specify.

**Question Bii: Do you participate in these national coordination mechanisms?**

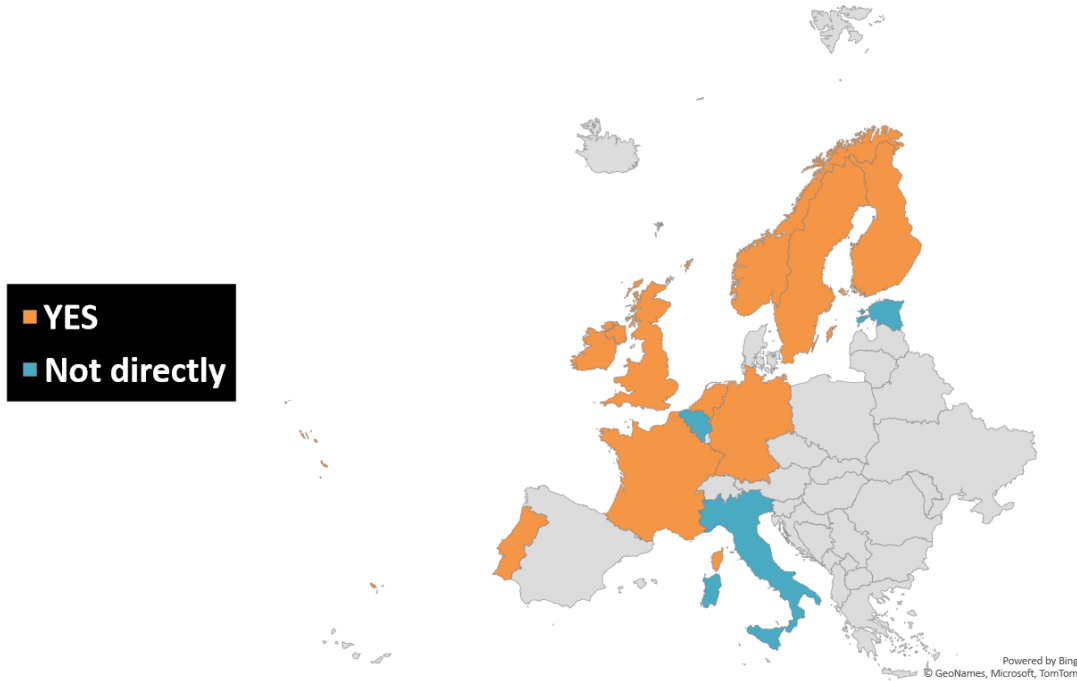


Figure 6.10: Geographical distribution of the answers to the GOOS NFPs on the question: Do you participate in these national coordination mechanisms?

To the question: “Are existing national coordination mechanisms (e.g. GOOS and/ or other national mechanisms) adequate for coastal component (JERICO-RI) or something else is required?”, nine out of fifteen respondents replied that the existing mechanisms can provide an adequate framework for the national coastal component (Figure 6.11). The Greek and the Norwegian National representative stated that they are working on improving defragmentation of activities and that they are well improving on collaborating on coastal issues. For Germany, the situation is less clear. The German National representative in the JERICO-RI stated: “This is a tricky question. Things tend to hinge on how active certain persons are who participate in these fora. As Germany has a federal as well as a state structure with five different states taking care of coastal observations, plus the BSH with a federal mandate that landscape is extremely scattered and efforts to coordinate always depend on individuals to keep the momentum. All existing structures do not have any binding legal framework and are strictly voluntary. Therefore, progress tends to be intermittent. The fact that we have three federal and several state ministries involved in ocean observations does not help either.”. In addition, the Belgium National Representative underlined the fact that: “Nowadays, Belgian researchers consider that the Belgian nodes of ERICs or any other international initiatives play de facto the role of national research infrastructures. This is why Belgium the node to EMBRC, ICOS, Lifewatch, but also to ICES, EuroGOOS, NOOS are so important for us: they somehow act as national coordination bodies!”. According to his reply, yes, there might be some need to have a Belgian JERICO-RI node but need to be carefully designed to fit the Belgian context without duplicating work that is already undertaken by other existing initiatives. Four out of fifteen respondents, namely Denmark, Netherland, Spain and Sweden, replied that there is a need

for a 'national coordination-information Centre/hub' with users' support, particularly on coastal observations.

**Question C: Are existing national coordination mechanisms (e.g GOOS and/or other national mechanisms) adequate for the coastal component (JERICO RI) or something else is required?**

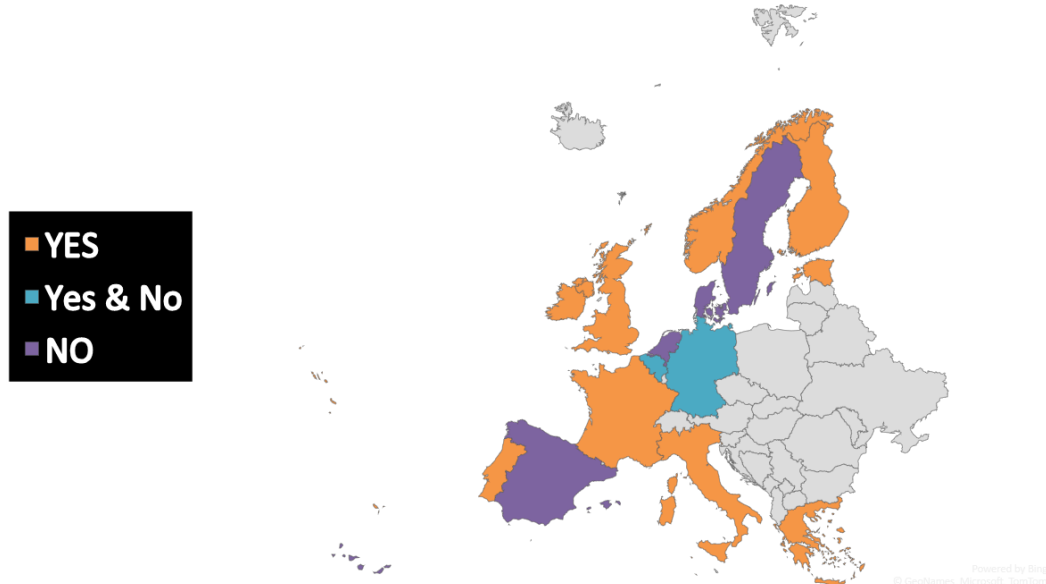


Figure 6.11: Geographical distribution of the answers to the GOOS NFPs on the question: Are existing national coordination mechanisms (e.g. GOOS and/or other national mechanisms) adequate for coastal component (JERICO-RI) or something else is required?

### 6.3. Analysis of the results/ Outcomes

The main outcomes of the two surveys contacted can be summarized as follow:

- The majority of the 16 GOOS National Focal Points (>85%) are not supported (12 out of 16) or not supported officially (2 out of 16) by a National Committee. Nevertheless, all of them consult experts in different fields according to their needs and when this is necessary.
- In four countries, processes for the creation of a National Committee are in an initial phase, while in three more cases they are discussing/ exploring this.
- 12 out of 16 GOOS NFPs participate themselves in other National Fora related to Marine Research Infrastructures, Scientific Research and Funding. Moreover 3 out of 16 although they not participate themselves, colleagues from their institutes/ organizations do. In one country there are no other National Fora.
- The JERICO-RI is well known among the GOOS NFPs with the exception of Netherlands and the United Kingdom that are not as well informed as they could.
- Five JERICO-RI National representatives (NR) are also nominated by their countries as GOOS National Focal Points.
- All JERICO-RI NR are connected to their GOOS NFPs except the Danish.

- In only 3 countries the JERICO-RI NRs meet regularly with their GOOS NFPs. In 2 countries they do not meet at all. In all other countries they meet occasionally.
- The JERICO-RI could enhance the links between the NRs and the GOOS NFPs.
- 12 out of the 15 JERICO-RI NRs are aware of other national coordination mechanisms related to the coastal seas in their countries. 9 of them participate in these committees in person.
- The existing National Coordination mechanisms are adequate for the coastal observations in 9 countries. In two countries the existing coordination mechanisms need to be improved. In two countries the answer is less straightforward due to complexity reasons. In four countries there is a clear need for a national coordination mechanism creation.

## 7. National commitment framework and Strategy forward

### 7.1. National commitment framework towards the establishment of JERICO-RI– current status

JERICO-RI has obtained strong support for its application to the ESFRI roadmap back in 2021. More specifically, at the political level, the application was supported by 10 member countries: Croatia, Estonia, Finland, Greece, Italy, Netherlands, Norway, Portugal and Spain, under the leadership of France. At the financial level, Ministerial Expression of financial Commitments have been received from France the host country and from the Finnish Academy of Science. It is worth noting that 13 individual institutions members of JERICO network have declared their will to continue funding their coastal nodes. Furthermore, within the frame of the 2 ongoing projects, JERICO-S3 and JERICO-DS, support letters were received from the following entities and institutions: EMSO ERIC, EMBRC ERIC, EURO-ARGO ERIC, DANUBIUS, eLTER, AQUACOSM, COSYNA German RI, FINMARI Finish RI, HIMIOFOTS Greek RI, ILICO French RI, ISTRIA region, Croatia, LEITAT Technology Center, NANOOS, USA, Director of CNR-ISMAR, Finnish Ministry of environment, Head of the marine Environment department of the Estonian ministry of the Environment, Director of Cosyna in HZG (G), President of the region of Istria in Croatia, Directors of the French national RI ILICO, the manager of the EU research Infrastructures at the Irish Marine Institute, and of the coordinator of GROOM II. For the application to the ESFRI roadmap 2021 the consortium was formalised by 47 signatures of the MOU accompanied with letters of Interest. Finally, 8 Research initiatives and Infrastructures expressed their support to the application of JERICO-RI to the ESFRI Roadmap 2021 (EuroArgo, EMSO, EMBRC, Danubius, Lifewatch, Aquacosm, eLTER, MERCATOR).

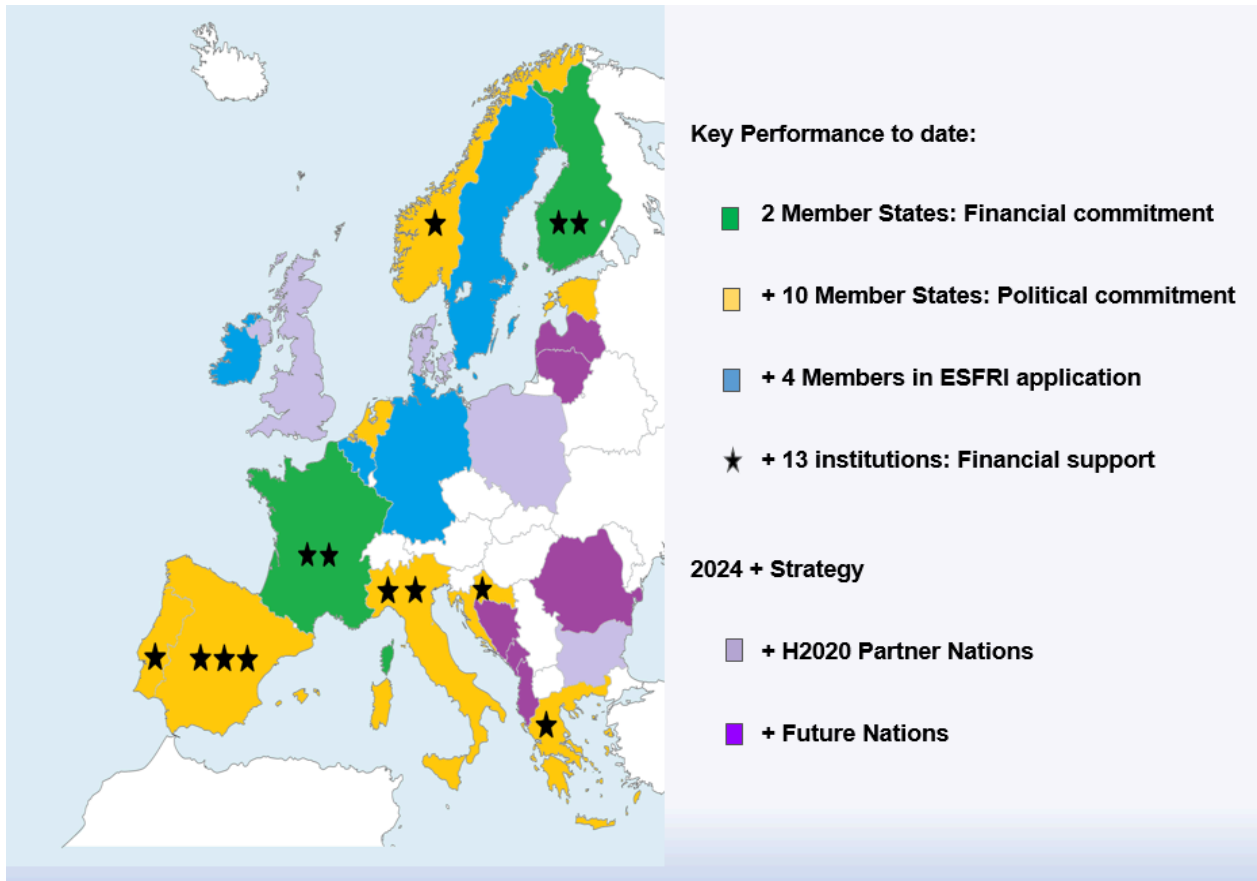


Figure 7.1: Status of National and Institutional Commitments for ESFRI Application in April 2021.

Despite the secured support obtained at different levels, the evaluation of the ESFRI committee results showed that JERICO-RI did not clearly demonstrate how the initiative will go beyond a network concept to establish a common JERICO-RI and how JERICO-RI will fit into the current European landscape. A weakness on the financial dimensions beyond the EU funding was also recognized. The general conclusion of the evaluation report is that: “On the basis mainly of weaknesses in implementation issues (preparatory work, governance and finances), JERICO is not recommended at this stage to enter the ESFRI Roadmap. After finalisation of the design study and better developed and supported plans for the infrastructure, it is likely for JERICO-RI to be in a good position to apply for the next ESFRI Roadmap.”.

Taking this into consideration, a brief description of the methods being employed and the current status of efforts to ensure their nation's commitment to the upcoming JERICO-RI application to the ESFRI roadmap in spring 2024, has been asked to all JERICO Nations Committee members. Their answers are presented here below:

**France:** At the French level, the JERICO-RI application is a highly strategic topic being considered both at the CNRS-IFREMER inter-organizational level (e.g. resources to be allocated for the application), and at the level of the national effort to structure the ocean observation roadmap.

Based on the lessons learned from the first attempt to apply in 2020, it was requested that the national coastal observation community be fully associated (in terms of scientific staff



and supervision) with the ESFRI 2024 application. The lack of resources also forced us to work in a more collegial manner.

Regular meetings are organised:

- with the French researchers most involved in JERICO projects: the French JERICO Task Team
- with the Ministry of Research and the directors of organisations involved in coastal observation in Europe: every two months, but probably more closely as the deadlines approach. We call these meetings CIO-Europe (for ILICO Inter-institut Council dedicated to European issues)

For the organisation of these meetings, we benefit from the support of ILICO (logistics, mailing list, intranet site for the publication of the minutes)

During the last CIO-E meeting which took place on Monday March 20th 2023, we discussed the calendar, the methodology to go towards ESFRI and the re-signature of an MoU, and, of course, the French resources were an important point.

To improve the point "commitment of nations" Jean-Marie Flaud, our ESFRI representative at the Ministry announced his willingness to travel to Europe to meet the heads of the European national roadmaps.

**Italy:** The JERICO National Contact Point has established links and is working closely with ITINERIS - Italian Integrated Environmental Research Infrastructures System (ITINERIS) to discuss the ESFRI proposal and next steps for the JERICO RI. ITINERIS is the Italian hub of research infrastructures in the environmental sciences for the observation and study of environmental processes in the atmosphere, marine environment, terrestrial biosphere and geosphere, providing access to data and services and supporting the country in addressing current and expected environmental challenges.

**The Netherlands:** In the Netherlands there are currently no innovative coastal observations going on that would benefit from JERICO collaboration. Thus, in the current situation there is little benefit for our ministries to collaborate in JERICO-RI.

However, there are several developments that work towards a more intensive sensor-based and science-oriented observation network, which makes JERICO participation much more relevant for the Netherlands.

-We have developed a new Ferrybox transect between Rotterdam (our biggest harbour), Immingham (UK) and some Norwegian harbours, in collaboration with NIVA. Since then, the need for joint coherent monitoring has been partly addressed but is still a pressing issue.

-Due to the Paris climate agreement our Dutch government has made an agreement with several Dutch stakeholders on required transitions in the North Sea: the energy transition (developing many offshore wind farms), food transition (less room for bottom-trawling fishing vessels) and nature transition (more MPAs). Part of this agreement is a 10-year research program (MONS) including an extensive component on observations in the North Sea. This is done with typical JERICO approaches.

-Because the North Sea is more and more intensively used (for wind farms but also more shipping) there is a need identified to also manage the sea more intensively, which involves also more observations. A large proposal has been submitted by our ministry to fund this so-called 'digital North Sea' program. We expect the outcome within a few months.

The Dutch JERICO NC members work together to stay involved in all above initiatives (and others) and lobby to use JERICO as a means to embed the new observation infrastructures



in the international context. Since the Netherlands have only a small part of the North Sea, the need for international collaboration is widely recognized at the ministry and other levels. Practically this means that they organized 2 workshops: one with relevant actors in coastal observations and one with relevant actors in data and information management. Both had approximately 25 participants. Furthermore, they attend relevant meetings and have bilateral chats to stay up-to-date with developments and share all relevant information about JERICO.

The Dutch JERICO NC members plan to organize a collaboration platform with all actors involved in North Sea observations in the Netherlands, that could serve as the Dutch JERICO-node in the future. However, it will be hard to organize a joint official Dutch North Sea observation organization like in France or Finland in the short term. The next round of proposal submission for the national roadmap will only be in 4 years' time. NIOZ already has ocean observation infrastructure on the national roadmap, but that is more devoted to building new research vessels and an oceanic fixed platform. A collaboration on that is possible, but it is not yet clear if and how.

During the earlier JERICO proposal for the ESFRI roadmap the Dutch Ministry sent a letter of political commitment. This will be feasible again in the next proposal submission. But it is not yet clear if and how the Netherlands will be able to commit financially as well. In that case either the MONS program would need to commit to be the Dutch JERICO observation node (MONS is initiated and supported by our ministry) and/ or the 'Digital North Sea' program (if awarded) or a collaboration between various Dutch observation programs, like ILICO in France. MONS is short in budget, so they are not eager to spend budget on international collaboration, although they can really benefit from a JERICO collaboration. Therefore, this is really the complicated issue that we need to sort out in the Netherlands.

**Greece:** HCMR is in contact with the supervising authority the General Secretariat for Research and Innovation which has provided written support during the first ESFRI application phase - Expression of political Support (EoS). This is expected also to be the case for the application in 2024, while the financial support depends on the availability of funds during the particular period. It is, however, rather positive, that the next phase of the roadmap of National Research Infrastructures is expected to be launched towards the end of 2023 and a significant part of HIMIOFoTs (the marine and internal waters infrastructure) is the coastal component. Furthermore, in the framework of recent submitted proposals in HE2020 calls, activities towards the coupling of internal waters with the coastal system are foreseen in addition to new end user services and products for the Blue Economy. All these reinforce and highlight the importance of a coastal research infrastructure and thus we are optimistic that there will be adequate support from the state.

**Germany:** On several occasions, during politicians' visits and events such as "parliamentary evenings" there have been discussions with policy makers regarding the state of coastal ocean observing in Germany, its interconnections with European efforts in general, as well as with JERICO-RI in particular. The response, in general, was usually friendly, interested and non-committal. The German observation landscape and funding situation is very fragmented and complicated. In general, before entering an ESFRI process, the German government expects new research infrastructures to be placed on the national RI roadmap, which had not been open for new calls since 2019. Besides that, the minimum requirement for this type of applications used to be associated with a minimum financial volume of € 50 million (which is beyond what our existing infrastructures could achieve, as research vessels

have a separate funding mechanism in Germany). There is a path to an ESFRI participation that sidesteps the national roadmap. (Danubius has taken this path.) The issue here is that the governmental commitment is less strong (as can be seen by the current withdrawal from Danubius) and in the current budgetary situation this window is all but closed. To get a commitment from the ministry of transportation JERICO would need the support by the main federal agency tasked with ocean observation, the Federal Maritime and Hydrographic Agency (BSH). This commitment/endorsement has been lacking over the past several years. There has been a recent change in the leadership of BSH and this issue is being revisited. Nevertheless, there are bottom-up efforts under way to strengthen and unify the German ocean observation system. In particular, there is a coastal observation task group in the framework of the Konsortium Deutsche Meeresforschung (KDM) that aims at unifying the German observational landscape and ultimately speak with one voice towards funding bodies. This is rather a long-term project than an effort expected to yield short-term results. As a result of all the points listed above, there is no foreseeable commitment from the German government to participate in any major role in JERICO-RI.

**Portugal:** The JERICO National Contact Point organized meetings in spring 2023 to discuss the ESFRI proposal and steps with the Portuguese ESFRI Contact Point. The status of the national roadmap and the Monizee application submitted in 2022 were discussed. Contacts with different Portuguese partners were also planned.

**Norway:** In Norway, the national JERICO partners are IMR, NIVA, Covartec AS and NORCE, with IMR and NIVA being national representatives in JDS. The national partners have regular meetings to discuss status and relevant developments. In the previous ESFRI process, the Norwegian ministry of Fisheries and Trade (NFD) signed the support letter. Some JERICO-related funding has been directly allocated to IMR by the ministry since 2020. We are now planning a meeting with contacts point at NFD, to discuss the upcoming ESFRI process . We are considering inviting the ministry for Environment and Climate and the Norwegian Research Council (NRC) for a dialogue as well. In Norway, national RIs are funded through dedicated open RI calls of the NRC, with the next call being planned in September 2023. For the period 2018-2023 the FerryBoxes have been funded through the NRC-NorSOOP RI project (Norwegian ships of opportunity program (<https://www.norsoop.com/>)). At two precedent occasions, the national partners unsuccessfully applied for a JERICO-Norway RI, integrated into a broader "COASTWATCH" concept. A new application is intended to be send in September.

**Ireland:** The Marine Institute, as the Irish State agency responsible for marine research, technology development and innovation in Ireland, are the only Irish partner in JERICO-RI and the Design Study. The Irish Roadmap "Research Infrastructure in Ireland - Building for Tomorrow 2007" was published in 2007. The roadmap has not received any update since then. Although it is planned to revise the 2007 roadmap, no definitive timelines are in place. Ireland is currently carrying out the exercise of RI prioritisation. Apart from the ESFRI National Contact Points (NCPs), based in Science Foundation Ireland (SFI) and the Higher Education Authority, there are no coordinating supports for ESRI Roadmap applicants in Ireland and no approved process for development. Through the SFI Research Infrastructure Programme 2018 the EirOOS: Irish Ocean Observing System was funded to the value of €3m to facilitate greater Irish participation in the JERICO community for the then H2020 Advanced Communities Call, specifically the 'Coastal and shelf seas observing research

infrastructures' topic. Meetings have been held between the Marine Institute and the ESFRI NCP in SFI to discuss the JERICO-RI application to ESFRI roadmap, the most recent in April 2023. The ESFRI NCP is supportive of the JERICO-RI application. The Marine Institute, a state agency under the Department of Agriculture, Food and Marine and the main organisation for coastal observations in Ireland, will continue to provide support to JERICO-RI at an institutional level and promote JERICO-RI at a national level but political commitment at Ministerial level to support ESFRI application will not be achieved in the near-term.

**Belgium:** Belgium has not defined yet which infrastructures are going to be included in JERICO-RI. Indeed, most of Belgian infrastructures are already inserted in other RIs such as EMBRC, LifeWatch, ICOS, EuroFleets, etc. The spread of our infrastructures in various RIs does not really serve the JERICO holistic approach.

Regarding the national commitment in JERICO-RI, in April 2023, the Belgium NC member met with the Federal State Secretary in charge of research and the former responsible for ESFRI in Belgium. They explained that they could sign a commitment letter, but this can be done if and only if JERICO get the official support by the CIS-CFS committees ([https://www.belspo.be/belspo/coordination/scienPol\\_FCC\\_en.stm](https://www.belspo.be/belspo/coordination/scienPol_FCC_en.stm)). In any case, RBINS and VLIZ will surely continue providing institutional support. At present there is no guarantee that Belgium is going to provide any commitment at Ministry level.

**Sweden:** SMHI is the sole participant from Sweden in JERICO. To assess the level of interest and support at the national level, SMHI has organized a national workshop in 2022 with national marine infrastructures and funding agencies representatives. During the discussion to evaluate if a JERICO AISBL could be set up, the outcome of SMHI internal discussion was that SMHI would have supported it. As per today, following the workshop results, the 2023 ongoing discussions with infrastructures representatives, and the fact that an AISBL is not an option for JERICO, we conclude that Sweden as a nation is at present not mature enough to continue participation in the ESFRI process.

**Finland:** Support from national marine infrastructure FINMARI has not been ever questioned, and it was reinforced in a funding application sent to Academy of Finland in April 2023. In that application JERICO is noted as a key EU-RI FINMARI will be contributing to.

The JERICO NC member had scheduled a meeting with SYKE Director General and Science Director on 23 March 2023, to inform them on the JERICO plans to apply in ESFRI roadmap and to confirm their positive viewpoint. The meeting was postponed and is still not yet done. Due to tight schedules, it is currently planned to provide them an update by email, and ask for institute commitment. Face-to-face discussions are also foreseen. FMI is about to have the same process. In any case, SYKE and FMI leads have been committed to FINMARI work, know JERICO work well (e.g. visited key JERICO site at Utö during 2-day trip in 2022 –upgrading their ownership in coastal observations!), and there is no foreseen obstacles. But of course, a clear sign of commitment is needed for the process. Written commitment is possible once the call is open.

After the initial commitment of institutes, aim is to connect with ministries guiding SYKE and FMI and get their political commitment. The official commitment can be asked only once the ESFRI call is open.

The highest level of commitment (so-called national financial commitment) will be obtained from Research Infrastructure Committee of Academy of Finland. They can be approached

once ESFRI call is open, and the institutional and ministerial commitments in paper are in place.

**Estonia:** The Estonian JERICO NC member has had discussions with the manager of research infrastructures in Estonia to understand the ESFRI-related process. In Estonia, in order to get financial support (or letter giving some financial guarantees) for JERICO-RI activities, JERICO-RI must be on the national RI roadmap. Given that, next time one could apply for the national roadmap is in early 2024, what can be done now for the JERICO application for the ESFRI roadmap is asking for a support letter from the Ministry of Environment. Dedicated meetings with people from the Ministry of Environment to explain the JERICO have been organized in the past and they provided such a letter last time, when we tried to apply for ESFRI. I do not think they will promise steady financial support, but they could provide a support letter.

**UK:** Cefas is an executive agency from Defra (Not BEIS-UKRI). BEIS has funded EMSO and EMBL-ERIC and disengaged last year (2022 with great disappointment). Additionally, they had a restructuration recently and it will take time to find the right person to discuss with, and I do not think that I am the right person to discuss this (perhaps NOC?).

Defra has never engaged with any EU infrastructure. Not being in JERICO-DS (not having time to do it), I do not know how the others have approached this. I will be quite curious about it. But to convince Defra, we will need a lot of information and very little can be expected (I am afraid).

**Denmark:** The Danish contribution to the next JERICO-RI ESFRI application will be presented by DMI, as a JERICO partner. The potential contribution includes following:

-Provide operational access to DMI coastal monitoring data (sea level, SST and SSS) at DMI tide gauge stations. Currently there are more than 40 stations deployed in the Baltic and North Sea Danish coastline. This is a sustained monitoring activity.

-Coordinate potential contribution of monitoring data from Danish Coastal authority (KDI, sea level and waves) and GEOMETOC (T, S and currents) in Danish waters.

-Coordinate access to open data in Danish waters (river data, T, S, nutrients, oxygen, chl-a and biological data from cruise measurements in national monitoring program NOVANA).

-Interactive communication with GOOS NFP, which is at DMI, to coordinate JERICO-RI related issues.

-Provide integrated monitoring-modelling services, which can be used by pan-EU users:

- ✓ multi-model ensemble forecasting operational tools: users can use this tool to establish their own forecasting service which integrates CMEMS/national/own forecasts and observations, to provide best met-ocean forecast quality. A proto-type is now ready for SST forecast, used in FRONTEx service.
- ✓ Observation impact simulator tool: users can use this tool to assess the spatiotemporal effective coverage of a given sampling strategy (locations and frequencies) together with existing observations, showing by maps, so that the users can identify gaps and adaptively design their sampling strategy (back-end software has been developed in ODon and ECOOP projects, but GUI has to be developed).

- ✓ On-demand model (configuration) service: provide users with high resolution data (land-sea mask/water depth in 50\*37 m resolution, river grid file) and graphic user interface for their model configurations. The software and data are now made for Baltic-North Sea, but it's possible to be made for pan-European Seas. If needed, a riverine-estuarial-coastal-open sea two-way nested model can also be provided as an on-demand modelling tool (this is currently developed in EDITO Model\_Lab for Digital Twin Ocean).

National Commitment efforts are ongoing in Spain, and Croatia through active participation in the JERICO Nation Committee and continuing discussions at the National level with relevant stakeholders.

## 7.2. Strategy forward

During the Design Phase, mainly covered by JERICO-DS and secondarily by JERICO-S3 EU funding projects, Nations were engaged in the co-design of the future JERICO-RI, with consideration of the specificity of contributing National RIs: their scientific case, their business plan & governance. Ten years of building JERICO and dedicated analysis has been used to identify how national assets and systems can join the EU RI in a complementary fashion, as well as common national needs, to propose solutions on design and business plans. JERICO has supported national strategies by optimising resources, taking them further ahead, and increasing synergies between them. This bidirectional approach fostered national engagement and brought awareness to national funding & policy-making bodies regarding the European value of JERICO-RI. Through this bidirectional path, JERICO-RI has fostered synergies between nations, by sharing concepts, objectives, designs, and plans for the future. JERICO will continuously develop ways to engage and motivate its members. This is important due to the nature of the distributed infrastructure: different organisational structures, priorities in people's tasks, geographical distances, and different languages affect the ability to cooperate efficiently. To improve engagement and internal cooperation, JERICO will continue developing ways of bridging national gaps and discrepancies, and maximising the team spirit among the JERICO community.

Since connection and engagement with countries is a long-term and continuous process, and in view of the upcoming ESFRI call (supposedly in 2024), to which JERICO will apply, specific strategic actions are foreseen to highlight the added value of the JERICO-RI for each country.

This will be done through:

- the exchange of information and updates to the members;
- keeping a wider audience informed about JERICO, its progress, its developments, and its achievements;
- further improvement of the already existing products to match users' expectations;
- the development of new products and services;



- advertisement of the JERICO RI service offer and ultimately increase the number of users;
- the dissemination of the JERICO-RI Products and Services through user group targeted communication campaigns.

Events, such as targeted meetings, conferences, workshops, fairs, and exhibitions, are fundamental to increase awareness about JERICO, and its visibility, services and products , and also represent major occasions to attract new stakeholders (including scientists, private and public users, new scientific disciplines, and new European countries to the JERICO framework and consortium. More specifically with regard to the following targeted meetings:

- meetings are planned with ministerial representatives in charge of RIs, with the support of the French embassy – the French ESFRI representative at the Ministry of Research will organise formal and in-person meetings with the heads of the European national roadmaps;
- targeted meetings will take place in different countries in which with the help of local members of the JERICO consortium, connections will be sought with supervising authorities and decision makers (e.g. JERICO-DS SC meeting in La Spezia Italy, June 2023);

All communication activities will be supported with:

- printed communication material e.g Brochures, Flyers, Posters;
- e-tools e.g. website, newsletter, social media, videos, etc.

## **8. Conclusion and next steps**

### **Achievements**

The interaction with nations, national RIs, and nations' institutes is conducted through the JERICO-RI Nations' Committee; composed of the most senior/experienced member of JERICO-RI from each nation.

The Nations' committee is a pragmatic solution because organisational structures and hierarchies vary between nations and are best navigated by those who understand the inner circles.

The JERICO-RI Nations' Committee has been in place since June 2019 to coordinate the preparation of the JERICO-DS submission and the ESFRI application, and has met 5 times. To attract and engage stakeholders, the JERICO-RI strategy is structured in the following way, with a clear division of responsibilities, set of targets, and methods to track how targets are achieved.

### **Challenges and opportunities**

- National committees need to be established in all member states, and facilitated by the GOOS NFP. Even in the two countries in which such committees exist (XX and YY), those are not official. Such groups will provide a holistic overview of the landscape given the existing complexity and variability, which makes it almost impossible for a single person (the NFP) to efficiently conduct the necessary actions.

- Considering that JERICO-RI is generally well known among the GOOS NFPs, effort must be devoted towards establishing efficient communication channels with the existing GOOS NFP, in order to incorporate the JERICO strategy in the national framework.
- It is worth mentioning that existing National Coordination mechanisms seem to be adequate for the coastal observations (following answers to the questionnaire). However, since there seems to be a wide variability among member states on the structure and function of these mechanisms, an exchange of practices could be particularly helpful and Best Practices can be adopted by others; it is one of the key functions of the NC.

The Strategy for Obtaining National Commitments from EU Member States for Jerico-RI is focused on the following areas.

1. Message Clarity and Alignment:

- Define a clear Vision and Mission statement for Jeerico-RI, highlighting key scientific challenges and advantages of a pan European coastal observation network to each nation.
- Emphasise JERICO's pivotal role in the European scientific landscape.
- Provide robust data and financial information to substantiate the message.

2. Stakeholder Identification and Engagement:

- Identify gatekeepers within multiple Ministries and Institutes as they hold the keys to securing commitments.
- Recognize that different Ministries and Institutes may require tailored messages and approaches.
- Initiate engagement at the Institutional level to build trust and support.

3. Constructive Dialogue:

- Engage in open discussions to understand stakeholders' needs and concerns.
- Adjust strategies based on feedback and insights gathered during the dialogue.
- Encourage stakeholders to share their ideas and provide them with feedback to strengthen credibility.

4. Needs Alignment and Customisation:

- Map stakeholder needs to JERICO-RI capabilities to ensure meaningful interactions.
- Establish a strong connection between JERICO's offerings and the requirements of the nations and institutes involved.
- Tailor JERICO's services and solutions to effectively address identified needs.

5. Review and Feedback Loop:

- Collate messages and needs from individual nations and present them to the Jerico Nations' Committee for review.
- Adjust networking and engagement strategies based on Committee feedback.
- Formulate a consensus on how to align JERICO's capabilities with the specific needs of nations and institutes.

6. Ongoing Communication and Engagement:

- Keep stakeholders informed of JERICO's progress and developments.
- Ensure JERICO maintains a visible presence as required to reinforce its significance.
- Highlight governance and financing enhancements to demonstrate the evolution of JERICO.





#### 7. Learn, Adapt and build on Commitments achieved thus far.:

- Learn from successful experiences of Nations' Committee members in securing commitments.
- Understand and address any obstacles encountered at the national level.
- Continuously adapt the strategy based on lessons learned to optimise future engagement efforts.

By following this strategic framework, we aim to effectively communicate JERICO's value proposition, engage stakeholders, and align JERICO's capabilities with the specific needs of EU Member States. This iterative approach ensures ongoing refinement and adaptation for optimal results.

### References

European GOOS National Focal Points Survey: Funding and Coordination across Ocean Observing and Marine monitoring in Europe

<https://www.eoos-ocean.eu/download/eoos-survey-of-goos-national-focal-points/?wpdmdl=1150&refresh=618e5bf7b4b681636719607>

European Ocean Observing System: <https://www.eoos-ocean.eu/>

The Global Ocean Observing System <https://www.goosocean.org/>

GOOS National Contact Point Terms of Reference: <http://ioc-unesco.org/goos-ncp-tor>