2022

European/International Projects Report

CNR ISMAR
ISTITUTO DI SCIENZE MARINE

Authors:

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1. INTRODUCTION TO THE CNR AND CNR-ISMAR

1.1 THE NATIONAL RESEARCH COUNCIL (CNR)

The National Research Council (CNR) is the largest public research institution in Italy performing multidisciplinary activities in all scientific domains. Founded in 1923, CNR mission is to perform research in its own Institutes, promote innovation and competitiveness of the national industrial system, foster the internationalization of the national research system, provide technologies and solutions to emerging public and private needs, to advice Government and other public bodies, and contribute to the qualification of human resources. Over 7.000 researchers and technologists operate in a distributed network throughout the national territory (namely 88 Institutes located in 220 research units and labs, and 3 permanent research stations at the Poles) coordinated by 7 thematic departments, contributing to science and research in areas such as climate, human well-being, study and treatment of rare diseases, food safety, nanotechnologies, monitoring of air, water and plants pollution https://www.cnr.it/en.

The Institute has a great experience in dealing with EU projects confirmed by the 1700 projects funded.

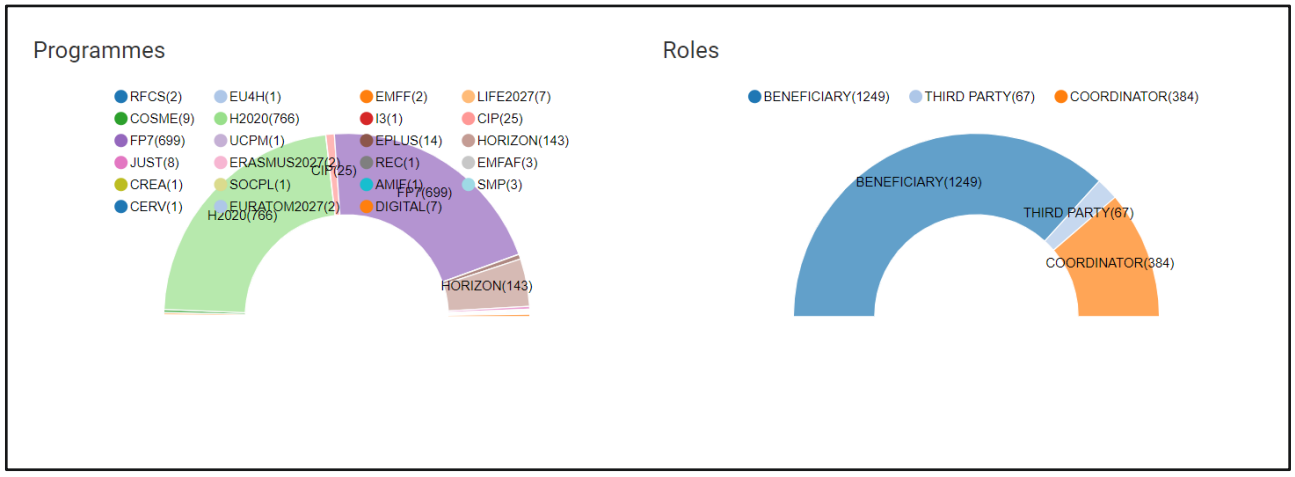

Fig.1: CNR participation to EU programmes and roles covered

1.2 THE INSTITUTE OF MARINE SCIENCES (CNR-ISMAR)

The Institute of Marine Sciences (ISMAR) of the National Research Council (CNR) is the largest institution in Italy dedicated to marine science research. CNR-ISMAR conducts multidisciplinary studies in all fields of marine sciences that include geological, biological and oceanographic research in the Mediterranean and the world's oceans. CNR-ISMAR boasts a permanent staff of over 200 people (plus 43 Research Fellows) distributed over 6 locations: Venice (main office), Trieste, Lerici, Bologna, Rome and Naples.

CNR-ISMAR is also a national leader in marine geological mapping, geological and environmental risk assessment, collection of long-term oceanographic time series, oceanographic modelling and maritime spatial planning. In the last decade CNR-ISMAR has been involved in over 350 EU-funded

projects, 45 of them as coordinator thus demonstrating its capacity to be competitive at European level.

According to statute of the institute, the mission of CNR-ISMAR is divided into seven main lines of research:

- Marine geology and paleoceanography;
- Ocean processes, climate variability and ecosystem functioning and evolution;
- Observation and operational services for monitoring essential ocean and climate variables (EOV and ECV);
- Marine risks and anthropogenic impacts;
- Interoperable data management and maritime spatial planning;
- Dissemination of marine research products.

In addition, CNR-ISMAR manages a network of real-time observation systems (buoys, platforms, moorings, fishing observation sites, etc.), located along the Italian coasts, transmitting data that are processed at the institute's laboratories. The permanent observational systems in the Adriatic Sea and the Tyrrhenian Sea are noteworthy.

The Director of the Institute is Dr. Rosalia Santoleri to whom goes the thanks of the Project Office's staff for having created this structure and having contributed actively to its work.

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Web Site: www.ismar.cnr.it

Director
Rosalia Santoleri

2. THE CNR-ISMAR PROJECT OFFICE

The Project Office (PO) was established in 2019 and is composed by 5 persons working in different branches of the institute. The staff works in close cooperation and at a cross cutting level since the ISMAR's branches are very often involved in the same project.

The persons involved are the following:

Emma Giovanna D'Acunzo
Project Office: Rome-Naples

Laura Barbieri
Project Office: Lerici

Teresa Loredana Alfarè
Project Office: Venice

Elisabetta Borella di Torre
Project Office: Venice

Maria Rita Cogliandro
Project Office: Bologna

Fig.2: Personnel of the Project Office

The PO main tasks consist in supporting the researchers and technologists to prepare project proposals, monitoring and reporting the projects.

In addition the PO is involved in:

- Documents and projects archiving;
- Management of projects preliminary and negotiation activities;
- Verification of agreements /contracts before the signature of the Director;
- Preparation of internal agreements between CNR Institutes and management of relations / distribution of Activities between the branches/institutes involved;
- drafting of the Projects economic plans;
- Collaboraziont with the auditors;
- Request for annual costs and tax charges/social security contributions for CNR personnel;
- Retrieval and verification of reporting documents (invoices, timesheets and general documentation of personnel and selection procedures for suppliers of goods and services, documentation relating to missions, mandates, other documents, etc.) in collaboration with the CNR-ISMAR Administrative Offices;
- Uploading of reporting data to Programme portals.

3. THE REPORT

The report consists in 5 sections devoted to each single programme. The first section is focused on HORIZON EUROPE reporting a general programme introduction and a brief description of the running projects funded. The other four sections are structured in the same way and are focused on HORIZON 2020, INTERREG -Territorial Cooperation Programmes, EU Tenders and on Other Programmes. The final section is dedicated to the proposal submitted by the Institute with the related success rate for each programme.

Recently the CNR has incorporated some strategic areas (A5-Technologies, A6-Impacts and A7-Data) into a new subdivision as reported below. The few long-standing projects still in progress have therefore retained the old subdivision. CNR has assigned 4 Strategic Project Areas to the projects and for this reason the CNR-ISMAR's sheets reports the following codes which corresponds to:

AP1: Global Change
AP2: Natural Resources and Ecosystems
AP3: Natural Hazards, Human Impacts and Technology for the Environment
AP4: Earth Observation.

According to this classification the CNR-ISMAR funded projects have been divided as reported in the following graphic:

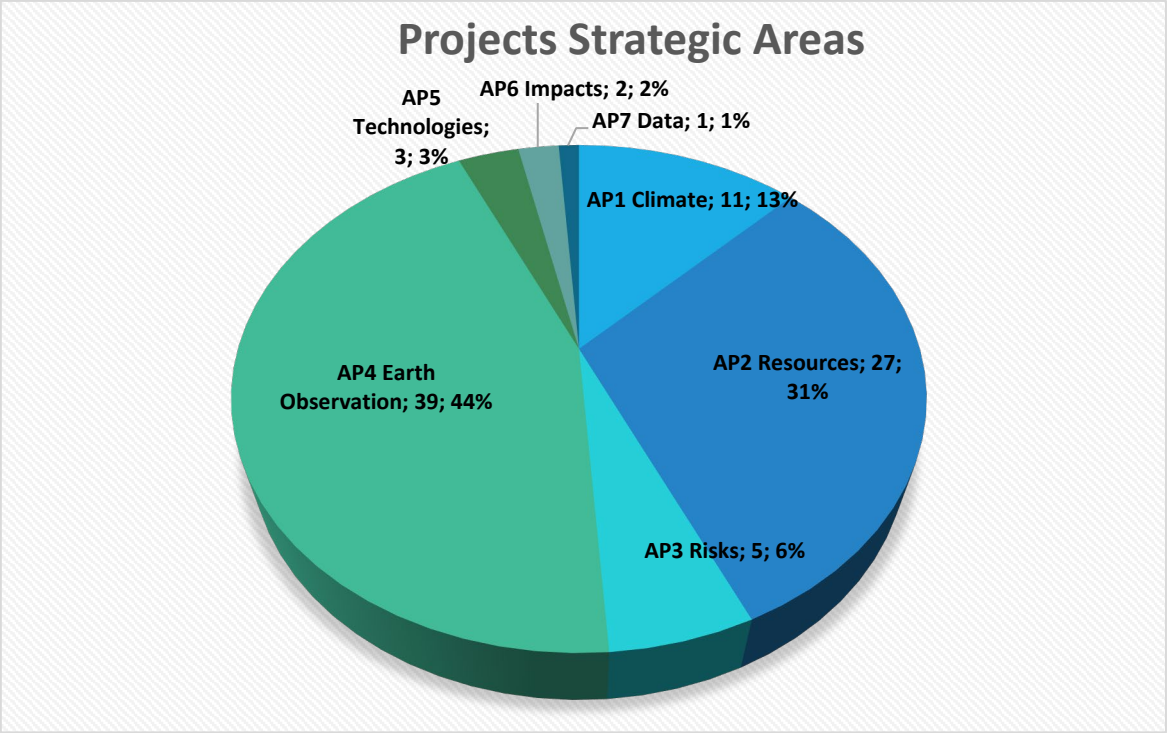


Fig.3: Projects funded under CNR Strategic Areas

It is worth to underline that the classification is quite different as shown in the following series of graphics related to the different programmes.

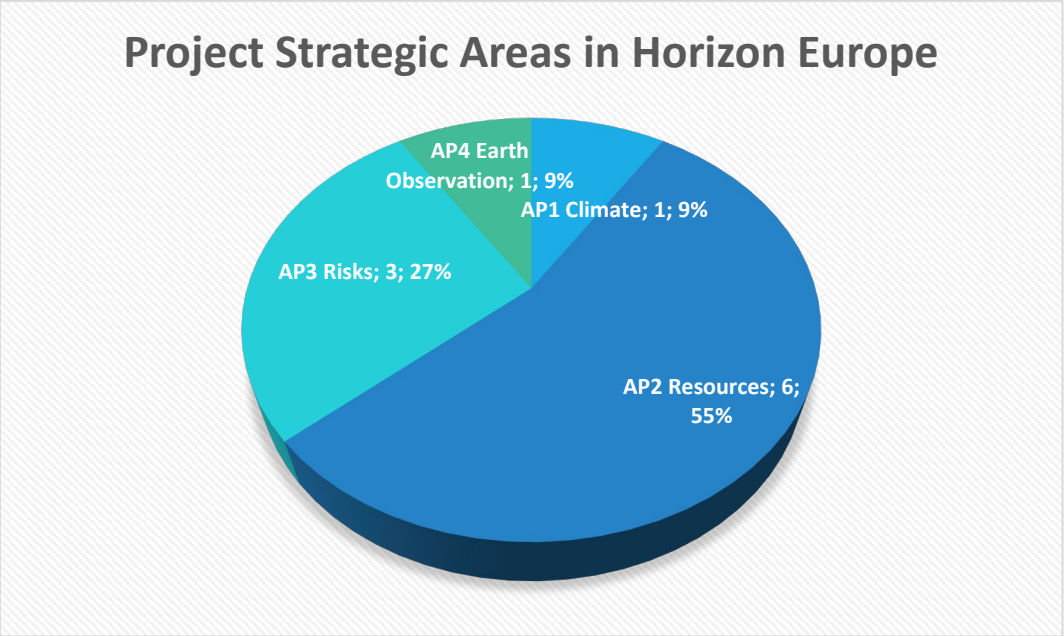


Fig.4: Project Strategic Areas in Horizon Europe Programme

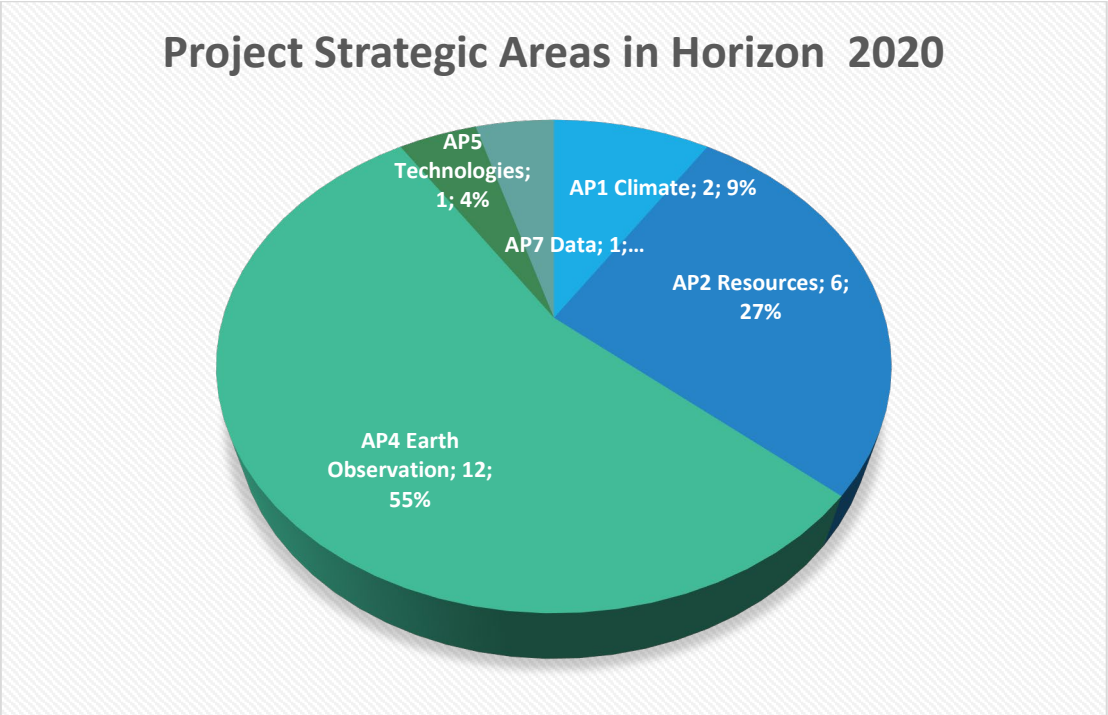


Fig.5: Project Strategic Areas in Horizon 2020 Programme

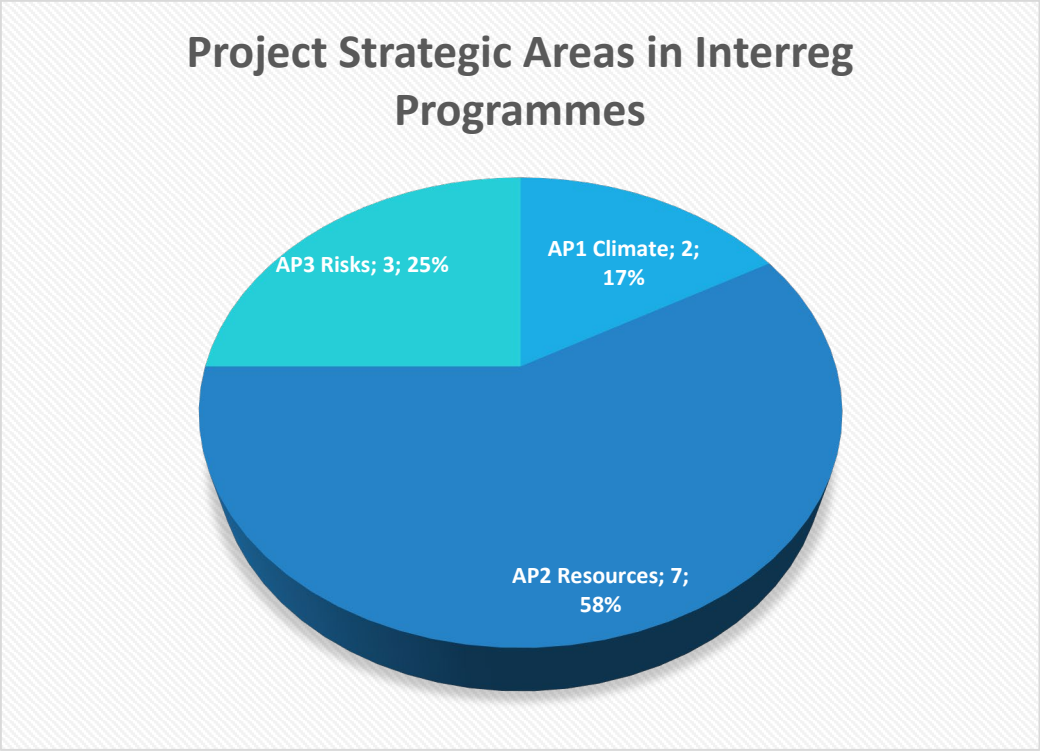


Fig.6: Project Strategic Areas in Interreg Programmes

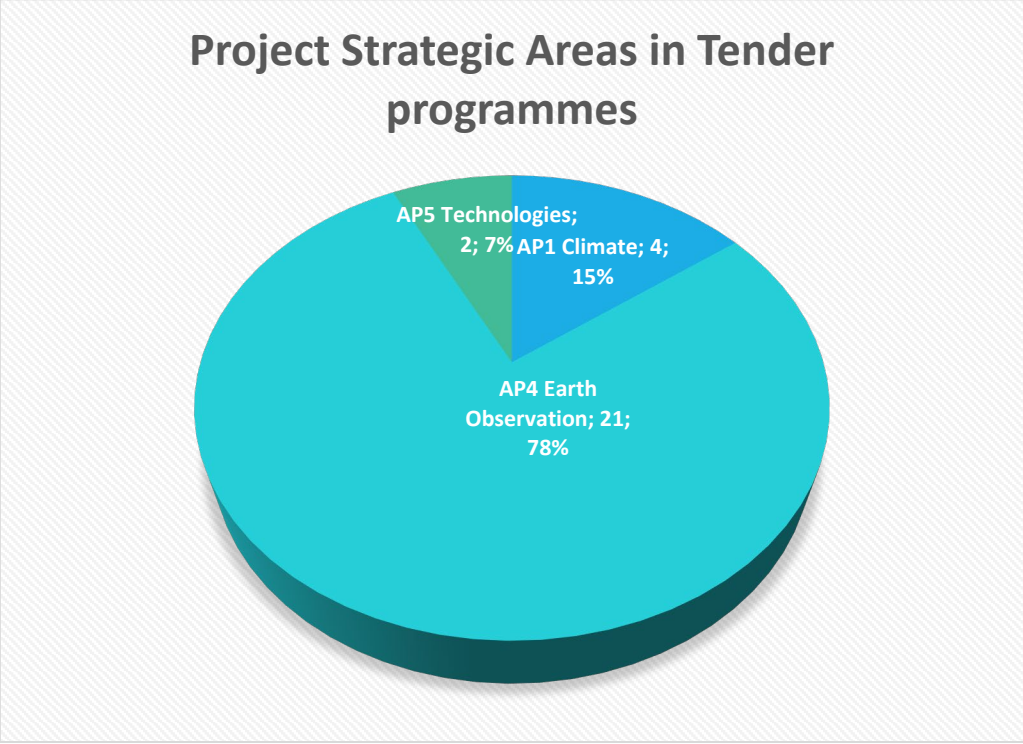


Fig.7: Project Strategic Areas in Tenders Programmes

Concerning the distribution of CNR-ISMAR projects in Other EU and international programmes the situation is summarized in the following graphic:

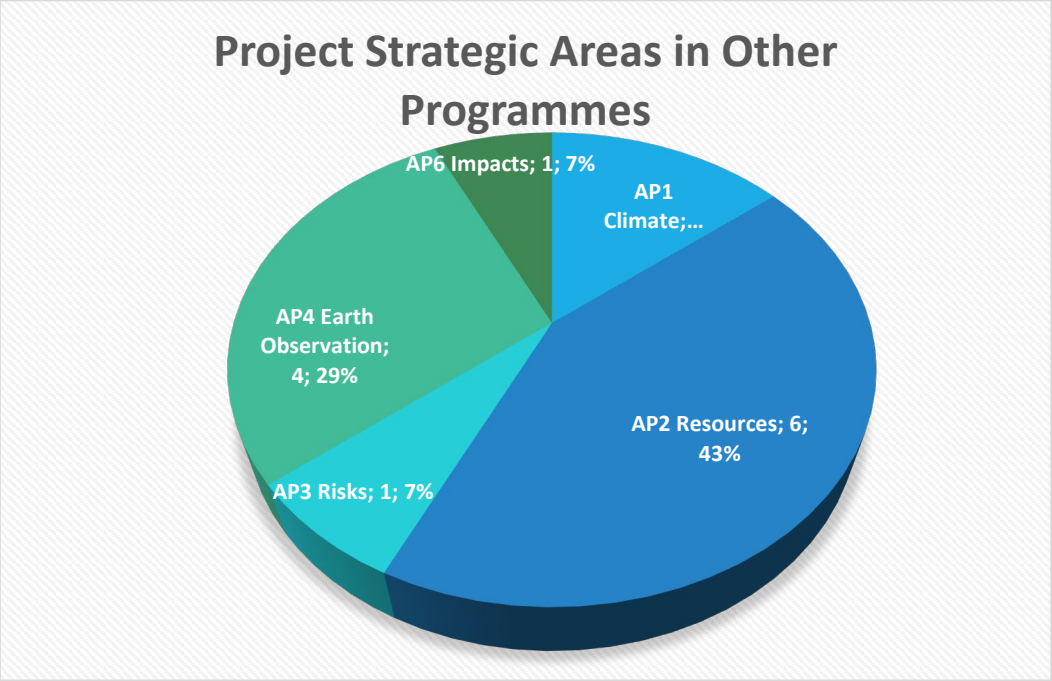


Fig.8: Project Strategic Areas in Other Programmes

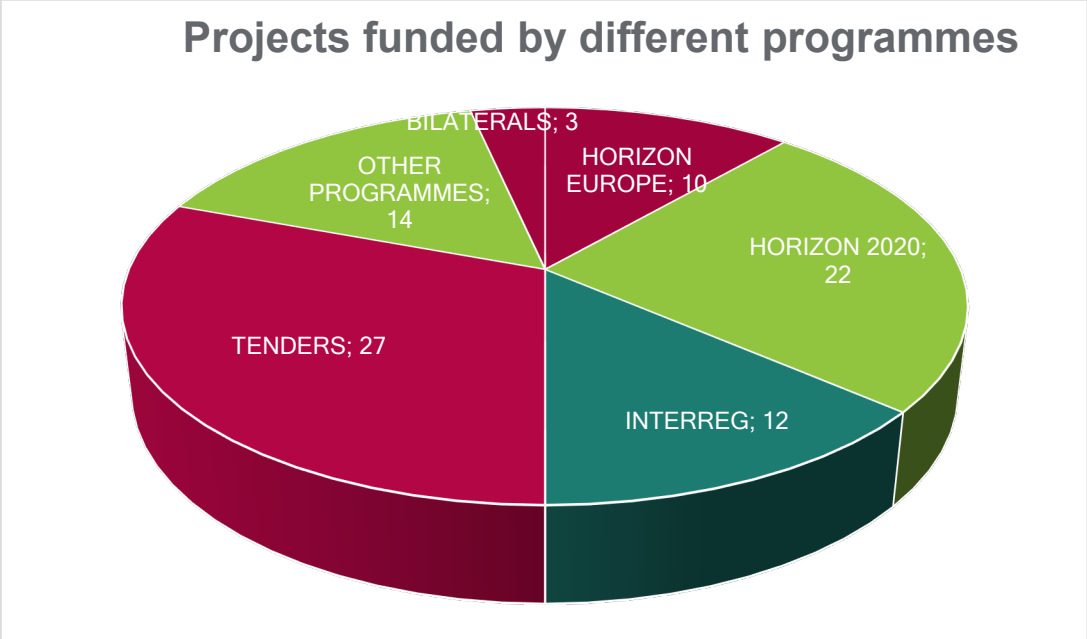


Fig.9: N. of Projects funded by EU/International Programmes

In 2022 CNR-ISMAR has increased its participation to all EU programmes achieving good results as stated by the general success rate that is 58,53%.

4. HORIZON EUROPE

4.1 THE PROGRAMME

Horizon Europe is the EU's key funding programme for research and innovation. It tackles climate change, helps to achieve the UN's Sustainable Development Goals and boosts the EU's competitiveness and growth.

The programme facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while tackling global challenges. It supports the creation and better diffusion of excellent knowledge and technologies.

It creates jobs, fully engages the EU's talent pool, boosts economic growth, promotes industrial competitiveness and optimises investment impact within a strengthened European Research Area.

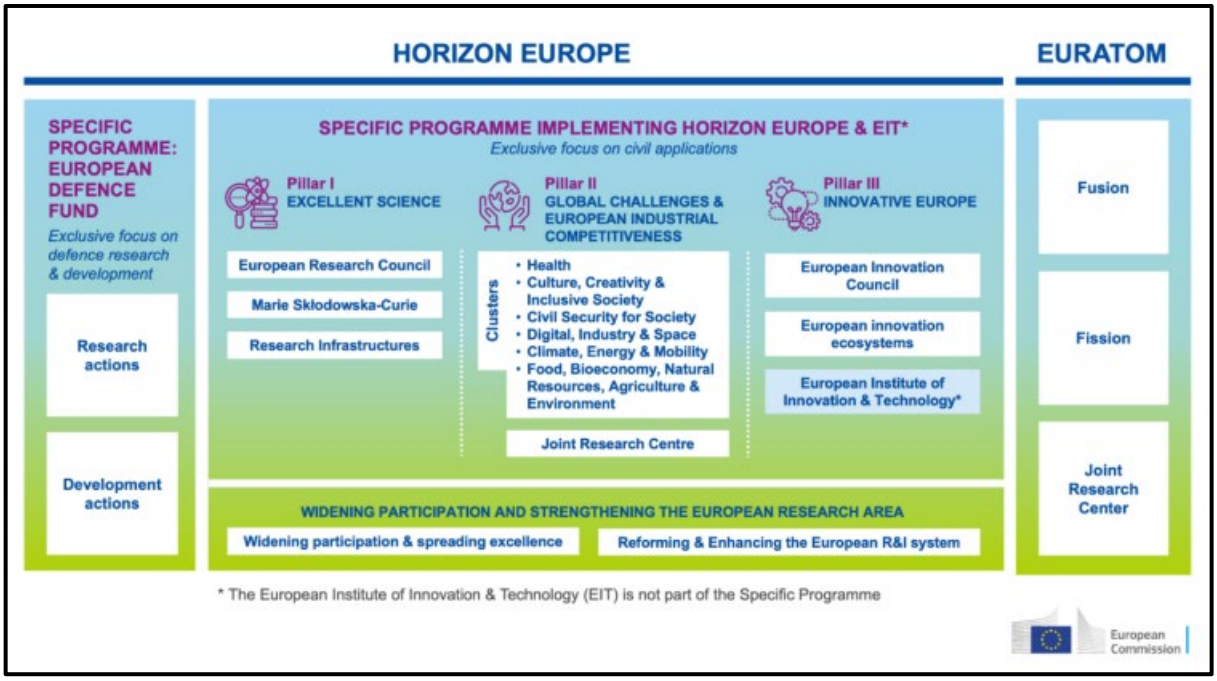


Fig.10: Pillars of Horizon Europe

Horizon Europe is divided into three pillars and one part, corresponding to its main priorities

• The Excellent Science pillar aims to increase the EU's global scientific competitiveness. It supports frontier research projects defined and driven by top researchers themselves through the European Research Council, funds fellowships for postdoctoral researchers, doctoral training networks and exchanges for researchers through Marie Skłodowska-Curie Actions, and invests in world-class research infrastructures.

• The Global Challenges and European Industrial Competitiveness pillar supports research relating to societal challenges and reinforces technological and industrial capacities through clusters. It sets EU-missions with ambitious goals tackling some of our biggest problems. It also includes activities pursued by the Joint Research Centre which supports EU and national policymakers with independent scientific evidence and technical support.

• The Innovative Europe pillar aims to make Europe a frontrunner in market creating innovation via the European Innovation Council. It also helps to develop EU Grants: HE Programme Guide: V1.5 – 01.02.2022 8 the overall European innovation landscape through the European Institute of Innovation and Technology (EIT) which fosters the integration of the knowledge triangle of education, research and innovation.

The part Widening Participation and Strengthening the European Research Area (ERA) increase support to EU Member States in their efforts to make the most of their national research and innovation potential. Finally, Horizon Europe will be implemented also through the European Defence Fund and complemented by the Euratom Research and Training Programme.

Horizon Europe will have a budget of around €95.5 billion for 2021-2027 (current prices). This includes €5.4 billion (current prices) from Next Generation EU to boost recovery and make the EU more resilient for the future, as well as an additional reinforcement (i.e. in addition to the MFF agreement in July 2020) of €4.6 billion (current prices).[1]

4.2 CNR-ISMAR IN HORIZON EUROPE

In this first programme period the Institute is participating in 10 projects for a total budget of € 1.906.447,75. It is worth to underline that the number of proposal submitted is quite relevant and in one of them ISMAR cover the role of Lead Partner (BlueNights).

The high number of projects shows the capacity of the Institute to deal with EU programmes and the wide partners' network established during the H2020 Programme period.

CNR-ISMAR has taken part in 6 projects under the Research and Innovation Actions Funding Scheme, in 3 projects under the Coordination and Support Action, in 1 under Innovative Actions.

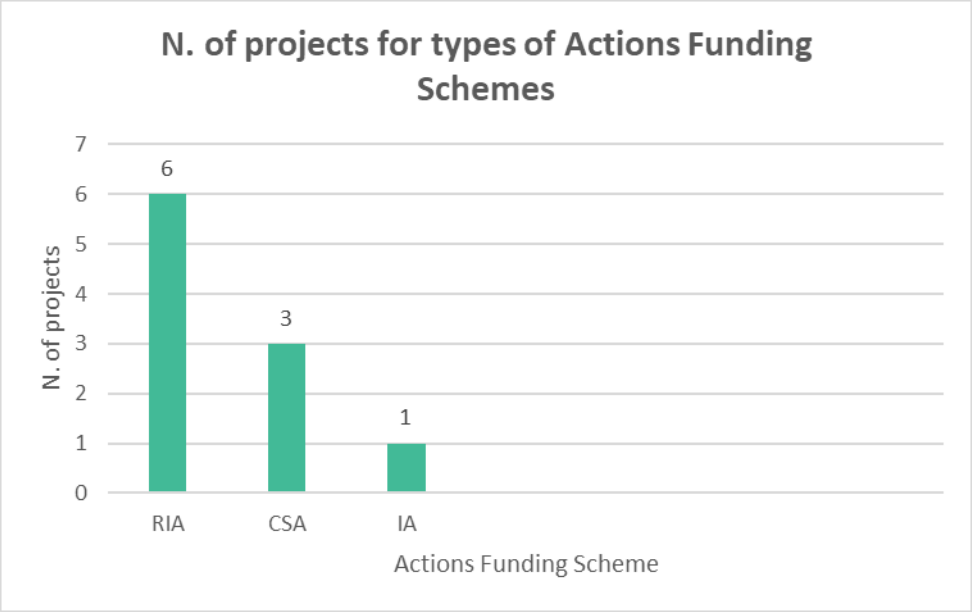
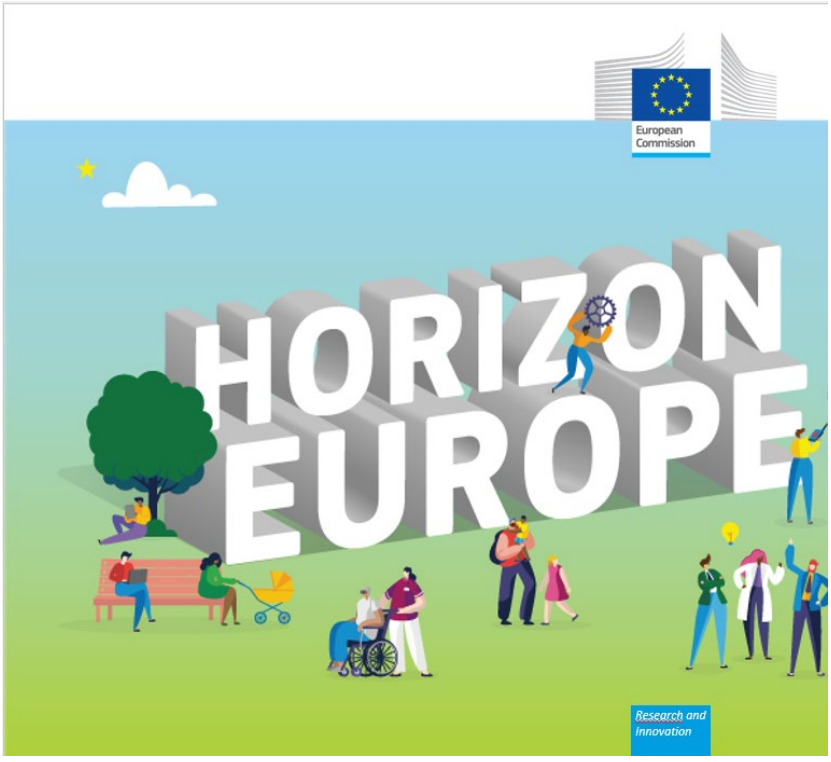


Fig.11: N. of Projects funded for types of Actions Funding Scheme

[1] EU Grants: HE Programme Guide: V1.5 – 01.02.2022

List of CNR-ISMAR projects funded under Horizon Euope



Programme: HORIZON-CL4-2022-SPACE-01	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **New Copernicus capability for trophic ocean networks**	
Acronym: NECCTON	
Role in the project: Partner	
Duration: 1/1/2023 - 31/12/2026	
Total budget: € 9.999.373	
ISMAR budget: € 208.000	
Web site: https://www.neccton.eu/	
Key words: Copernicus, ecosystem observation, ocean biodiversity	
Summary: The ocean's biodiversity supports the livelihoods of over three billion people, providing vital services, including food and nutrient cycling. However marine policy and resource management do not yet consider the latest scientific advances, even when the state-of-the-art operational models of the European Copernicus Marine Service (CMEMS) are used. Our objective is to enable CMEMS to deliver novel products that inform marine biodiversity conservation and food resources management, by fusing new data into innovative ecosystem models that integrate biological and abiotic components, habitats, and stressors of marine ecosystems. NECCTON will inter-link new models in the CMEMS systems, thus building novel capacities to simulate higher-trophic-levels, benthic habitats, pollutants, and deliver projections of climate change impacts. We will develop and exploit new data-processing chains, supporting CMEMS' use of novel ecosystem observations, including new hyperspectral data from satellites, as well as available acoustic, pollution and omics data. We will fuse these new data and models by using innovative machine-learning algorithms to improve models and data assimilation methods. These developments will be applied in thirteen case studies, co-designed with fisheries and conservation managers as part of our pathway-to-impact, resulting in the demonstration of Technological Readiness Level 6 of NECCTON products. The project objectives will be achieved by a team of twenty-three world-class organizations with track records for all the key project components. It includes the CMEMS Entrusted Entity and core developers, who will promote the final uptake of NECCTON by CMEMS. On project completion, NECCTON will provide CMEMS with the scientific and technical capabilities to sustain twenty-five new products in their operational portfolio, ultimately enabling users to make informed decisions on the exploitation of marine services, enhancing sustainability and conservation.	
Contact person in ISMAR: federica.braga@ismar.cnr.it	

Partnership:

1. Mercator Ocean (France)
2. Plymouth Marine Laboratory Limited (United Kingdom)
3. Bolding & Bruggeman Aps (Denmark)
4. Stiftelsen Nansen Senter for Miljoog Fjernmaling (Norway)
5. Universite de Liege (Belgium)
6. Institut Francais de Recherche pour l'Exploitation de la Mer (France)
7. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (Italy)
8. Met Office (United Kingdom)
9. Stichting Nederlandse Wetenschappelijk Onderzoek Instituten (The Netherlands)
10. Bundesamt fur Seeschifffahrt und Hydrographie (Germany)
11. Collecte Localisation Satellites (France)
12. Fondazione Centro Euro-Mediterraneosui Cambiamenti Climatici (Italy)
13. Helmholtz-Zentrum Hereon Gmbh (Germany)
14. Danmarks Tekniske Universitet (Germany)
15. Hellenic Centre for Marine Research (Greece)
16. Lobelia Earth Sl (Spain)
17. Ecopath International Initiative Asociacion (Spain)
18. Universiteit Utrecht (The Netherlands)
19. Minds Technologies Kai Epistimes Perivallontos I.K.E. (Greece)
20. Instituto Do Mar IMAR (Portugal)
21. Consiglio Nazionale Delle Ricerche, CNR (Italy)
22. Centre National de la Recherche Scientifique CNRS (France)
23. Sorbonne Universite (France)
24. Azioni sul documento

Programme: HORIZON-CL6-2022-BIODIV-01	
CNR Strategic Area: AP2 RESOURCES	
Project title: MARine COastal BiOdiversity Long-term Observations	
Acronym: MARCO-BOLO	
Role in the project: Partner	
Duration: 01/12/2022 – 30/11/2026	
Total budget: € 8.614.089	
ISMAR budget: € 181.188	
Web site: n.a.	
Key words: coastal and marine biodiversity, CoP	
Summary: MARCO-BOLO aims to structure and strengthen European coastal and marine biodiversity observation capabilities, linking them to global efforts to understand and restore ocean health, hence ensuring that outputs respond to explicit stakeholder needs from policy, planning and industry. To this end it will establish and engage with a Community of Practice (CoP) to determine end user needs with the aim of optimizing marine data flows, knowledge uptake, and improving governance based on biodiversity observations.By exploiting synergies with concurrent projects MARCO-BOLO will develop and demonstrate new autonomous technology for biodiversity mapping and monitoring, and data streams from remote sensing, eDNA, robotics, optical and acoustic observations. Protocols for eDNA-based biodiversity observations are established and validated across applications, taxa and ecosystems. The sequence of the analytical and technical processes for the different use cases will be incorporated into operational Essential Ocean Variables (EOVs) and Essential Biodiversity Variables (EBVs) and included into online reusable workflows, contributing to the free and open access of EU and global biodiversity information facilities, and to support major EU biodiversity directives and global initiatives. The project partnership will leverage its international activities (MBON, GOOS, OBIS) and participation in UN Ocean Decade Programs (Marine Life 2030, OBON, ODIS, Ocean Practices for the Decade) to align the MARCO-BOLO work programme to global CoP, ensuring European participation and leadership in global biodiversity monitoring and global science. MARCO-BOLO results will be designed to build upon existing capability and infrastructures, and to be relevant to existing frameworks so that outputs can be easily integrated into national, regional (EU and adjacent sea basins), and global observation systems, with no delay ensuring the reusability of the investments Europe is already making in data generation.	
Contact person in ISMAR: caterina.bergami@ismar.cnr.it	
Partnership: 1. European Marine Biological Resource Centre European Research Infrastructure Consortium (France) 2. Vlaams Instituut Voor De Zee (Belgium) 3. Helmholtz-Zentrum Hereon GMBH (Germany)	

4. E-Science European Infrastructure for Biodiversity and Ecosystem Research (Spain)
5. Senckenberg Gesellschaft fur Naturforschung (Germany)
6. Universitetet I Tromsoe - Norges Arktiske Universitet (Norway)
7. Marine Scotland (United Kingdom)
8. United Nations Educational Scientific and Cultural Organization (France)
9. Goeteborgs Universitet (Sweden)
10. Marine Biological Association of the United Kingdom (United Kingdom)
11. Institutul National de Cercetare-Dezvoltare Pentru Geologie si Geoecologie Marina GEOECOMAR (Romania)
12. Autoridad Portuaria de Sevilla (Spain)
13. Universidad de Sevilla (Spain)
14. Universitatea din Bucuresti (Romania)
15. Consiglio Nazionale delle Ricerche CNR (Italy)
16. Stazione Zoologica Anton Dohrn (Italy)
17. Danmarks Tekniske Universitet (Denmark)
18. Ukrainian Scientific Centre Of Ecology Of The Sea Ukraina
19. Centre National De La Recherche Scientifique CNRS (France)
20. Alfred-Wegener-Institut Helmholtz-Zentrum fur Polar- und Meeresforschung (Germany)
21. Seascape Belgium (Belgium)
22. Centro Interdisciplinar de Investigacao Marinha e Ambiental (Portugal)
23. Erinn Innovation Limited (Ireland)
24. National Oceanography Centre (United Kingdom)
25. Helmholtz-Zentrum fur Umweltforschung GMBH - UFZ (Germany)
26. Universitat Wien (Austria)
27. Norce Norwegian Research Centre AS (Norway)
28. Sorbonne Universite (France)

Programme: HORIZON-MISS-2021-OCEAN-02	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Restoration of the Danube River Basin Waters for Ecosystems and People from Mountains to Coast**	
Acronym: DANUBE4all	
Role in the project: Partner	
Duration: 01/01/2023 – 31/12/2027	
Total budget: € 8.920.473	
ISMAR budget: € 200.000	
Web site: n.a.	
Key words: Danube River; Ecosystem restoration; nature base solution; protection to extreme events	
Summary: Over one million barriers on Europe's rivers have resulted in extensive loss of river connectivity and 70-90 % of Europe's floodplain areas are ecologically degraded due to human modifications. Despite having an ambitious EU policy framework in place, implementation of fresh and transitional water ecosystem restoration is lagging behind. Reasons for this lie among others in a lack of knowledge, awareness and participation of local people and business actors. The overall aim of DANUBE4all is the development of a comprehensive Restoration Action Plan for the Danube river basin lighthouse developed in an unprecedented co-creation process with stakeholders, integrating citizens' interests to support the Mission "Restore our ocean and waters by 2030". Based on solid scientific knowledge and new findings, the Action Plan will promote the improvement of ecological status, biodiversity and ecosystem connectivity. The development and implementation of innovative "Win-Win Nature Based Solutions" will simultaneously lead to an enhanced free-flowing status of rivers and floodplains, flood and drought risk reduction and enhancement of sediment and biota continuity. The aim is to adapt to climate change as well as to improve the endangered biodiversity of ecosystems. This will be reached by identifying, processing and upscaling effective and economically profitable restoration measures. DANUBE4all will implement innovative demonstration activities at three sites in the Upper, Middle Danube and the Danube Delta. DANUBE4all will link ecological and economic benefits providing tailored business cases for SMEs, and will deliver innovative tools to accelerate citizens' and stakeholders' engagement. DANUBE4all will provide GIS and Citizen Science tools for upscaling these restoration actions via ten Synergy Sites to the Danube Basin and will also transfer the outcomes to five Associated Regions by concrete steps towards the development of Replication Roadmaps for restoration action.	
Contact person in ISMAR: c.ferrarin@ismar.cnr.it	
Partnership: 1. Universitaet fuer Bodenkultur Wien (Austria) 2. Zentrum fur Soziale Innovation GmbH (Austria) 3. PULSAQUA (The Netherlands) 4. Institutul National de Cercetare-Dezvoltare Pentru Geologie Marina (Romania)	

5. Odessa State Environmental University (Ukraine)
6. Ecologic Institut gemeinnuetzige GmbH (Germany)
7. Institute for Multidisciplinary Research - University of Belgrade (Serbia)
8. Global Water Partnership Central and Eastern Europe (Slovakia)
9. Forschungsverbund Berlin e.V. / Leibn. Instit. of Freshw. Ecol. Inl. Fish. (Germany)
10. Consiglio Nazionale delle Ricerche (Italy)
11. Ruder Boskovic Institute (Croatia)
12. University College Cork - National University of Ireland (Ireland)
13. Institute of Biodiversity and Ecosystem Research (Bulgaria)
14. Vyskumny Ustav Vodneho Hospodarstva (Slovakia)
15. Stichting Deltares (The Netherlands)
16. Institutul National de Cercetare-Dezvoltare Delta Dunarii (Romania)
17. The University of Stirling (United Kingdom)
18. Univerza v Ljubljani (Slovenia)
19. Danube River Network of Protected Areas (Austria)
20. International Commission for the Protection of the Danube River (Austria)
21. WWF for Nature Hungary Foundation (Hungary)
22. World Fish Migration Foundation (The Netherlands)
23. Via Donau Osterreichische Wasserstrassen Gesellschaft MBH (Austria)
24. Budapest University of Technology and Economics (Hungary)
25. Asociatia WWF Romania (Romania)
26. Plymouth Marine Laboratory Limited (United Kingdom)
27. Civitta Strategy & Consulting SA (Romania)

Programme: HORIZON-INFRA-2022-DEV-01	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Developing a Research Infrastructure Concept to Support European Hydrography**	
Acronym: EUROGO-SHIP	
Role in the project: Partner	
Duration: 01/12/2022 – 01/12/2025	
Total budget: € 2.998.546	
ISMAR budget: € 196.763	
Web site: n.a.	
Key words: Ship observations, hydrography data, end-users, best-practice, ocean demonstration ,access, training, co-design RI, landscape	

Summary:

Observations from ships, and in particular water column measurements, remain the backbone of much Oceanographic Science, including fisheries, regional oceanography, and global climate science. Every coastal country in Europe has a programme of such observations that feeds data into evaluations in support of the Marine Strategy Framework Directive with these programmes being organised into both regional clusters and serving as contributions to wider international networks. In 2019, as part of the OceanOBS conference, networks identified gaps in their requirements for support and here we propose a programme to address these requirements within the context of the European RI landscape. The proposed new services and access opportunities based on the network needs presented at OceanOBS are:
• shared facilities such as training, best practices, access to capability and access to equipment through a European Marine
Equipment Pool (EMEP)
• data curation to ensure fit for purpose data systems and metadata for both real-time and delayed mode quality-controlled
data
• secondary quality control to increase consistency and add uncertainty estimates to observations.

These will be refined by broad consultation with data originators, governments, funders and end-users. In addition, pilot activities will both provide immediate support to the networks and help to refine a statement of requirements. These requirements will be compared to the set of services already available within the European RI Landscape and on the basis of this a new structure for supporting European Hydrography proposed. Possible models range from complete service delivery within existing RIs and the establishment of no new structures through to the creation of an RI with a set of services unavailable elsewhere.

Contact person in ISMAR: katrin.schroeder@ismar.cnr.it

Partnership:

1. Norce Norwegian Research Centre (Norce) – (Norway)
2. Plymouth Marine Laboratory (Pml) – (United Kingdom)
3. Consiglio Nazionale delle Ricerche (Cnr) – (Italy)
4. Institut Francais de Recherche pour L'exploitation de la Mer (Ifremer) – (France)
5. Marine Institute (Mi) – (Ireland)
6. National Oceanography Centre (Noc) – (United Kingdom)
7. Met Office (Ukmo) – (United Kingdom)
8. Helmholtz-Zentrum fur Ozeanforschung Kiel (Geomar) – (Germany)
9. Seascape Belgium (Ssbe) – (Belgium)
10. World Meteorological Organization (Wmo) – (Switzerland)
11. Integrated Carbon Observation System European
12. Research Infrastructure Consortium (Icoe-Eric) – (Finland)
13. Universitetet I Bergen(Uib) – (Norway)
14. Agencia Estatal Consejo Superior de Investigaciones Cientificas (Csic) – (Spain)
15. Institutul National de Cercetare-Dezvoltare Pentru Geologie si Geoecologie Marina-Geoecomar (Romania)

Programme: HORIZON-INFRA-2021-DEV-02-02	
CNR Strategic Area: AP3 RISKS	
Project title: Implemetantion Phase of DANUBIUS-RI	
Acronym: DANUBIUS-IP	
Role in the project: Partner	
Duration: 01/10/2022 – 30/09/2025	
Total budget: € 1. 302.655	
ISMAR budget: € 56.250	
Web site: n.a.	
Key words: anthropogenic pressures, climate change, economic impact	
Summary: DANUBIUS-IP is a 36-month Coordination and Support Action to support the ongoing development of DANUBIUS-RI – an environmental research infrastructure linking rivers and seas – as it proceeds towards its Operational Phase. The project proposes 7 work packages, in two parallel workstreams, that together will: • deliver a new governance structure for the RI as it transitions to DANUBIUS ERIC; • enhance the ICT potential of the RI to enable virtual delivery of key services; • implement the Science and Innovation Agenda supported by agile and quality assured scientific services; • demonstrate the value of the RI through examples of the unique services that the RI can offer to end-users across Europe and internationally; • expand the DANUBIUS-RI community and enhance its standing in the wider European and International environmental RI landscape; and • ensure that the potential of DANUBIUS-RI to have significant social and economic impact is widely communicated. DANUBIUS-IP is coordinated by GeoEcoMar (Romania) and brings together 25 experienced partners from 14 countries from across Europe in a consortium with complimentary areas of multi-disciplinary expertise across the freshwater and marine research fields. The project specifically seeks to address recommendations from the recent ESFRI and High-Level Expert Group reports (on DANUBIUS-RI) and make a significant contribution to the expected outcomes and wider impacts of the Horizon Europe Programme. As such the project considers the importance of sustainability of financial commitments, the need to test the funding model and to enhance the visibility of the RI. DANUBIUS-IP will further demonstrate the efficacy of an integrated and interdisciplinary approach embracing a 'river-sea continuum' perspective to fill current gaps in the Research and Innovation landscape to address key societal challenges in these environments impacted by anthropogenic pressures and climate change.	
Contact person in ISMAR: francesca.depascalis@ve.ismar.cnr.it	

Partnership:

1. Institutul National de Cercetare-Dezvoltare Pentru Geologie si Geoecologie Marina-Geoecomar (Geoecomar) - (Romania)
2. Institutul National de Cercertare Dezvoltare Pentru Stiinte Biologice ra - (INCDSB), (Romania)
3. Helmholtz-Zentrum Hereon Gmbh (Hereon) - (Germany)
4. Odessa State Environmental University (Osenu) – (Ukraine)
5. Ustav Vyzkumu Globalni Zmeny Av Cr Vvi (UVGZ) - (Czech Republic)
6. Stichting Deltares (Deltares) - (Netherlands)
7. University College Cork - National University of Ireland, Cork (UCC) - (Ireland)
8. Universitat Politecnica de Catalunya (UPC) - (Spain)
9. Universidad de Sevilla (USE) – (Spain)
10. Autoridad Portuaria de Sevilla (APS) - (Spain)
11. Jihoceska Univerzita v Ceskych Budejovicich (JU) - (Czech Republic)
12. Consiglio Nazionale Delle Ricerche (CNR) - (Italy)
13. CORILA - Consorzio Per Il Coordinamento delle Ricerche Inerenti al Sistema Lagunare di Venezia (Corila) - (Italy)
14. Bundesanstalt fur Wasserbau (BAW) - (Germany)
15. Fciencias.Id - Associacao Para a Investigacao e Desenvolvimento de Ciencias (Fc.Id), (Portugal)
16. Hellenic Centre for Marine Research (HCMR) - (Greece)
17. Universitatea din Bucuresti (UB) –(Romania)
18. Bulgarian Academy of Sciences (BAS) – (Bulgaria)
19. Technische Universitaet Dresden (TUD) - (Germany)
20. X-Officio Advokat Ab (X-Officio) - (Sweden)

Programme: HORIZON-CL6-2021-BIODIV-01-12	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Improved Science-Based Maritime Spatial Planning to Safeguard and Restore Biodiversity in a coherent European MPA network**	
Acronym: MSP4BIO	
Role in the project: Partner	
Duration: 1/08/2022 – 31/07/2025	
Total budget: € 3.490.501	
ISMAR budget: € 300.875	
Web site: https://msp4bio.eu/	
Key words: biodiversity, MSP, management measures, policy process	
Summary: With an overall aim to support the coherent implementation of the EU (European Union) Biodiversity Strategy (EUBS) 2030, the Convention on Biological Diversity (CBD) post-2020 framework, as well as the EU Green Deal, MSP4BIO develops and demonstrates the ways in which knowledge-based MSP becomes a vehicle and a tool for the protection and recovery of ecosystems. Specifically, MSP4BIO will develop an integrated flexible socio-ecological management to cope with a rapidly changing environment for coastal, offshore, and deep-sea ecosystems and validate its concrete applicability in 6 test sites in 5 European Sea Basins. The management relies on improved systemic biodiversity prioritization criteria for MPAs and EBSAs, based on the best available scientific knowledge on biodiversity attributes, and linking spatial ecological features (including migratory ones) with socio-economic considerations. MSP4BIO uses a participatory approach to co-develop ecosystem services trade-off scenarios to prioritize the areas and assess the suitability of spatial and strategic management measures from the ecological and socio-economic perspectives. The approach integrates the criteria and objectives of relevant maritime and biodiversity policies as well as the EUBS 2030 to ensure coherent policy implementation. As such, the project will develop and improve approaches, methods, and tools to feed scientific knowledge, making it of direct use to planners and MPA managers, while producing site-specific results informing site-specific, and broader policy processes and decisions. The project builds on and integrate existing knowledge and results from multiple origins, and ensures effective collaboration with relevant projects and initiatives to fill present gaps on marine biodiversity, speeding up the scientific brake while paving pave the way for effective biodiversity management.	
Contact person in ISMAR: lucia.bongiorni@ismar.cnr.it	
Partnership: 1. S.Pro - Sustainable Projects Gmbh (Germany)	

2. Centre D'Etudes et D'Expertise sur les Risques L'environnement La Mobilite et L'Amenagement (France)
3. Center for Coastal and Marine Studies (Ccms) (Bulgaria)
4. Uniwersytet Morski w Gdyni (Poland)
5. Universidad de Cadiz (Spain)
6. Universite de Nantes (France)
7. Tartu Ulikool (Estonia)
8. Fondazione WWF Mediterranean (Italy)
9. WWF European Policy Office (Belgium)
10. Public Institution Coastal Research and Planning Institute (lithuania)
11. The Baltic Marine Environment Protection Commission (Finland)
12. Consiglio Nazionale delle Ricerche (Italy)
13. Vlaams Instituut Voor de Zee (Belgium)
14. Suomen Ymparistokeskus (Finland)
15. Universidade dos Acores (Portugal)
16. Institutul National de Cercetare-Dezvoltare Marina Grigore Antipa (Romania)
17. Priority Actions Programme Regional Activity Centre (Croatia)
18. Seascape Consultants Ltd (United Kingdom)

Programme: HORIZON-MISS-2021-OCEAN-01	PREP4BLUE METHODS AND TOOLS FOR MISSION OCEAN & WATERS
CNR Strategic Area: AP2 RESOURCES	
Project title: **Preparing the Research & Innovation Core for Mission Ocean, Seas & Waters**	
Acronym: PREP4BLUE	
Role in the project: Partner	
Duration: 01/06/2022 - 31/05/2025	
Total budget: € 4.997.690	
ISMAR budget: € 326.738	
Web site: n.a.	
Key words: Mission Oceans, Research and Infrastructure implementation, Light House Projects, public engagement, co-design and co-implementation	
Summary: Mission Ocean, seas and water aims at restoring the health of our ocean and waters by 2030, as a major contributor to the European Green Deal and the Sustainable Development Goals. Research and innovation will be a key component of the Mission, which will link initiatives across disciplines, mobilise policymakers, stakeholders and citizens, and leverage public and private investments. PREP4BLUE overarching objective is to facilitate a successful first phase (2022-2025) of the Mission, by developing the co-creation and co-implementation R&I modalities required to achieve the Mission objectives and preparing the ground for inspiring and engaging citizens and stakeholders. The project is designed to deliver a series of tools, guidelines, methodologies and recommendations tested through pilots, which will interlink, leverage and optimise activities among the projects funded under the Mission. Our systemic approach will foster cohesion and connectivity between knowledge and technology, funding, regulation, education and skills, social structures and co-creation with R&I actors, citizens and stakeholders. PREP4BLUE multidisciplinary and multi-actor consortium is actively engaged in basin-based strategies and related R&I activities, with strong experience in co-developing business models and recommendations for policy-makers, expertise in social sciences related to participative democracy and citizen engagement and excellent track-record in methodologies for knowledge management and transfer, as well as in stakeholder engagement. PREP4BLUE will also carry out strategic actions to assure the alignment of our CSA with the evolution of the Mission components, including the Mission Core Network, other contributors to the Mission and other Missions. Our project will contribute to preparedness and engagement of all relevant stakeholders to empower them to play an active role in the Mission.	
Contact person in ISMAR: francesco.falcieri@ve.ismar.cnr.it	
Partnership: 1. IFREMER (IFR) (France) 2. ERINN Innovation Ltd (ERINN) (Ireland) 3. Joint Programming Initiative Healthy and Productive Seas and Oceans (JPIO) (Belgium)	

4. German Marine Research Consortium (KDM) (Germany)
5. Flanders Marine Institute (VLIZ) (Belgium)
6. Blue Cluster (VLIZ-BC) (Belgium)
7. Fraunhofer Institute for Computer Graphics Research IGD (FHG) (Germany)
8. Conference of Peripheral Maritime Regions (CPMR) (France)
9. University of Southern Denmark (SDU) (Denmark)
10. Centro Tecnológico del Mar (CETMAR) (Spain)
11. Nordland Research Institute (NRI) (Norway)
12. Institut de Ciències del Mar (CSIC) (Spain)
13. University College Cork - National University of Ireland, Cork (UCC) (Ireland)
14. EuroMarine Association (EuroMarine) (France)
15. National Research Council (CNR) (Italy)
16. S.Pro - Sustainable Projects GmbH (S.Pro) (Germany)
17. Galway Atlantic Aquaria (GAA) (Ireland)

Programme: HORIZON-CL4-2021-SPACE-01	
CNR Strategic Area: AP 1 CLIMATE	
Project title: **Arctic Cross-Copernicus forecast products for sea Ice and iceBERGs**	
Acronym: ACCIBERG	
Role in the project: Partner	
Duration: 01/01/2023 – 31/12/2026	
Total budget: € 2.999.315	
ISMAR budget: € 90.000	
Web site: n.a.	
Key words: Arctic, Copernicus Services, security risks	
Summary: Sea ice and icebergs are a major security risk for navigation and fisheries in Arctic waters. Both will remain a significant threat even in a warmer Arctic, where traffic is expected to increase. Sea Ice Services are needed more and more to support less experienced captains with automated high quality forecasts and new information about icebergs that are not available today. To monitor and forecast sea ice types and icebergs ahead of time, adequate forecasts of sea ice, ocean, wind, and wave conditions for the whole Arctic are crucial. The Copernicus Marine and Climate Change Services provide such information products. However their uncertainties are not provided in a consistent and user-friendly manner. Reliable uncertainty estimates can however be based on forecast ensembles across the two Copernicus Services. ACCIBERG will improve the quality of sea ice, and ocean products and their uncertainty estimates in both Copernicus Services. It will also extend the coverage of the satellite detection of icebergs and develop a completely new iceberg forecast service. ACCIBERG will build upon state of the art sea ice and ocean models, remote sensing algorithms, data assimilation and cloud computing to offer probabilistic sea ice and iceberg forecasts based on Copernicus data consistently. National or commercial sea ice services are limited to smaller regions and will benefit from the increased accuracy and consistency across the Copernicus products. The new forecasts will be demonstrated in ACCIBERG by European Ice Services and ships of opportunity. The new iceberg forecasts will be automated and validated, and benefit a wide range of user groups navigating in the Arctic, from fisheries to cruise tourism, including Marine Surveillance under the Copernicus Security Service. We will provide prototype products ready to be implemented in the Copernicus services and accessible from a single entry point: its inherent cloud computing solution.	
Contact person in ISMAR: andrea.storto@cnr.it	
Partnership: 1. Stiftelsen Nansen Senter For Miljoog Fjernmaling (NERSC), (Norway) 2. Meteorologisk Institutt (METNO), (Norway) 3. Mercator Ocean (MOI), (France) 4. European Centre For Medium-Range Weather Forecasts (ECMWF) (United Kingdom)	

5. Consiglio Nazionale Delle Ricerche (CNR), (Italy)
6. Itunova Teknoloji Anonim Sirketi (ITUNOVA), (Turkey)
7. Danmarks Meteorologiske Institut (DMI), (Denmark)

Programme: HORIZON-MSCA-2022-CITIZENS-01 action	
CNR Strategic Area: AP2 RESOURCES	
Project title: **A touch of Blue in the EU Research Night for a more Sustainable Use of the Ocean**	
Acronym: BLUE-NIGHTS	
Role in the project: Lead Partner	
Duration: 01/03/2022 - 29/02/2024	
Total budget: € 622.835,00	
ISMAR budget: € 109.850,00	
Web site:. https://bluenights.eu/	
Key words: Researchers Nights, ocean science	
Summary: The main objective of the proposal is to bring the many facets and faces of people working in ocean science & research to the general public of Europe by organising a series of interconnected EU Blue Researchers Nights (BlueNIGHTs) to demonstrate that the ocean can be a source of inspiration, an object of interest/study, and a field of investigation for people with very different backgrounds, hobbies and passions, including science, history, technology, sociology, pedagogy, economics, art, design, etc. By doing so, this collective project will: - Bring people to key objectives, principles and priorities of the European Green Deal that relate to the ocean: delivering a healthy and resilient ocean that can support sustainable Blue Growth and respond to Societal Priorities of Europe. - Contribute to make European citizens Ocean Literate in line with the objectives and priorities of EU4Ocean Coalition, an initiative supported by the European Commission's Directorate-General for Maritime Affairs and Fisheries (DG MARE).	
Contact person in ISMAR: francesca.alvisi@bo.ismar.cnr.it	
Partnership: 1. Consiglio Nazionale Delle Ricerche (Italy) 2. Acteon Sarl (France) 3. Suomen Ymparistokeskus (Finland) 4. Institutul National de Cercetare-Dezvoltare Delta Dunarii (Romania) 5. Associacao Portuguesa Educacao Ambiental (Portugal) 6. Universidade de Aveiro (Portugal) 7. Universita ta Malta (Malta) 8. HOLO3 (France) 9. Societe D'exploitation Du Centre National De La Mer (France) 10. Distretto veneziano della ricerca e dell'innovazione (Italy)	

Programme: HORIZON-CL6-2021-GOVERNANCE-01	
CNR Strategic Area: AP6 IMPACTS	
Project title: **Coherent and cross-compliant ocean governance for delivering the EU Green Deal for European Seas**	
Acronym: CROSSGOV	
Role in the project: Partner	
Duration: 01/09/2022 - 31/08/2025	
Total budget: € 2.999.997,50	
ISMAR budget: € 236.783,75	
Web site: https://crossgov.eu/	
Key words: Coherence, cross-compliance, implementation, environmental policy integration, coordination, ocean governance, marine ecosystems	
Summary: The three-year CrossGov R&I project aims to enhance knowledge on how coherence and cross-compliance of marine related policies and legislation affect the ability to realise the EU Green Deals goals for the protection of marine ecosystems and biodiversity, and to co-create proposals and roadmaps together with the CrossGov Stakeholder Forum for more consistent and integrated approaches towards this end. The analyses and proposals will be conducted in the context of the multilevel governance system encompassing various sectors, composed by global and regional international frameworks, the EU and the European coastal states with their different national arrangements. The project addresses governance in three European marine regions: the North Sea, the Baltic Sea, and the Mediterranean Sea. The core strength of CrossGov is the close collaboration with the policymaking community and the production of co-created knowledge and solutions through innovative, web-based and fit-for purpose roadmaps and methodological guidelines. This will enable policymakers to effectively foster environmentally sustainable law and governance that is fit-for-purpose for delivering the societal transformation called for in the GD. Through the development of analytical and methodological guidelines for the studying of coherence and cross-compliance, CrossGov will develop a comprehensive and innovative research model. This model is expected project will enhance knowledge on, and reinforce, cross-compliance, coherence and innovation in EU marine governance to strengthen the resilience of European seas and facilitate the implementation of EUs Green Deal. The research brings forth innovative methodologies to systematically identify, analyse and remediate weaknesses, gaps, and inconsistencies in law, policies and decision- and policymaking processes to halt the degradation of European seas and facilitate cross-compliance within and across biodiversity, pollution and climate related laws and policies.	
Contact person in ISMAR: andrea.barbanti@ve.ismar.cnr.it	
Partnership: 1. Norsk Institut for Vannforskning (Norway) 2. 2S.PRO - Sustainable Projects GMBH (Germany)	

3. ITA-Suomen Yliopisto (Finland)
4. Universiteit Utrecht (The Netherlands)
5. Acteon Sarl (France)
6. Institute for Advanced Sustainability Studies Ev (Germany)
7. Consiglio Nazionale Delle Ricerche (Italy)

5. HORIZON 2020

5.1 THE PROGRAMME

Horizon 2020 unified in a single financial tool three predecessors (2007-2013) aimed at supporting research, innovation and technological development: the Seventh Framework Programme (7FP), Competitiveness and Innovation Framework Programme (CIP) and the European Institute of Innovation and Technology (EIT).

Respect to the previous Framework Programme, in Horizon the funding schemes have been substituted by the so called “actions”.

The Programme H2020 (Fig.1) is structured in three pillars: **Excellent Science, Industrial Leadership and Societal Challenges** integrated with 5 horizontal initiatives, which are Euratom, Joint Research Center, Science with and for Society, Spreading Excellence and Widening Participation and the European Institute of Innovation and Technology (EIT).

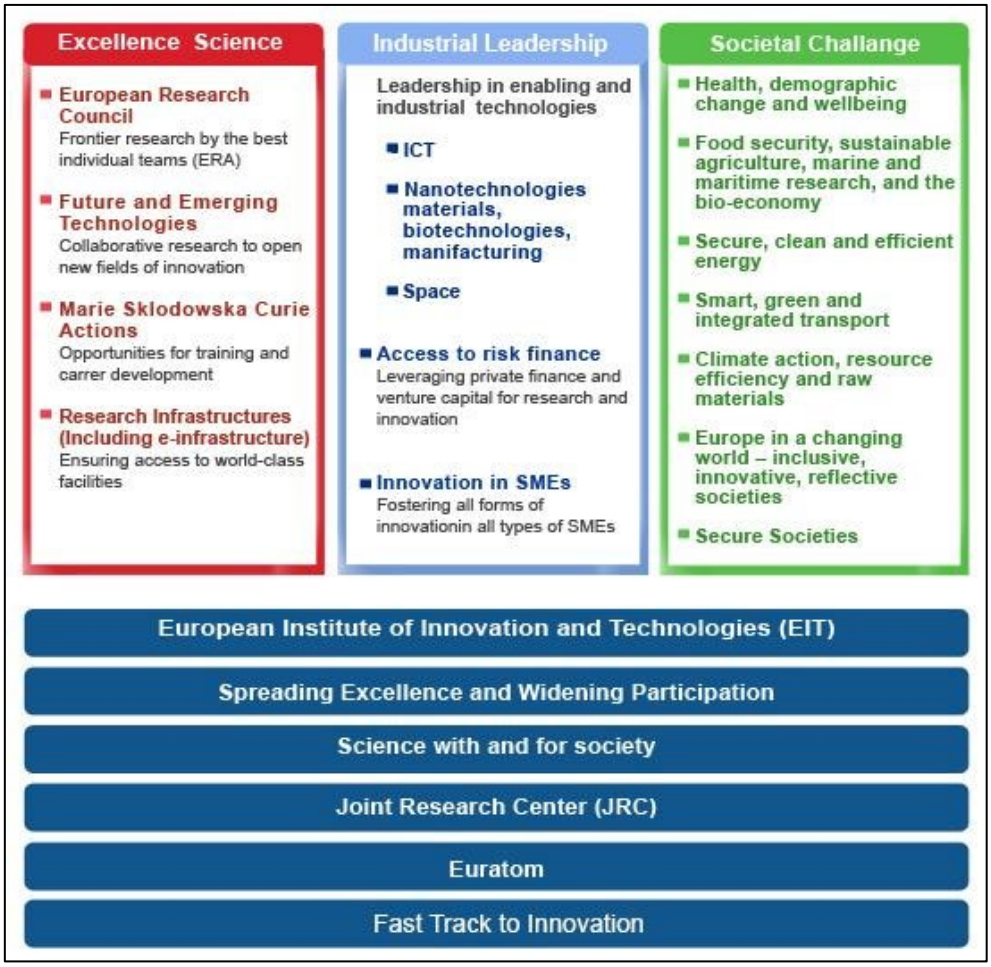


Fig. 12: Structure of Horizon 2020 Programme

The total budget was nearly € 80 billion and in constant prices € 70.2 billion for 7 years. The budget repartition of each programme is illustrated in Fig. 13

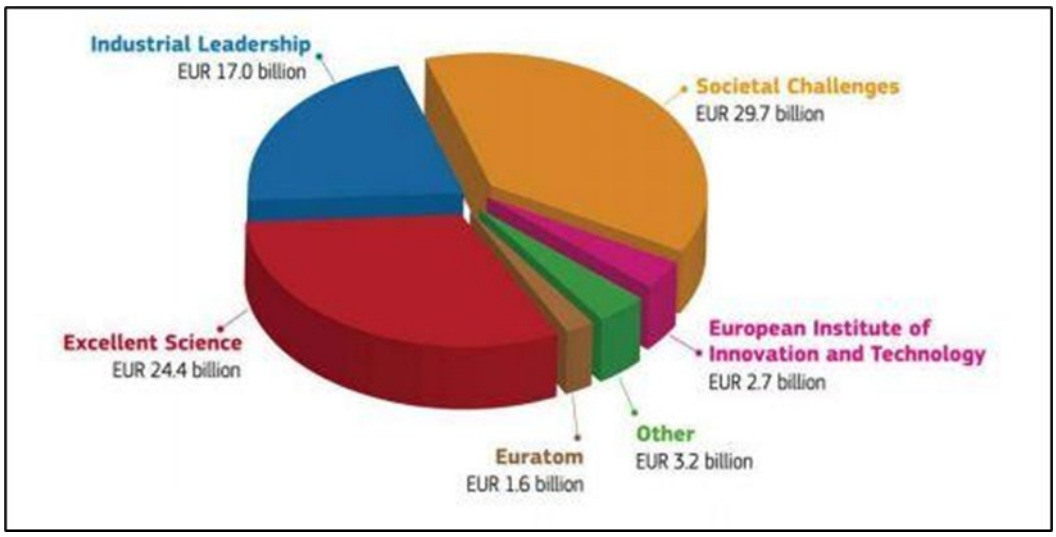


Fig. 13: Budget for each programme

According to H2020 Dashboard Portal[2], a total of 261.470 eligible proposals were submitted by Member States under Horizon 2020 calls out of 883.564 applications with a net contribution of 61,7 billions. The overall success rate of eligible full proposals is 11.97%.

For Italy a total of 62.228 eligible proposals were submitted out of 109.618 applications receiving an EU net contribution of € 5.7 billions with a success rate of 11,75%. H2020 Country Profile - Key Figures - Italy | Foglio - Qlik Sense (europa.eu) (30th December 2022)

CNR is the Italian institution with the high amount of participation (776) and funds received with a net EU contribution of 312.39 millions.

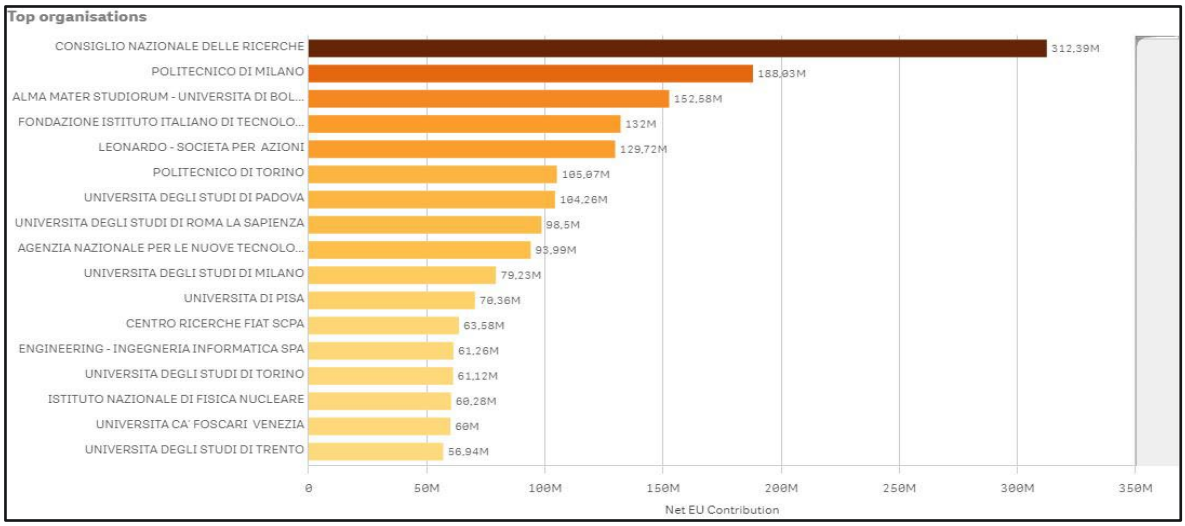


Fig. 14: Funds received by Italian Institutions
https://webgate.ec.europa.eu/dashboard/sense/app/a976d168-2023-41d8-acec-e77640154726/sheet/0c8af38b-b73c-4da2-ba41-73ea34ab7ac4/state/analysis

5.2 CNR-ISMAR IN HORIZON 2020

CNR-ISMAR has achieved remarkable results in Horizon 2020 having participated in 2022 to 22 projects financed by the Programme for a total amount of € 149.440.222,00 receiving € 5.491.768,00.

The institute has taken part in 16 projects under the Research and Innovation Actions Funding Scheme, in 1 project under the Coordination and Support Action, in 5 under under Innovative Actions.

In the project MAELSTROM the institute plays the role of Lead Partner and recently the first reporting period has been closed and a Review Meeting of the EU Commission has taken place resulting in positive comments about the technical activities performed by the project.

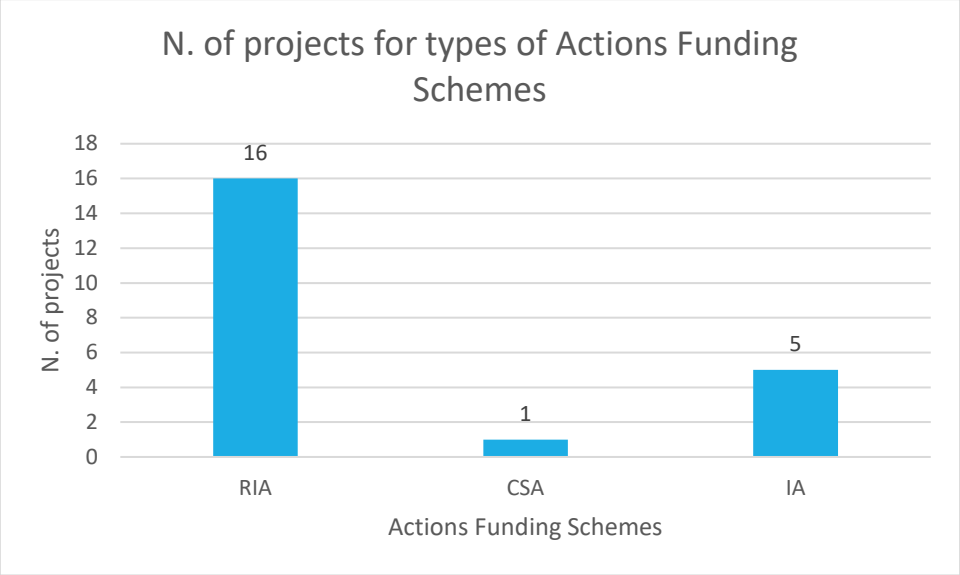


Fig. 15: N. of projects submitted for types of Actions Funding Schemes

List of ISMAR projects funded under Horizon 2020

Programme: H2020--FNR-2020 Innovative Actions	MAELSTROM
CNR Strategic Area: AP 2 RESOURCES	
Project title: **Smart technology for Marine Litter SusTainable RemOval and Management**	
Acronym: MAELSTROM	
Role in the project: Lead Partner	
Duration: 01/01/2021-31/12/2024	
Total budget: € 6.809.461	
ISMAR budget: € 1.003.750	
Web site: https://www.maelstrom-h2020.eu	
Key words: marine litter, recycling, clean-up campaigns, automated solutions	
Summary: MAELSTROM will strive to provide answers and technological solutions to the complex question of whether floating river litter should be intercepted, and legacy ML removed, considering the balance between the positive effect of avoiding microplastics degradation into micro/nano plastics and the potential negative effects of the own removal process. Indeed, the type of ecosystem, the efficiency and selectivity of the removal technologies and the frequency of the removal are key variables to this decision making. Recycling the collected litter into higher performance certified "marine-litter-origin" materials and the assessment of the economic and societal impact of these cleaning activities will also be considered. The project will implement a wide array of complementary activities: from the designing and testing of innovative removal technologies for ML in different coastal ecosystems – the Venice lagoon/coast and the estuary of the Douro river in Porto - to the assessment of the effectiveness of removal and the environmental impact of such cleaning operations, to the adoption and adaptation of full-fledged circular economy solutions to effectively connect economic and environmental gains.	
Contact person in ISMAR: fantina.madricardo@ismar.cnr.it	
Partnership: 1. Consiglio Nazionale delle Ricerche (Italy) 2. Stitching Deltares (Netherlands) 3. Universita Ta Malta (Malta) 4. International Sustainable Development Initiatives (Malta) 5. Gees Recyclying Srl (Italy) 6. Venice Lagoon Plastic Free (Italy) 7. Centro Internazionale in Monitoraggio Ambientale - Fondazione CIMA (Italy) 8. Fundacion Tecnalia Research and Innovation (Spain)	

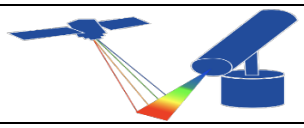
9.	Alpha Consultants ltd (United Kingdom)
10.	CIIMAR (Portugal)
11.	Servizi Tecnici Srl (Italy)
12.	The Great Bubble Barriers (Denmark)
13.	Makeen Power (Netherland)
14.	CNRS (France)

Programme: H2020 RIA - H2020-MG-2018-2019-2020	
CNR Strategic Area: AP 5 TECHNOLOGIES	
Project title: **Development and demonstration of a long-endurance sea surveying autonomous unmanned vehicle with gliding capability powered by hydrogen fuel cell**	
Acronym: ENDURUNS	
Role in the project: Partner	
Duration: 01/11/2018 – 31/10/2022	
Total Budget: € 7.908.265	
ISMAR budget: € 550.875	
Web site: https://enduruns.eu	
Key words: integrated hybrid AUV system, seabed mapping, deep see applications	
Summary: The main ambition of the ENDURUNS project is to develop an integrated hybrid AUV system capable of operating under deep ocean conditions and performing a wide-range of missions, targeting the increase of scientific knowledge as well as industrial capability and performance. Due to its versatile nature, the ENDURUNS system will be suited to perform scientific missions, such as seabed mapping, profiling, geological and geophysical surveys, commercial missions, such as inspection of infrastructure and assets, mineral and seabed mining exploration missions and public authority missions such as surveillance, search and find missions (e.g. aircraft wreckage), equally well. Therefore, the ENDURUNS system will enable for the first time long endurance missions demonstrated up to TRL 5 or above during the project for a wide variety of high impact deep sea applications. The AUV and USV combination are expected to significantly outperform all existing AUV vehicles, in terms of endurance, positioning, survey capability, resolution, sensitivity, etc.	
Contact person in ISMAR: simone.marini@sp.ismar.cnr.it	
Partnership: 1. Altus LSA Commercial and Manufacturing Sa (Greece) 2. Graal Tech Srl (Italy) 3. Compagnie Maritime d'Expertises Sa (France) 4. Engitec Systems International Limited (Cyprus) 5. Space Applications Services Nv (Belgium) 6. On Air S.R.L. (Italy)	

7. Uab Metis Baltic (Lithuania)
8. Klaipedos Valstybinio Juru Uosto Direkcija (Lithuania)
9. Hysytech Srl (Italy)
10. Zarras Dimitrios (Greece)
11. Swiss Approval South East Mediterranean Sea (Sems) Ltd (Cyprus)
12. The University of Birmingham (United Kingdom)
13. Universidad De Castilla - La Mancha (Uclm) (Spain)
14. National Center for Scientific Research Demokritos (Greece)
15. Consiglio Nazionale delle Ricerche (CNR-ISMAR) (Italy)
16. Tuco Yacht Værft Aps (Denmark)

Programme: H2020-SPACE-2018-2020/H2020-SPACE-2019	FORCOAST
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **A new hyperspectral radiometer integrated in automated networks of water and land bidirectional reflectance measurements for satellite validation**	
Acronym: FORCOAST	
Role in the project: Partner	
Duration: 01/11/2019 – 30/04/2022	
Total budget: € 2.288.911	
ISMAR budget: € 81.250	
Web site: https://forcoast.eu/	
Key words: information products and services, advanced modelling	
Summary: The FORCOAST project addresses the topic "DT-SPACE-01-EO-2018-2020 COPERNICUS MARKET UPTAKE" which seeks to foster market development exploiting the value of Copernicus Earth Observation Products. FORCOAST aims to provide information services that offer high resolution water quality and met-ocean indicators in coastal and nearshore areas, to improve operation, planning and management of different marine activities in the sectors of wild fisheries, oyster grounds restoration, and bivalve mariculture. FORCOAST information products and services will be co-designed with stakeholders, thereby ensuring that these products and services are tailored to meet their needs. FORCOAST is developing, testing and demonstrating, in operational mode, novel Copernicus-based downstream information services that will incorporate Copernicus Marine, Land and Climate Services Products, local monitoring data and advanced modelling in the service. The services will integrate Copernicus Earth Observation Products with local models and other diverse data sources (local, regional or global) with ICT (enhancing new frontiers opened by web, and use of cloud) across the different market segments. FORCOAST will provide consistent coastal data products, based on a standardized data processing scheme. FORCOAST is supporting the concept of developing an advanced platform and cloud computing for Copernicus-based downstream services utilizing one of the DIAS systems. The availability and accessibility of data and derived products generated will stimulate their exploitation by a wide range of user communities in the targeted sectors. FORCOAST will provide those services in eight pilot service uptake sites covering five different regional waters (North Sea, Baltic Sea, Mediterranean Sea, Black Sea and the coastal Atlantic Ocean). .	
Contact person in ISMAR: federico.falcini@cnr.it	
Partnership: 1. Stichting Deltares (Netherlands)	

2. Eurogoos (Spain)
3. Instituto Superior Tecnico (Portugal)
4. Exporsado - Comercio e Industria de Produtos do Mar Sa (Portugal)
5. Fundacion Azti - Azti Fundazioa (Spain)
6. Marine Instruments Sa (Spain)
7. Sofia University St Kliment Ohridski (Bulgaria)
8. Terrasigna Srl (Romania)
9. Marine Institute (Ireland)
10. Cuan Beo Environmental Company LBG (Ireland)
11. Universite de Liege (Belgium)
12. Institutul National de Cercetare-Dezvoltare Marina Grigore Antipa (Romania)
13. Jailoo Srl (Romania)
14. Institut Royal des Sciences Naturelles de Belgique (Belgium)
15. Eigen Vermogen Van Het Instituut Voor Landbouw- En Visserijonderzoek (Belgium)
16. Brevisco (Belgium)
17. Danmarks Meteorologiske Institut (Denmark)
18. Aarhus Universitet (Denmark)
19. Oyster Boat Aps (Denmark)
20. Consiglio Nazionale delle Ricerche (Italy)
21. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (Italy)

Programme: H2020-SC5-2016-2017/H2020-SC5-2017	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **A new hyperspectral radiometer integrated in automated networks of water and land bidirectional reflectance measurements for satellite validation**	
Acronym: HyperNets	
Role in the project: Partner and leader of the CNR Team	
Duration: 01/02/2018 – 31/01/2022	
Total budget: € 4.500.000	
ISMAR budget: € 346.735	
Web site: http://hypernets.eu/	
Key words: hyperspectral radiometer, pointing system, prototype network, surface reflectance	
Summary: The objective of the HYPERNETS project is to develop a new lower cost hyperspectral radiometer and associated pointing system and embedded calibration device for automated measurement of water and land bidirectional reflectance and, subsequently, for validation of all optical bands on all satellite missions. The instrument will be tested in a prototype network covering a wide range of water and land types and operating conditions. Quality controlled data with associated uncertainty estimates will be provided automatically for the validation of all optical satellite missions. Preparations will be made a) for the new instrument design (and associated calibration service) to be commercialized with an expected lifetime of at least 10 years and b) for the networks to be further expanded to fill the very important gap in the current Sentinel-3&2 Validation plans and the in situ component of the Copernicus programme and become the main source of surface reflectance validation data for all spectral bands of all optical missions for at least the next 10 years.	
Contact person in ISMAR: vittorioernesto.brando@cnr.it	
Partnership: 1. Institut Royal des Sciences Naturelles de Belgique (Belgium) 2. Tartu Ulikool (Estonia) 3. Sorbonne Université (France) 4. Consiglio Nazionale delle Ricerche (Italy) 5. NPL Management Limited (United Kingdom) 6. Helmholtz Zentrum Potsdam Deutschesgeoforschungszentrum GFZ (Germany) 7. Consejo Nacional de Investigaciones Cientificas y Tecnicas (CONICET) (Argentina)	

Programme: H2020-INFRAIA-2018-2020	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Joint European Research Infrastructure of Coastal Observatories: Science, Service, Sustainability**	
Acronym: JERICO S3	
Role in the project: Partner	
Duration: 01/02/2020 – 31/01/2024	
Total budget: € 9.999.933	
ISMAR budget: € 471.115	
Web site: https://www.jerico-ri.eu	
Key words: coastal ecosystem, e-infrastructure, monitoring strategies	
Summary: JERICO-RI: Joint European Research Infrastructure of Coastal Observatories – a system of systems strengthening the European network of coastal observatories providing a powerful and structured European Research Infrastructure (RI) dedicated to observe and monitor the complex marine coastal seas and to: (i) provide services for the delivery of high quality environmental data, (ii) access to solutions and facilities as services for researchers and users, (iii) create product prototypes for EU marine core services and users, (iv) support excellence in marine coastal research to better answer societal and policy needs. JERICO-S3 will provide a state-of-the-art, fit-for-purpose and visionary observational RI, expertise and high quality data on European coastal and shelf seas, supporting world-class research, high-impact innovation and a window of European excellence worldwide. It will significantly enhance the current value and relevance of the JERICO-RI, through the implementation of the science and innovation strategy elaborated as part of the JERICO-NEXT project. JERICO-S3 is mainly targeting a more science integrative approach to better observe the coastal ecosystem, raising up the scientific excellence, with consideration of the regional and local ecosystems; the preliminary development of an e-infrastructure in support to scientists and users by offering access to dedicated services; progress on the design of the RI and its strategy for sustainability. Major user-driven improvements will be realised in terms of observing the complexity of coastal seas and continuous observation of the biology, access to facilities, data and services, best practices and performance indicators, innovative monitoring strategies, cooperation with other European RIs (EuroARGO, EMSO, AQUACOSM, DANUBIUS, ICOS, EMBRC, LIFEWATCH) and international scientific communities, industry and other stakeholders, and aligning strategy with COPERNICUS/CMEMS, EMODNET and GEO/GEOSS.	
Contact person in ISMAR: annalisa.griffa@sp.ismar.cnr.it	

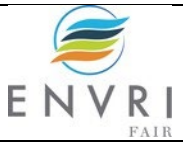
Partnership:

1. Institut Francais de Recherche pour L'exploitation de la Mer (France)
2. Acri-St Sas (France)
3. Alfred-Wegener-Institut Helmholtz-Zentrum fur Polar- und Meeresforschung (Germany)
4. Fundacion Azti - Azti Fundazioa (Spain)
5. Blue Lobster It Limited (United Kingdom)
6. The Secretary of State for Environment, Food and Rural Affairs (United Kingdom)
7. Consiglio Nazionale delle Ricerche (Italy)
8. Centre National de la Recherche Scientifique - CNRS (France)
9. Covartec As (Norway)
10. Stichting Deltares (Netherlands)
11. Danmarks Meteorologiske Institut (Denmark)
12. ETT SPA (Italy)
13. EUROGOOS (Belgium)
14. Havstovan (Faroe Islands)
15. Ilmatieteen Laitos (Finland)
16. Hellenic Centre for Marine Research (Greece)
17. Helmholtz-Zentrum Geesthacht Zentrum fur Material- und Kustenforschung GMBH (Germany)
18. IEEE France Section (France)
19. Instituto Hidrografico (Portugal)
20. Havforsknings Instituttet (Norway)
21. Leibniz-Institut fur Ostseeforschung Warnemunde Stiftung (Germany)
22. Ruder Boskovic Institute (Croatia)
23. Marine Institute (Ireland)
24. Mariene Informatie Service Maris BV (Netherlands)
25. Norsk Institutt for Vannforskning (Norway)
26. Norce Norwegian Research Centre AS (Norway)
27. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (Italy)
28. Puertos del Estado (Spain)
29. Consorcio Para el Diseno, Construccion, Equipamiento y Explotacion de la Plataforma Oceanica de Canarias (Spain)
30. Institut Royal des Sciences Naturelles de Belgique (Belgium)
31. Ministerie Van Infrastructuur en Waterstaat (Netherlands)
32. Sveriges Meteorologiska och Hydrologiska Institut (Sweden)
33. Socib - Consorcio Para el Diseno, Construccion, Equipamiento Y Explotacion Del Sistema De Observacion Costero de las Illes Balears (Spain)
34. Suomen Ymparistokeskus (Finland)
35. Tallinna Tehnikaulikool (EE)
36. United Nations Educational, Scientific and Cultural Organization -UNESCO
37. (France)
38. Universitat Politecnica de Catalunya (Spain)
39. Vlaams Instituut Voor de Zee VZW (Spain)
40. 52°North Initiative for Geospatial Open Source Software GmbH (Germany)

Programme: H2020-INFRADEV-2018-2020	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Joint European Research Infrastructure of Coastal Observatories: Science, Service, Sustainability**	
Acronym: JERICO DS	
Role in the project: Partner	
Duration: 01/10/2020 - 30/09/2023	
Total budget: € 2.555.531	
ISMAR budget: € 145.500	
Web site: https://cordis.europa.eu/project/id/951799/it	
Key words: Pan-European Research Infrastructure, ESFRI roadmap	
Summary: JERICO projects have consisted, since 2007, in continuously improving observations in European coastal marine areas with the objective to build a pan-European Research Infrastructure (RI). JERICO projects need to progress towards a structured operational European RI supported by the EU Member States (and associated members) and the EC, and endorsed as a high-value RI at EU level as part of the ESFRI roadmap. JERICO-DS will thus analyze the needs and propose a design for a sustainable observational European RI, conceptually designing the entire picture of the JERICO RI, covering both hardware and software components.	
Contact person in ISMAR: annalisa.griffa@sp.ismar.cnr.it	
Partnership: 1. Institut Francais de Recherche pour l'Exploitation de la Mer (France) 2. Consiglio Nazionale delle Ricerche (Italy) 3. Stichting Deltares (Netherlands) 4. Eurogoos (Belgium) 5. Hellenic Centre for Marine Research (Greece) 6. Helmholtz-Zentrum Geesthacht Zentrum fur Material- und Kustenforschung Gmbh (Germany) 7. Instituto Hidrografico (Portugal) 8. Havforskningsinstituttet (Norway) 9. Ruder Boskovic Institute (Croatia) 10. Marine Institute (Ireland) 11. Institut Royal des Sciences Naturelles de Belgique (Belgium) 12. Sveriges Meteorologiska och Hydrologiska Institut (Sweden) 13. Socib - Consorcio para el Diseno, Construccion, Equipamiento y Explotacion del Sistema de Observacion Costero de las Illes Balears (Spain) 14. Suomen Ymparistokeskus (Finland) 15. Tallinna Tehnikaulikool (Estonia)	

Programme: H2020-SC5-2018-2019-2020	
CNR Strategic Area: AP 1 CLIMATE	
Project title: **EUROpean quality Controlled Harmonization Assuring Reproducible Monitoring and assessment of plastic pollution**	
Acronym: EUROqCHARM	
Role in the project: Partner	
Duration: 01/11/2020 – 31/10/2023	
Total budget: € 2.045.000	
ISMAR budget: € 119.375	
Web site: https://cordis.europa.eu/project/id/101003805/it	
Key words: plastic pollution, data harmonization, data comparability	
Summary: This project aims to identify, test and optimise monitoring approaches through quality assured and rigorously validated methods based on current state-of-the-art techniques which cover all environmental matrices. In addition, the project will focus on harmonizing and possibly standardising methods and reporting formats to facilitate data comparability and meta-level analysis on regional, national and international scales. With multiple national and international organisations and working groups currently participating in the proposal of harmonisation and standardised for research and monitoring, a coordinated and strategic action to bring these key players together, merge working group ideas and facilitate a framework for harmonised procedures for monitoring and assessment.	
Contact person in ISMAR: stefano.aliani@sp.ismar.cnr.it	
Partnership: 1. Norsk Institutt for Vannforskning (Norway) 2. Consiglio Nazionale delle Ricerche (Italy) 3. Stichting VU (Netherlands) 4. Institut Francais de Recherche pour L'exploitation de la Mer (France) 5. Institutul National de Cercetare-Dezvoltare Marina Grigore Antipa (Romania) 6. Salt Lofoten AS (Norway) 7. Agencia Estatal Consejo Superior de investigaciones Cientificas (Spain) 8. Norsk Institutt for Luftforskning Stiftelse (Norway) 9. Eigen Vermogen Van Het Instituut Voor Landbouw- En Visserijonderzoek (Belgium) 10. Alfred-Wegener-Institut Helmholtz-Zentrum fur Polar- und Meeresforschung (Germany) 11. Aarhus Universitet (Denmark) 12. Chiron As (Norway)	

13. Eidgenoessische Anstalt fuer Wasserversorgung Abwasserreinigung und Gewaesserschutz (Switzerland)
14. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (Italy)
15. Association Francaise de Normalisation (France)

Programme: H2020-INFRAEOSC-2018-2020/H2020-I	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **ENVironmental Research Infrastructures building Fair services Accessible for society, Innovation and Research**	
Acronym: ENVRI-FAIR	
Role in the project: Partner	
Duration: 01/012019 – 31/12/2022	
Total budget: € 18.997.878	
ISMAR budget: € 132.187	
Web site: https://envri.eu/home-envri-fair/	
Key words: thematic data services, ENVRI and ESFRI clusters, European Open Science Cloud (EOSC)	
Summary: ENVRI-FAIR is the connection of the ESFRI Cluster of Environmental Research Infrastructures (ENVRI) to the European Open Science Cloud (EOSC). Participating research infrastructures (RI) of the environmental domain cover the subdomains Atmosphere, Marine, Solid Earth and Biodiversity / Ecosystems and thus the Earth system in its full complexity. The overarching goal is that at the end of the proposed project, all participating RIs have built a set of FAIR data services which enhances the efficiency and productivity of researchers, supports innovation, enables data- and knowledge-based decisions and connects the ENVRI Cluster to the EOSC. This goal is reached by: (1) well defined community policies and standards on all steps of the data life cycle, aligned with the wider European policies, as well as with international developments; (2) each participating RI will have sustainable, transparent and auditable data services, for each step of data life cycle, compliant to the FAIR principles. (3) the focus of the proposed work is put on the implementation of prototypes for testing pre-production services at each RI; the catalogue of prepared services is defined for each RI independently, depending on the maturity of the involved RIs; (4) the complete set of thematic data services and tools provided by the ENVRI cluster is exposed under the EOSC catalogue of services.	
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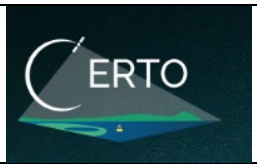
Partnership: 1. Forschungszentrum Julich GMBH (FZJ) (Germany) 2. Centre National de la Recherche Scientifique (CNRS) (France) 3. Integrated Carbon Observation System (ICOS) (Finland) 4. Lunds Universitet (ULUND) (Sweden)	

5. Fondazione Centro Euro-Mediterraneo Sui Cambiamenti Climatici (CMCC) (Italy)
6. Universitetet i Bergen (UIB) (Norway)
7. Euro-Argo - European Research Infrastructure Consortium (EURO-ARGO ERIC) (France)
8. Institut Francais de Recherche pour l'exploitation de la Mer (IFREMER) (France)
9. European Multidisciplinary Seafloorand Water Column Observatory - European Research Infrastructure Consortium (EMSO ERIC) (Italy)
10. E-Science European Infrastructure for Biodiversity and Ecosystem Research (Spain)
11. Lifewatch - European Research Infrastructure Consortium (LIFEWATCH ERIC)
12. Norsk Institutt for Luftforskning Stiftelse (NILU) (Norway)
13. Consiglio Nazionale delle Ricerche (CNR) (Italy)
14. Ilmatieteen Laitos (FMI) (Finland)
15. Helsingin Yliopisto (UHEL) (FI)
16. Istituto Nazionale di Geofisica e Vulcanologia (INGV) (Italy)
17. United Kingdom Research and Innovation – UKRI (United Kingdom)
18. Bureau De Recherches Geologiques et Minieres (BRGM) (France)
19. Koninklijk Nederlands Meteorologisch Instituut (KNMI) (Netherlands)
20. Eiscat Scientific Association (EISCAT) (Sweden)
21. Institutul National de Cercetare-Dezvoltare Pentru Geologie si Geoecologie Marina (GEOECOMAR) (Romania)
22. Institutul National de Cercertare Dezvoltare Pentru Stiinte Biologice Ra (INSB) (Romania)
23. The University of Stirling (USTIR) (United Kingdom)
24. Consiglio per la Ricerca In Agricoltura e l'analisi dell'economia Agraria (CREA) (Italy)
25. Institut National de la Recherche Agronomique (Inra) (France)
26. Sios Svalbard AS(Norway)
27. Universiteit van Amsterdam (UVA) (Netherlands)
28. Technische Informationsbibliothek (TIB)(Germany)
29. Mariene Informatie Service Maris BV (MARIS) (Netherlands)
30. Institut Royal des Sciences Naturelles de Belgique (RBINS) (Belgium)
31. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) (Italy)
32. Agencia Estatal Consejo Superior Deinvestigaciones Cientificas (CSIC) (Spain)
33. Umweltbundesamt Gesellschaft Mit Beschränkter Haftung (EAA) (Austria)
34. Biosense Institute - Research and Development Institute for Information Technologies in Biosystems (Biosense) (SERBIA)
35. Consortium of European Taxonomic Facilities (CETAF)(Belgium)
36. Stichting Naturalis Biodiversity Center (NATURALIS) (Netherlands)
37. Surfsara BV (SURFSARA) (Netherlands)

Programme: H2020-SPACE-2018-2020	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Copernicus Evolution - Research for harmonised and Transitional water Observation**	
Acronym: CERTO	
Role in the project: Partner and leader of the CNR Team	
Duration: 01/01/2020 - 31/12/2022	
Total budget: € 2.843.000	
ISMAR budget: € 350.000	
Web site: https://certo-project.org/	
Key words: water quality, coastal and transitional waters	
Summary: The aims to address this lack of harmonisation by undertaking research and development necessary to produce harmonised water quality data from each service and extend Copernicus to the large number of stakeholders operating in transitional waters. CERTO will focus on methods to classify waters, using satellite observations, together with the most comprehensive existing in situ data sets and additional data gathering within the project. Methods will be improved to remove the atmospheric signal, particularly problematic in near-coastal and transitional waters, as well as to flag waters where the bottom is visible. CERTO will also evaluate optical water quality Indicators, as specified by the broad group of end-users engaged in the project from industry, monitoring agencies and science communities. CERTO will investigate cross-cutting Indicators that may be used across coasts, transitional and inland waters including large rivers (monitored through the Water Framework and Marine Strategy Framework Directives). The project will contribute to DANUBIUS the European research infrastructure in River-Sea Systems, and international communities such as Group on Earth Observation (GEO) AquaWatch and Blue Planet, the Lagoons for Life initiative as well as supporting the United National Sustainable Development Goals.	
Contact person in ISMAR: rosalia.santoleri@ismar.cnr.it	
Partnership: 1. Plymouth Marine Laboratory (United Kingdom) 2. Brockmann Consult GmbH (Germany) 3. Associação para a Investigação e Desenvolvimento de Ciências (Portugal) 4. The University of Stirling (United Kingdom) 5. Institutul National de Cercetare-Dezvoltare Pentru, Geologie si Geoecologie Marina GeoEcoMar (Romania) 6. HYGEOS (France) 7. Odermatt and Brockmann GmbH (Switzerland)	

8.	Consiglio Nazionale delle Ricerche (Italy)
9.	PML Applications Ltd (United Kingdom)
10.	Climate-KIC Holding BV (Netherlands)

Programme: H2020-INFRAEOSC-2018-2020	Reliance
CNR Strategic Area: AP7 DATA	
Project title: **Research Lifecycle Management technologies for Earth Science Communities and Copernicus users in EOSC**	
Acronym: RELIANCE	
Role in the project: Partner	
Duration: 01/01/2021 – 31/12/2022	
Total budget: € 1.810.875	
ISMAR budget: € 189.125	
Web site: https://www.reliance-project.eu	
Key words: EOSC-hub, data cubes access, data management	

Summary:

The overall goal of RELIANCE project is to improve the FAIRness of research at a holistic level in ESOC, not just of the data, methods, code or publications individually, but of the whole research as a single information unit. In order to do that, Reliance proposes a set of complementary services supporting the research lifecycle using Research Objects (RO) as the overarching mechanism that connects the different research related artefacts, extended with data cubes for efficient and scalable structured data access and discovery, as well as rich machine-readable metadata, including metadata extracted from unstructured text, enabling a FAIR access to the underlying research. Accordingly, Reliance project will adapt and integrate into EOSC-hub the following interconnected services: i) RO management and evolution ii) data cubes access, discovery and exploration, and iii) text mining to enrich the RO with extracted metadata in order to make them more machine actionable and enable the creation of added value on top of them. As part of the integration in EOSC, Reliance services will leverage the existing offering in EOSC, and they will be made available via existing user interfaces and python libraries for use in Jupyter notebooks and other environments. In line with the guidelines to integrate new services into ESOC-hub, Reliance services will connect to core services like the EOSC AAI, but also to other common and thematic services.

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Partnership:

1. Instytut Chemii Bioorganicznej Polskiej Akademii Nauk PSNC (Poland)
2. Consiglio Nazionale delle Ricerche CNR (Italy)
3. Expert System Iberia ESI (Spain)
4. Meteorological Environmental Earth Observation MEEO (Italy)
5. Istituto Nazionale di GeoFisica e Vulcanologia INGV (Italy)
6. University of Oslo UiO (Norway)
7. Universidad Politécnica de Madrid UPM (Spain)
8. Terradue T2 (Italy)
9. Alpha Consultants LTD ALPHA (United Kingdom)

Programme: H2020-BG-2018-2020 / H2020-BG-2019-2	AtlantECO Atlantic Ecosystems Assessment, Forecasting & Sustainability
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: Atlantic Ecosystems Assessment, Forecasting & Sustainability	
Acronym: ATLANTECO	
Role in the project: Partner	
Duration: 01/09/2020 – 30/08/2024	
Total budget: € 10.925.660	
ISMAR budget: € 253.000	
Web site: https://www.atlanteco.eu/the-project	
Key words: Atlantic ecosystems, ecosystem services, ecosystem stressors	
Summary: The overall objective of AtlantECO is to assess and predict changes in the status and dynamics of Atlantic ecosystems at regional and basin scales to improve the sustainability of ecosystem services and enhance Blue Growth for Atlantic communities. CNR will be coordinating the Work Package 7, aimed to identify and quantify the variability and the dominant patterns of ecosystem stressors, as well as forcing of short- and long-term ecosystem changes. The analysis will combine novel high-resolution observation-based data products and model output. It distinguishes between drivers (e.g. wind forcing, currents, mixed layer dynamics, nutrients, biotic interactions) of planktonic ecosystem dynamics and stressors, here defined as environmental variables and anthropogenic processes for which projected changes are likely to have a negative impact on ecosystem dynamics (e.g. oxygen, pH, saturation state with respect to calcium carbonate, nutrient limitation). CNR will also be involved in WP 6, focused on the Multi-scale connectivity in Atlantic ecosystems.	
Contact person in ISMAR: bruno.buongiornonardelli@cnr.it	
Partnership: 1. Stazione Zoologica Anton Dohrn (SZN) (Italy) 2. Eidgenoessische Technische Hochschule Zuerich (ETH Zurich) (Switzerland) 3. Universidade Federal de São Carlos (UFSCar) (Brazil) 4. Commissariat à l'Energie Atomique et aux Energies Alterna&ves (CEA) (France) 5. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale-OGS (Italy) 6. European Molecular Biology Laboratory (EMBL) (United Kingdom) 7. Universidade de Sao Paulo (USP) (Brazil) 8. University of Pretoria (South Africa) 9. Universiteit Utrecht (UU) (Netherlands) 10. University of Cape Town (South Africa)	

11. Fonda&on Tara Ocean (FTO) (France)
12. Universidade Federal de Santa Catarina (UFSC) (Brazil)
13. SINTEF AS (Norway)
14. Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung (AWI) (Germany)
15. Fondazione Centro Euro-Mediterraneo sui Cambiamen & Clima&ci (CMCC), (Italy)
16. Consiglio Nazionale delle Ricerche (CNR) (Italy)
17. Centre National de la Recherche Scientfique (CNRS) (France)
18. Council for Scientific and Industrial Research (CSIR) (South Africa)
19. Marine Biological Associa&on of the United Kingdom (MBA) (United Kingdom)
20. Plymouth Marine Laboratory Limited (PML) (United Kingdom)
21. Sorbonne Université (SU) (France)
22. Universitaet Bern (UBERN) (Switzerland)
23. National Oceanography Centre (NOC) (United Kingdom)
24. The University of Liverpool (UNILIV) (United Kingdom)
25. Università degli Studi di Roma La Sapienza (UNIROMA) (Italy)
26. Universidad de Santiago de Compostela (USC) (Spain)
27. United Nations Educational, Scientific and Cultural Organization - UNESCO (France)
28. Seascape Belgium (SBE) (Belgium)
29. European Marine Biological Resource Centre European Research Infrastructure Consortium (EMBRC-ERIC) (France)
30. European Multidisciplinary Seafloor and water column Observatory- European Research Infrastructure Consortium (EMSO-ERIC) (Italy)
31. Sociedade Portuguesa de Inovação (SPI) (Portugal)
32. Okologiai Kutatokozpont (OK) (Hungary)
33. Stichting Nederlandse Wetenschappelijk Onderzoek Ins&tuten (NIOZ) (Netherlands)
34. Universidade Federal da Bahia (UFBA (Brazil)
35. Universidade Federal do Rio Grande (FURG) (Brazil)
36. Agencia Estatal Consejo Superior de Investigaciones Cienxficas M.P. (CSIC) (Spain)

Programme: H2020-BG-2018-2020	EuroSea
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Improving and integrating the European Ocean Observing and Forecasting System**	
Acronym: EUROSEA	
Role in the project: Partner	
Duration: 01/11/2019 – 31/12/2023	
Total budget: € 12.300.000	
ISMAR budget: € 30.000	
Web site: https://eurosea.eu/	
Key words: ocean observation improvement, knowledge gaps, sustainable use of oceans	
Summary: The oceans provide us with food and oxygen. They are trade routes and climate buffers. They serve as places for recreation, but often also as waste dumps. Storms, rising sea levels, tidal waves and pollution threaten people and ecosystems along the coasts. This is particularly true of Europe with its vast populated coastlines, marginal seas, gulfs and bays. Yet, despite the immense importance of the oceans, there are still major gaps in our knowledge of the ocean interior, due to missing or insufficiently linked ocean observations. Such knowledge gaps make it difficult to assess the present ocean status, as well as predict how best to plan for future developments for a sustainable use of the oceans. Through the EuroSea project, an international consortium of 55 partners has now joined forces with the aim to significantly improve ocean observation in Europe and beyond.	
Contact person in ISMAR: carlo.mantovani@sp.ismar.cnr.it	
Partnership: 1. Helmholtz-Zentrum für Ozeanforschung Kiel -GEOMAR (Germany) 2. EuroGOOS 3. United Nations Educational, Scientific and Cultural Organisation - IOC/UNESCO (France) 4. Mercator Ocean International – MOI (France) 5. Alma Mater Studiorum – Università di Bologna - UNIBO (Italy) 6. Marine Institute – MI (Ireland) 7. Agencia Estatal Consejo Superior de Investigaciones Cientificas - CSIC (Spain) 8. Ecole Normale Superieure – ENS (France) 9. Collecte Localisation Satellites Sa – CLS (France) 10. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale – OGS (Italy) 11. Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici – CMCC (Italy) 12. Universitetet i Bergern - UiB (Norway) 13. United Kingdom Research and Innovation – UKRI (United Kingdom) 14. Sorbonne University – SU (France)	

15. Consorcio para el Diseno, Construccion, Equipamiento y Explotacion del Sistema de Observacion Costero de las Illes Balears – SOCIB (Spain)
16. European Centre for Medium-Range Weather Forecasts - ECMWF
17. Instytut Oceanologii Polskiej Akademii Nauk IO PAN (Poland)
18. Institut für Weltwirtschaft – IfW (Germany)
19. Euro-Argo – ERIC (France)
20. Centre National de la Recherche Scientifique – CNRS (France)
21. Institut Francais de Recherche Pour L'Exploitation de la Mer IFREMER (France)
22. Institut royal des Sciences naturelles de Belgique – RBINS (Belgium)
23. Institut de Science et Ethique – SCIENCETHICS (France)
24. Istituto Superiore per la Protezione e la Ricerca Ambientale – ISPRA (Italy)
25. France Section – IEEE (France)
26. European Marine Board IVZW - EMB
27. Institut Mines-Télécom – IMT (France)
28. OceanNext
29. AZTI Fundazioa – AZTI (Spain)
30. Puertos del Estado – EPPE (Spain)
31. ACRI-ST SAS (France)
32. OVE Arup & Partners International Limited - ARUP
33. Hellenic Centre for Marine Research – HCMR (Greece)
34. Norsk Institut for Vannforskning- NIVA (Norway)
35. Met Office (United Kingdom)
36. European Multidisciplinary Seafloor and water column Observatory - European Research Infrastructure Consortium - EMSO ERIC
37. Consorcio para el Diseño, Construcción, Equipamiento y Explotación de la Plataforma Oceanica de Canarias – PLOCAN (Spain)
38. Universitaet Bremen – UBREMEN (Germany)
39. Universidade do Porto – UPORTO (Portugal)
40. Stazione Zoologica Anton Dorhn – SZN (Italy)
41. Alfred-Wegener-Institut, Helmholtz-Zentrum für Polar- und Meeresforschung – AWI (Germany)
42. ETT SPA (Italy)
43. Nologin Consulting, S.L. – Nologin (Spain)
44. Universitat Politecnica de Catalunya – UPC (Spain)
45. Danmarks Meteorologiske Institut – DMI (Denmark)
46. Tallinna Tehnikaulikool -TalTech (Estonia)
47. Consiglio Nazionale Delle Ricerche – CNR (Italy)
48. Institut de Recherche pour le Développement – IRD (France)
49. The Chancellor Masters and Scholars of The University ff Cambridge – UCAM (United Kingdom)
50. Xylem Aanderaa Data Instruments AS – XYLEM (Norway)
51. Organisation Meteorologique Mondiale - WMO
52. Universidade do Estado do Rio de Janeiro – UERJ (Brazil)
53. Universidade Federal de Pernambuco – UFPE (Brazil)
54. Memorial University of Newfoundland – MUN (Canada)
55. Dalhouse University - DAL (Canada)

Programme: H2020-MG-2020-SingleStage-INEA	
CNR Strategic Area: AP2 RESOURCES	
Project title: Solutions At Underwater Radiated Noise	
Acronym: SATURN	
Role in the project: Partner	
Duration: 01/02/2021 – 31/01/2025	
Total budget: € 8.965.964	
ISMAR budget: € 250.000	
Web site: https://www.saturnh2020.eu/	
Key words: bioacoustics, underwater noise, stakeholder engagement, maritime policy	
Summary: The SATURN consortium brings together leading experts in bioacoustics; population biology; marine mammal, fish and invertebrate biology; maritime architecture and engineering; shipping; maritime policy; stakeholder engagement and science communication. We will combine expertise from these disciplines to work with unity of purpose and clarity of intent to identify: a. The sounds that are most detrimental to aquatic species and how they are produced and propagated; b. The short-term and cumulative long-term negative impacts of noise from shipping and boats on three representative groups of aquatic species in rivers and the sea (invertebrates, fish and marine mammals); c. The most promising options for measuring and reducing the negative impacts of ship noise that can be applied to current and future vessels.	
Contact person in ISMAR: fantina.madricardo@ve.ismar.cnr.it	
Partnership: 1. University College Cork (UCC) (Ireland) 2. Aarhus Universitet (AU) (Denmark) 3. Bureau Veritas Marine and Offshore SAS BV (France) 4. CETENA S.p.A (CETENA) (Italy) 5. Secretary of State for Environment, Food and Rural Affairs (CEFAS) (United Kingdom) 6. DNV GL AS (DNVGL) (Norway) 7. JASCO Applied Sciences GmbH (JASCO) (Germany) 8. Stichting Maritiem Research Instituut Nederland (MARIN) (Netherlands) 9. Naval Group (NG) (France) 10. Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (TNO) (Netherlands)	

11. Consorcio para el Diseño, Construcción, Equipamiento y Explotación de la Plataforma Oce ánica de Canarias (PLOCAN) (Spain)
12. Quiet Oceans (QO) (France)
13. Institute for Terrestrial and Aquatic Wildlife Research, University of Veterinary Medicine Hannover (TIHO) (Germany)
14. Técnicas y Servicios de Ingeniería, S.L (TSI) (Spain)
15. Wärtsilä Netherlands B.V. (WART) (Netherlands)
16. Universiteit Leiden (LEID) (Netherlands)
17. Universitat Politècnica de Catalunya, Barcelona Tech (UPC) (Spain)
18. Consiglio Nazionale delle Richerche (CNR) (Italy)
19. Universidad de la Laguna (ULL) (Spain)

Programme: H2020-INFRAIA-2018-2020	
CNR Strategic Area: AP2 RESOURCES	
Project title: **An alliance of European marine research infrastructure to meet the evolving needs of the research and industrial communities**	
Acronym: EUROFLEETS+	
Role in the project: Partner	
Duration: 01/02/2019 – 31/01/2023	
Total budget: € 9.999.360	
ISMAR budget: € 37.317	
Web site: https://www.eurofleets.eu/	
Key words: vessel fleets, ocean observation infrastructures, portable telepresence system	
Summary: The EUROFLEETS+ project will facilitate open free of charge access to an integrated and advanced research vessel fleet, designed to meet the evolving and challenging needs of the user community. European and international researchers from academia and industry will be able to apply for several access programmes, through a single-entry system. EUROFLEETS+ will prioritise support for research on sustainable, clean and healthy oceans, linking with existing ocean observation infrastructures, and it will support innovation through working closely with industry. The project will enable access to a unique fleet of 27 state-of-the-art research vessels from European and international partners. Through competitive Calls, researchers will be able to access the entire North Atlantic, Mediterranean, Black Sea, North Sea, Baltic Sea, Pacific Southern Ocean and Ross Sea. In addition to ship time, researchers will also have access to new AUVs and ROVs. A unique portable telepresence system will enable remote access by researchers and diverse end users including the public; a first for Europe.	
Contact person in ISMAR: anna.vetrano@sp.ismar.cnr.it	
Partnership: 1. Marine Institute (Ireland) 2. Faroe Marine Research Institute (Faroe Islands) 3. Finnish Environment Institute – Marine Research Center (Finland) 4. Flanders Marine Institute (Belgium) 5. Mariene Informatie Service 'MARIS' BV(Netherlands) 6. European Centre for Information on Marine Science and Technology (Portugal) 7. University of Gothenburg (Sweden) 8. Hellenic Centre for Marine Research (Greece) 9. Royal Belgian Institute of Natural Sciences (Belgium)	

10. Institute of Oceanology, Polish Academy of Sciences (Poland)
11. National Research Council (Italy)
12. Portuguese Institute for the Ocean and Atmosphere (Portugal)
13. Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (Germany)
14. National Institute of Oceanography and Applied Geophysics (Italy)
15. Tubitak Marmara Research Center (Turkey)
16. University Bremen (Germany)
17. Institutul National de Cercetare-Dezvoltare Pentru Geologie si Geoecologie Marina- GeoEcoMar (Romania)
18. Spanish Institute of Oceanography (Spain)
19. University of Girona (Spain)
20. Greenland Institute of Natural Resources (Greenland)
21. Marine and Freshwater Research Institute (Iceland)
22. Technical University of Denmark (Denmark)
23. Institut Français de Recherche pour l'Exploitation de la MER (France)
24. European Multidisciplinary Seafloor and Water Column Observatory – European Research Infrastructure Consortium (Italy)
25. Institute of Marine Research (Norway)
26. Agencia Estatal Consejo Superior de Investigaciones Cientificas – Unidad De Tecnologia Marina (Spain)
27. Tallinna Tehnikaülikool (Estonia)
28. Royal Netherlands Institute for Sea Research (Netherlands)
29. Centre for Maritime Research and Experimentation (Belgium)
30. Coronis Computing S.L. (Spain)
31. Blue Lobster IT Limited (United Kingdom)
32. GEOMAR Helmholtz Centre of Ocean Research (Germany)
33. NIWA Vessels Ltd (New Zealand)
34. Balearic Islands Observing and Forecasting System (Spain)
35. VoyagerIP International Services Limited (Ireland)
36. Seaonics AS (Norway)
37. Hampidjan Hf (Iceland)
38. IQUA Robotics SL (Spain)
39. MacArtney A/S (Denmark)
40. The Global Foundation for Ocean Exploration, Inc. (USA)
41. Université du Québec à Rimouski-Institut des Sciences de la mer de Rimouski (Canada)
42. Bermuda Institute of Ocean Sciences (BIOS), Inc. (Bermuda)

Programme: H2020-INFRAIA-2018-2020 / H2020-INFRAIA-2019-1	
CNR Strategic Area: AP1 CLIMATE	
Project title: eLTER Advanced Community Project	
Acronym: eLTER+	
Role in the project: Partner	
Duration: 01/02/2020 – 31/01/2025	
Total budget: € 10.065.009	
ISMAR budget: € 41.354	
Web site: https://www.lter-europe.net/projects	
Key words: ecosystem integrity study, ecosystem services, cc impacts	

Summary:

The Advanced Community Project for the eLTER Research Infrastructure (eLTER PLUS) belongs to INFRAIA-01-2018-2019 programme of HORIZON 2020 and is built on three main pillars - networking, joint research activities and transnational, remote and virtual access. eLTER PLUS will conduct a performance test of the emerging eLTER RI while challenging, assessing and strengthening its operations. Selected sites and platforms in terrestrial, freshwater and coastal ecosystems will be used to study ecosystem integrity, impacts of climate change and endangered ecosystem services at a pan-European scale. Alongside these exemplary case studies eLTER PLUS will identify and assess innovative observational and analytical methods, elaborate detailed specifications of eLTER RI according to community needs (standard observations, site design), support community building and training, and pilot priority services (IT and other support).

Contact person in ISMAR: caterina.bergami@bo.ismar.cnr.it

Partnership:

1. University of Helsinki (Finland)
2. Umweltbundesamt Gesellschaft Mit Beschrankter Haftung (Uba Gmbh) (Austria)
3. Suomen Ymparistokeskus (Finland)
4. Centre National de la Recherche Scientifique CNRS (France)
5. Forschungszentrum Julich Gmbh (Germany)
6. Helmholtz-Zentrum fur Umweltforschung Gmbh – Ufz (Germany)
7. Polytechneio Kritis (Greece)
8. Consiglio Nazionale delle Ricerche (Italy)
9. Europejskie Regionalne Centrum Ekohydrologii Polskiej Akademii Nauk (Poland)
10. Sveriges Lantbruksuniversitet (Sweden)
11. Institut Po Bioraznoobrazie I Ekosistemni Izsledvaniya Balgarska Akademiya Na Naukite (Bulgaria)
12. Senckenberg Gesellschaft fur Naturforschung (Germany)
13. Okologiai Kutatokozpont (Hungary)
14. Ben-Gurion University of the Negev (Israel)

15. Israel Institute of Technology (Israel)
16. Latvijas Universitates (Latvia)
17. Universitatea din Bucuresti (Romania)
18. Institute of Landscape Ecology of the Slovak Academy of Sciences (Slovakia)
19. Znanstvenoraziskovalni Center Slovenske Akademije Znanosti In Umetnosti (Slovenia)
20. Agencia Estatal Consejo Superior Deinvestigaciones Cientificas (Spain)
21. Biosense Institute - Research and Development Institute for Information Technologies in Biosystems (Serbia)
22. Fciencias.Id - Associacao Para a Investigacao e Desenvolvimento de Ciencias (Portugal)
23. Centre for Ecology & Hydrology (United Kingdom)
24. Universitaet fuer Bodenkultur Wien (Austria)
25. Eigen Vermogen Van Het Instituut Voor Natuur- En Bosonderzoek (Belgium)
26. Ustav Vyzkumu Globalni Zmeny Av Cr Vvi (Czechia)
27. Kobenhavns Universitet (Denmark)
28. Csc-Tieteen Tietotekniikan Keskus Oy (Finland)
29. Universita Degli Studi Di Milan (Italy)
30. Eidgenossichen Forschungsanstalt fur Wald Schnee und Landschaft (Switzerland)
31. Iceta Instituto De Ciencias, Tecnologias E Agroambiente Da Universidade Do Porto (Portugal)
32. Pensoft Publishers (Bulgaria)

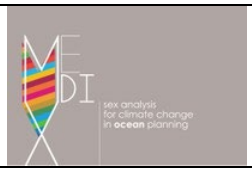
Programme: H2020-BG-2018-2020	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **New Approach to Underwater Technologies for Innovative, Low-cost Ocean obServation**	
Acronym: NAUTILOS	
Role in the project: Partner	
Duration: 01/10/2020 - 30/09/2024	
Total budget: € 9.048.349	
ISMAR budget: € 134.134	
Web site: https://www.cnr.it/it/news/9719/new-approach-to-underwater-technologies-for-innovative-low-cost-ocean-observation	
Key words: observation tools and services, new cutting-edge technologies, open data	
Summary: NAUTILOS will fill in existing marine observation and modelling gaps through the development of a new generation of cost-effective sensors and samplers for physical (salinity, temperature), chemical (inorganic carbon, nutrients, oxygen), and biological (phytoplankton, zooplankton, marine mammals) essential ocean variables, in addition to micro-/nano-plastics, to improve our understanding of environmental change and anthropogenic impacts related to aquaculture, fisheries, and marine litter. Newly developed marine technologies will be integrated with different observing platforms and deployed through the use of novel approaches in a broad range of key environmental settings. The fundamental aim of the project will be to complement and expand current European observation tools and services, to obtain a collection of data at a much higher spatial resolution and temporal regularity and length than currently available at the European scale, and to further enable and democratise the monitoring of the marine environment to both traditional and non-traditional data users. The principles that underlie the NAUTILOS project will be those of the development, integration, validation and demonstration of new cutting-edge technologies with regards to sensors, interoperability and embedding skills. NAUTILOS will also provide full and open data feed towards well- established portals and data integrators (EMODnet, CMEMS, JERICO).	
Contact person in ISMAR: stefania.sparnocchia@ts.ismar.cnr.it	
Partnership: 1. Consiglio Nazionale delle Ricerche (Italy) 2. Hellenic Centre for Marine Research (Greece) 3. Norsk Institutt for Vannforskning (Norway) 4. Suomen Ymparistokeskus (Finland) 5. Institut Francais de Recherche pour L'Exploitation de la Mer (France) 6. Centre National de la Recherche Scientifique CNRS (France)	

7. Ett Spa (Italy)
8. Edgelab Srl It
9. Universidade do Algarve (Portugal)
10. Nke Instrumentation Sarl (France)
11. Aquatec Group Limited (United Kingdom)
12. Subctech Gmbh (Germany)
13. Ceiia - Centro de Engenharia e Desenvolvimento (Associacao) (Portugal)
14. Haute Ecole Specialisee de Suisse Occidentale (Switzerland)
15. CSEM Centre Suisse d'Electronique et de Microtechnique Sa - Recherche et Developpement (Switzerland)
16. Univerza V Ljubljani (Slovenia)
17. Fundacao Eurocean (Portugal)
18. Deutsches Forschungszentrum fur Kunstliche Intelligenz Gmbh (Germany)
19. Università della Calabria (Italy)
20. IMAR - Instituto do Mar (Portugal)
21. Evroproject Ood (Bulgaria)

Programme: H2020-SPACE-2018-2020	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: Satellite Seafloor Survey Suite	
Acronym: 4S	
Role in the project: Partner	
Duration: 01/10/2020 – 30/09/2023	
Total budget: € 2.672.650	
ISMAR budget: € 272.175	
Web site: https://www.eomap.com/	
Key words: data and solution gaps, digital information, cloud based software	
Summary: 4S will address a current data and solution gaps from coastal and offshore stakeholders, which are the ability to generate and access spatial and recent information on seabed, such as benthic habitat, morphology, depth and change and trends. Digital information on these are crucial to respond to EC maritime directive, environmental impact studies and engineering offshore activities. We will address this gap by developing an online, cloud based software, named 4S – Satellite Seafloor Survey Suite – which empowers the users to benefit from satellite capabilities and specific aquatic EO algorithms. 4S will harness Copernicus data together with US satellite lidar data and – optionally – integrate client airborne (drone) imagery and on-site data. Other stakeholders, many of which have signed supporting letters, will participate in 7 use cases which cover four countries, the Caribbean and several selected sites globally. The development of a sustainable business based on 4S will be driven by the industry partners, which contribute with 52% of the workload.	
Contact person in ISMAR: marzia.rovere@bo.ismar.cnr.it	
Partnership: 1. EOMAP GmbH & Co.KG (Germany) 2. Hellenic Centre for Marine Research (Greece) 3. Quality Positioning Services (QPS) (Netherlands) 4. Länsstyrelsen Västerbottens län LV (Sweden) 5. Consiglio Nazionale delle Ricerche (Italy) 6. Instituto Hidrografico (Portugal) 7. FugroGermany Marine GmbH (Germany) 8. Smith Warner International Limited (Jamaica)	

Programme: H2020-INFRAIA-2018-2020 / H2020-INFRAIA-2020-1	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Metrology for Integrated Marine Management and Knowledge-Transfer Network**	
Acronym: MINKE	
Role in the project: Partner	
Duration: 01/04/2021 – 31/03/2025	
Total budget: € 4.994.955	
ISMAR budget: € 77.336	
Web site: https://minke.eu/	
Key words: marine metrology research infrastructures, Ocean & Coastal Observation	
Summary: MINKE will integrate key European marine metrology research infrastructures, to coordinate their use and development and propose an innovative framework of "quality of oceanographic data" for the different European actors in charge of monitoring and managing the marine ecosystems. MINKE proposes a new vision in the design of marine monitoring networks considering two dimensions of data quality, accuracy and completeness, as the driving components of the quality in data acquisition. The present proposal, through the different Integration Activities (Networking, Transnational-Virtual Access and Joint Research), aims to lay the groundwork for creating the necessary synergies among the different involved actors in the quintuple helix model of innovation, creating a new community with complementary capabilities for Ocean & Coastal Observation, that will facilitate the transition towards a blue growth socio-economic system.	
Contact person in ISMAR: katrin.schroeder@ve.ismar.cnr.it	
Partnership: 1. Agencia Estatal Consejo Superior Deinvestigaciones Cientificas (Spain) 2. Institut Francais de Recherche pour l'Exploitation de la Mer (France) 3. Hellenic Centre for Marine Research (Greece) 4. Consorcio Para el Diseno, Construccion, Equipamiento y Explotacion de la Plataforma Oceanica de Canarias (Spain) 5. Universitat Politecnica de Catalunya (Spain) 6. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (Italy) 7. Consiglio Nazionale delle Ricerche (Italy) 8. Istituto Nazionale di Ricerca Metrologica (Italy) 9. Service Hydrographique et Oceanographique de la Marine (France) 10. Norsk Institutt for Vannforskning (Norway) 11. National Oceanography Centre (United Kingdom) 12. Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile (Italy) 13. Physikalisch-Technische Bundesanstalt (Germany)	

14. Universite d'Aix Marseille (France)
15. Universidad Catolica del Norte (Chile)
16. Anel.Lides Sl (Spain)
17. Laboratoire National de Metrologie et d'Essais (France)
18. 52°North Initiative for Geospatial Open Source Software Gmbh (Germany)
19. Institut d'Arquitectura Avancada de Catalunya (Spain)
20. Suomen Ymparistokeskus (Finland)
21. Joint Programming Initiative on Healthy and Productive Seas and Oceans (Belgium)
22. European Multidisciplinary Seafloorand Water Column Observatory - European Research Infrastructure Consortium (EMSO ERIC) (Italy)

Programme: H2020, Marie Sklodowska Curie Actions, Global Fellowships	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Marine Environmental Dynamlcs and seX-based analysis for climate change adaptation in marine spatial planning**	
Acronym: MEDIX	
Role in the project: Lead Partner	
Duration: 28/12/2020 – 27/12/2023	
Total budget: € 269.000	
ISMAR budget: € 269.000	
Web site: http://www.medix-project.eu/	
Key words: climate change, MSP, Ecosystem-based management	
Summary: To effectively adapt to climate change (CC), a novel more dynamic approach in governing the oceans is needed. Marine Spatial Planning (MSP) – a public process aimed to allocate human uses at sea while maintaining multiple ecosystem services (ES) – as currently implemented is too static to adequately incorporate climate refugia and CC responses of marine life. The goal of my project is to provide a stronger, more complete model for the sustainable planning of marine ES in the California Current. MEDIX will significantly improve the traditional MSP process in a context of a fast-changing climate by creating a novel approach to MSP that incorporates a dynamic ES assessment under CC scenarios with a sex-based analysis of CC effects on species and ecosystems, to elaborate a guideline for adaptation actions in MSP. The California Current will provide an ideal case study to test the new approach for adaptation strategies to maintain the ES. Through the MSCA Global Fellowship, Dr. Elena Gissi, Marie S. Curie Fellow, will reinforce her expertise in ecosystem-based management in MSP with new interdisciplinary expertise and skills in ES modeling under CC and sex analysis, which she will transfer back to Europe, where the development of adaptive strategies for MSP is relevant and timely. The GF envisages: i) an outgoing period at Stanford University, USA, where Dr. Gissi will be involved in a major initiative to revise and adapt the marine protected areas network of the California Current within the national MSP initiative, in collaboration with governments, and ii) a return period in Italy at CNR, Italy, where she intends to build on and transfer the skills acquired to elaborate the adaptive MSP guidelines that she will make accessible to relevant European stakeholders through a process of science-to-policy and science-for-society engagement in the Mediterranean.	
Contact person in ISMAR: elena.gissi@cnr.it	
Partnership: 1. National Research Council, Institute of Marine Sciences (Italy) **2.** Stanford University, Hopkins Marine Station (USA)	

Programme: H2020-BG-2018-2020 / H2020-BG-2020-2	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Developing Optimal and Open Research Support for the Black Sea**	
Acronym: DOORS	
Role in the project: Partner	
Duration: 01/06/2021 – 31/05/2025	
Total budget: € 9.795.350	
ISMAR budget: € 350.000	
Web site: https://www.doorsblacksea.eu/	
Key words: Blue Growth Accelerator, Black Sea	

Summary:

DOORS will bring the four pillars of the SRIA into reality, turning the challenges into opportunities for a highly valued Black Sea. It will harmonise research and provide the infrastructure to better understand the Black Sea, particular ecosystem characteristics, develop the framework to support Blue Growth and early development of startups, and provide evidence to inform policy and behavioural change. To reach its ambitious objectives, the project team will work closely with stakeholders from the start to develop an open research system and establish a framework to support continuous stakeholder dialogue.
DOORS will implement three Work Programmes: a System of Systems to harmonise approaches and provide an accessible data repository, a Blue Growth Accelerator to support enterprise, and Knowledge Transfer and Training to share best practice and build capacity. These will:
• Engage stakeholders through communication, dissemination and training activities to raise awareness, build capacity and foster a stronger Black Sea identity
• Harmonise data collation, analysis and access to optimise data use in decision and policy making
• Strengthen the Black Sea scientific network through new collaborations, and bridge the gap between science and policy
• Provide a range of products to support Black Sea innovation and enterprise DOORS will have long-lasting impact by giving stakeholders in the region the skillsets and understanding to:
• Implement key policies and legislation
• Improve environmental quality and reduce pollution risk
• Design measures to mitigate pollution and remediate historically contaminated areas
• Become resilient communities
• Realise and sustainably develop potential economic growth for future well-being
• Build capacity in existing industries, develop new start-ups and become actively involved in delivering Blue Growth
• Create ocean informed citizens to better understand Black Sea's potential

Contact person in ISMAR: debora.bellafiore@ismar.cnr.it

Partnership:

1. Institutul National de Cercetare-Dezvoltare Pentru Geologie SiGeoecologie Marina-Geoecomar (GEOCOMAR)
2. Institutul National de Cercetare-Dezvoltare Marina Grigore Antipa (NIMRD), Romania,
3. Organizatia Neguvernamentala Ecologista Mare Nostrum (MNOSTRUM),Romania
4. Institute of Oceanology Bas (IO-BAS), Bulgaria
5. Geo Marine (GEOMARINE), Bulgaria
6. Burgaski Svoboden Universitet (BFU), Bulgaria
7. Middle East Technical University (METU), Turkey
8. Dokuz Eylul Universitesi (DEU), Turkey
9. Karadeniz Teknik Universitesi (KTU), Turkey
10. Gis and Rs Consulting Center Geographic (GEORG), Georgia
11. P.P. Shirshov Institute of Oceanology of Russian Academy of Sciences (SIORAS),Russia
12. Russian Presidential Academy of National Economy and Public Administration, North-West Institute of Management (NWIM RANEPA), Russia
13. Odessa State Environmental University (OSENU) Ukraine
14. Universitatea De Stat Din Tiraspol (UST) Moldova
15. Consiglio Nazionale Delle Ricerche (CNR), Italy
16. Institut Francais de Recherche pour l'Exploitation de la Mer (IFREMER), France
17. Helmholtz-Zentrum Hereon Gmbh (HEREON), Germany
18. Brockmann Consult Gmbh (BC), Germany
19. Stichting Deltares (DELTARES), Netherlands
20. Universitat Politecnica de Catalunya (UPC), Spain
21. Socib - Consorcio Para el Diseno, Construccion, Equipamiento y Explotacion del Sistema de Observacion Costero de las Illes Balears (SOCIB), Spain
22. University College Cork - National University of Ireland, Cork (UCC), Ireland
23. Hellenic Centre for Marine Research (HCMR), Greece
24. Kantor Symvouloi Epicheiriseon Anonimi Etairia (KANTOR), Greece
25. The University of Stirling (USTIR), United Kingdom
26. Plymouth Marine Laboratory Limited (PML), United Kingdom
27. National Oceanography Centre (NOC), United Kingdom
28. Eurogoos (EUROGOOS), Belgium
29. Euro-Argo Eric (Euro-Argo Eric), France
30. European Multidisciplinary Seafloorand Water Column Observatory - European Research Infrastructure Consortium (EMSO ERIC) Italy
31. European Marine Biological Resource Centre European Research Infrastructure Consortium (EMBRC), France
32. E-Science European Infrastructure for Biodiversity and Ecosystem Research (LIFEWATCH), Spain
33. Derzhavna Naukova Ustanova Tsentr Problem Morskoyi Heologii Heoekolohiyi ta Osadovoho Rudoutvorennia Nanukrainy Dnu Morheoekotsentr Nan Ukrainy (MGEC) Ukraine
34. Istituto Nazionale di Geofisica e Vulcanologia (INGV), Italy
35. Athina-Erevnitiko Kentro Kainotomias Stis Technologies Tis Pliroforias, Ton Epikoinonion Kai Tis Gnosis (ATHENA), Greece
36. Toulon var Technologies (POLMED), France
37. Rea Michael (MRM), United Kingdom

Programme: H2020 - EIT RAW MATERIALS	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Encouraging Girls to Study Geosciences and Engineering**	
Acronym: ENGIE	
Role in the project: Partner	
Duration: 01/09/2020 – 31/12/2022	
Total budget: € 1.113.917	
ISMAR budget: € 102.125	
Web site: https://www.engieproject.eu/	
Key words: geosciences, geoengineering, gender balance, awareness raising strategy	

Summary:

The ENGIE project aims to turn the interest of girls to study geosciences and geo-engineering, and thus to improve the gender balance in these disciplines. The project is developing an awareness-raising strategy and creating a stakeholder collaboration network for the implementation of a set of outreach actions in more than 22 European countries.

Contact person in ISMAR: silvia.giuliani@bo.ismar.cnr.it

Partnership:

1. University of Miskolc (Hungary)
2. Luleå University of Technology and University of Zagreb (Croatia)
3. National Research Council (Italy)
4. La Palma Research Centre (Spain)
5. European Federation of Geologists

20 of EFG's national associations take part in the project implementation as Linked Third Parties and are extending the project activities to more than 20 European countries.

Programme: H2020-BG-2018-2020	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Advancing Black Sea research and innovation to co-develop blue growth within resilient ecosystems**	
Acronym: BRIDGE-BS	
Role in the project: Partner	
Duration: 01/06/2021 – 30/11/2025	
Total budget: € 8.999.877	
ISMAR budget: € 443.750	
Web site: http://bridgeblacksea.org/	
Key words: Ecosystem resilience, ecosystem services, multi-stressors, biogeochemistry, start-ups, capacity building	

Summary:

The Black Sea's unique ecosystem services are degrading and need to be better managed for the benefit of citizens dependent upon their sustainability. As a critical contribution to the science-based policy needed to preserve the Black Sea ecosystems, BRIDGE-BS proposes a multidisciplinary, multisectoral program building on regional and international initiatives. The project will develop predictive tools and capabilities necessary to understand and predict the impacts of climate-driven and anthropogenic multi-stressors on the services stemming from Black Sea ecosystems. These services and their responses to stressors will be mapped, monitored and modeled in order to identify a safe operating space within which a sustainable blue economy can flourish. To this end, BRIDGE-BS is structured around "three" interconnected nodes: Service Dynamics, Blue Growth Incubators and Empowered Citizens.

Contact person in ISMAR: andrea.barbanti@ismar.cnr.it

Partnership:

1. Middle East Technical University (TR)
2. Institute of Oceanology - Bulgarian Academy of Sciences (BG)
3. Institutul National de Cercetare-Dezvoltare Marina Grigore Antipa (RO)
4. Institut Po Bioraznoobrazie I Ekosistemni Izsledvaniya Balgarska Akademiya Na Naukite (BG)
5. Ukrainian Scientific Centre of Ecology of the Sea (UA)
6. Ivane Javakhishvili Tbilisi State University (GE)
7. Institutul National de Cercetare-Dezvoltare Pentru Geologie si Geoecologie Marina-Geoecomar (RO)
8. P.P. Shirshov Institute of Oceanology of Russian Academy of Sciences (RU)
9. International Center for Black Sea Studies (EL)
10. Hellenic Centre for Marine Research (EL)

11. Consiglio Nazionale delle Ricerche (IT)
12. Universite de Liege (BE)
13. Athens University of Economics and Business - Research Center (EL)
14. Stockholms Universitet (SE)
15. Centro Tecnologico del Mar - Fundacion Cetmares (ES)
16. Indigo Med Smpc (EL)
17. Institute of Electronic Engineering and Nanotechnologies (MD)
18. Danmarks Tekniske Universitet (DK)
19. Organization of the Black Sea Economic Cooperation (TR)
20. Strategies Mer et Littoral (FR)
21. Conference des Regions Peripheriques Maritimes d' Europe - Association

6. INTERREG – TERRITORIAL COOPERATION PROGRAMMES

European Territorial Cooperation (ETC), better known as INTERREG, is one of the two goals of cohesion policy and provides a framework for the implementation of joint actions and policy exchanges between national, regional and local actors from different Member States. The overarching objective of European Territorial Cooperation (ETC) is to promote a harmonious economic, social and territorial development of the Union as a whole. INTERREG is built around three strands of cooperation: cross-border (Interreg A), transnational (Interreg B) and interregional (Interreg C).
Five programming periods of INTERREG have succeeded each other: INTERREG I (1990-1993) - INTERREG II (1994-1999) - INTERREG III (2000-2006) - INTERREG IV (2007-2013) - INTERREG V (2014-2020).

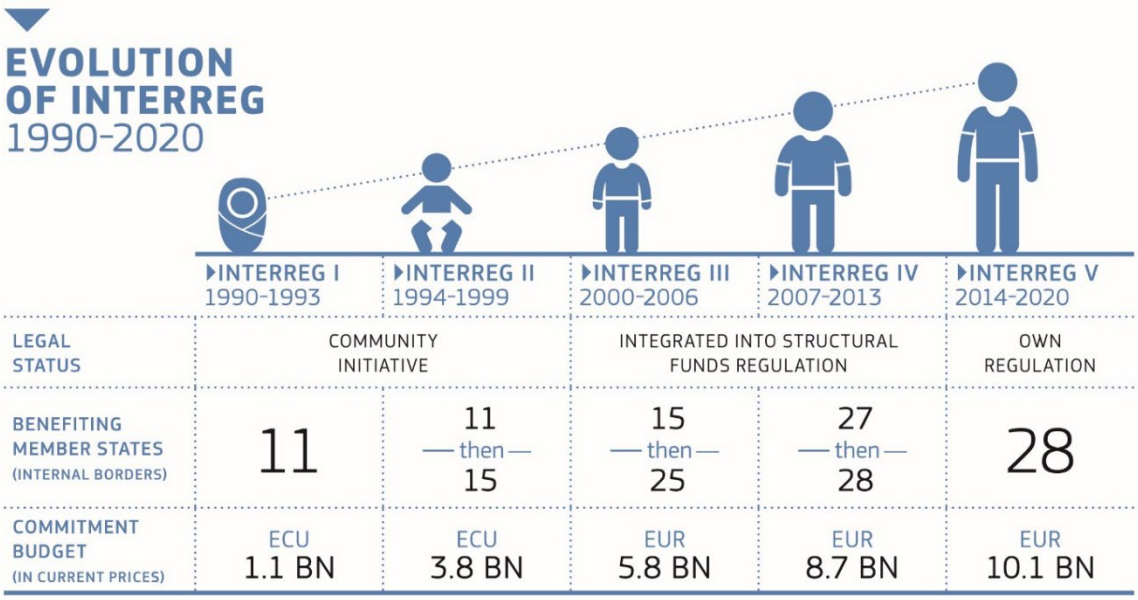


Fig. 8 Evolution of Interreg Programme
Source: https://commons.wikimedia.org/wiki/File:Evolution_of_INTERREG_1990-2020.jpg

6.1 2014-2020 PERIOD – INTERREG V

In accordance with the new design of the European Cohesion Policy 2014-2020 and the targets set out in Europe 2020, INTERREG has significantly been reshaped to achieve greater impact and an even more effective use of the investments. Key elements of the 2014-2020 reform are:

-Concentration
-Simplification
-Results orientation

The fifth period of INTERREG is based on 11 investment priorities laid down in the ERDF Regulation contributing to the delivery of the Europe 2020 strategy for smart, sustainable and inclusive growth. At least, 80% of the budget for each cooperation programme has to concentrate on a maximum of 4 thematic objectives among the eleven EU priorities:

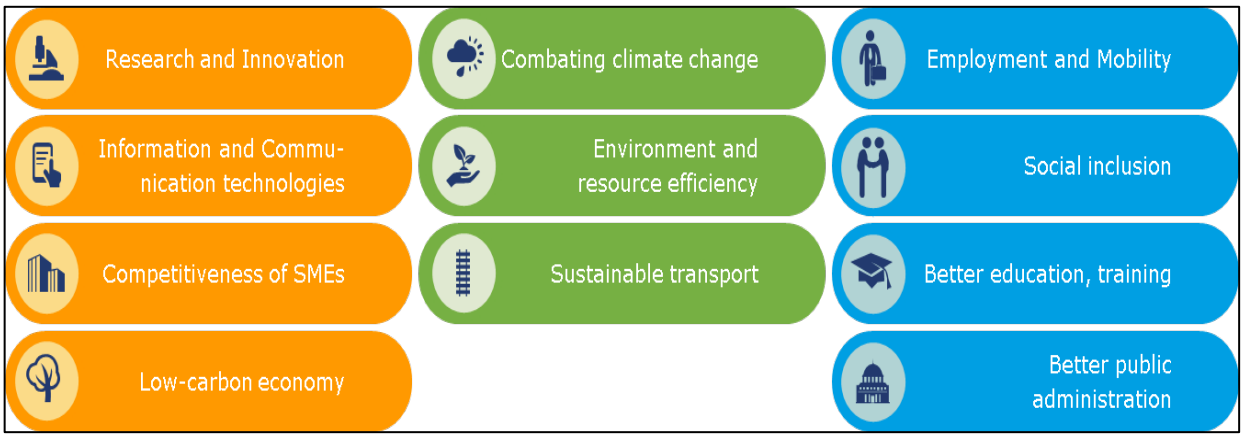


Fig. 16 Interreg Priorities
Source:http://ec.europa.eu/regional_policy/images/cooperation/european-territorial/cohesion-priorities.png

The fifth programming period of INTERREG has a budget of 10.1 billion invested in over 100 cooperation programmes between regions and territorial, social and economic partners. This budget also includes the ERDF allocation for Member States to participate in EU external border cooperation programmes supported by other instruments (Instrument for Pre-Accession and European Neighborhood Instrument).

6.2 CNR-ISMAR IN INTERREG PROGRAMMES

In 2022 the INTERREG programmes were at the end and for this reason only “capitazation calls” have been launched. In the Cross-Border cluster call Italy-Croatia, the Institute has gained 2 projects (HATC as affiliated partner of CORILA and CREATE as partner). These 2 projects are the natural continuation of the projects ECOSS and CHANGE WE CARE, where the CNR-ISMAR was Lead Partner. In the Cross-Border Italy-Slovenia the projects DURASOFT, where CNR-ISMAR was Lead Partner, and TRETAMARA ended but 2 new projects have been submitted as follow up of the topics covered and are under evaluation.

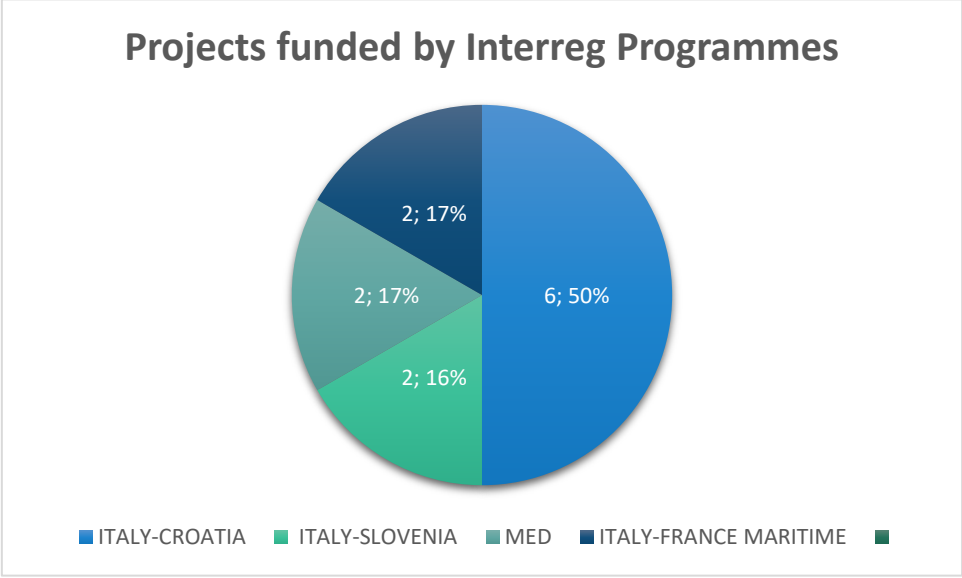


Fig. 17: Projects funded by Interreg programmes

List of ISMAR projects funded under INTERREG PROGRAMMES

Programme: INTERREG ITALY-CROATIA (Strategic Projects) **Priority Axis 2:** Safety and Resilience	
CNR Strategic Area: AP1 CLIMATE	
Project title: **Climate change information, monitoring and management tools for adaptation**	
Acronym: AdriaClim	
Role in the project: Partner	
Duration: 01/01/2020 – 30/06/2023	
Total budget: € 8.823.415	
ISMAR budget: € 390.000	
Web site: https://www.italy-croatia.eu/web/adriaclim	
Key words: climate risks, cc adaptation plans, blue economy, cc monitoring	
Summary: The Mediterranean Sea and specifically the Adriatic coastal and marine areas are particularly vulnerable to climate-related risks. The sea surface temperature of the Adriatic Sea will increase of about +1.5/1.6°C in 2050 and sea level will increase of +7 cm with consequent negative impacts on coastal areas and marine ecosystem services. In Italy and Croatia climate monitoring, modelling and adaptation are necessary to face this crucial climate challenge and to turn potential threats into economic opportunities. AdriaClim will develop accurate information able to support the development of regional and local climate change adaptation plans. In particular coastal adaptation planning, for a sustainable blue economy, will be developed based on reliable and accurate information on local sea level rise, sea temperature and salinity, coastal erosion, etc. AdriaClim will consolidate the climate change monitoring (observing and modelling) and planning of measures for strengthening the adaptation capacity in Italy and in Croatia also building upon cross-border cooperation. AdriaClim will develop consolidate and enhance climate monitoring systems and innovative data handling for fostering knowledge and cooperation for adaptation strategies planning in coastal and marine environment.	
Contact person in ISMAR: c.ferrarin@ismar.cnr.it	
Partnership: 1. Regional Agency for Prevention, Environment and Energy in Emilia Romagna (Italy) 2. National Research Council (CNR) (Italy) 3. Regional Agency for Environmental Protection and Prevention of Veneto (Italy) 4. Zadar County Development Agency Zadra Nova (Croatia) 5. Dubrovnik Neretva County (Croatia) 6. Ruder Boskovic Institute (Croatia)	

7. Public Institution Rera Sd for Coordination and Development of Split-Dalmatia County (Croatia)
8. Institute of Oceanography and Fisheries (Croatia)
9. Apulia Region (Italy)
10. Euro-Mediterranean Center on Climate Change Foundation (Italy)
11. Alma Mater Studiorum - University of Bologna (Italy)
12. Environmental Protection Agency of Friuli Venezia Giulia (Italy)
13. Italian National Institute for Environmental Protection and Research (ISPRA)(Italy)
14. Marche Region – Productive Activities, Education and Labour (Italy)
15. Local Health Authority Nr 3 (Italy)
16. Molise Region (Italy)
17. Emilia-Romagna Region (Italy)
18. City of Venice (Italy)
19. Region of Istria (Croatia)

Programme: INTERREG ITALY-CROATIA (2021 Cluster) **Priority Axis 2:** Safety and Resilience	
CNR Strategic Area: AP1 CLIMATE	
Project title: **Climate REsponses for the AdriaTic rEgion**	
Acronym: CREATE	
Role in the project: Partner	
Duration: 01/06/2022 - 30/06/2023	
Total budget: € 599.692	
ISMAR budget: € 92.000	
Web site: https://www.italy-croatia.eu/web/create	
Key words: climate risks, cc adaptation plans, blue economy, cc monitoring	
Summary: During the implementation of the projects financed under Axis 2 of the programme, important results have been developed for supporting actors in shaping responses to climate change impacts in the programme area, yet this knowledge is dispersed across different websites and platforms. The CREATE cluster will jointly analyse and synthesize results achieved in all relevant projects and provide systematic access to this knowledge. It will enhance transferability of project results using an on-line tool, a good practice handbook, as well as conferences, workshops and webinars with partners and stakeholders and initiatives for showcasing good implementation examples. Create will use the knowledge communication and dissemination for increasing awareness among local and regional actors in the programme area on options and benefits from climate action across the programme area to prepare the ground for more effective and more efficient partnerships between knowledge providers and local actors .	
Contact person in ISMAR: davide.bonaldo@ve.ismar.cnr.it	
Partnership: 1. Euro-Mediterranean Center on Climate Change Foundation (Italy) 2. Uav University of Venice (Italy) 3. National Research Council – Institute of Marine Sciences (Italy) 4. Abruzzo Region (Italy) 5. Pap/Rac Priority Action Programme Regional Activity Centre (Croatia) 6. Institute of Oceanography and Fisheries (Croatia) 7. County of Split-Dalmatia (Croatia) 8. Energy Institute Hrvoje Požar (Croatia)	

Programme: INTERREG ITALY-CROATIA (2021 Cluster) **Priority Axis 3:** Environmental and Cultural Heritage	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Hadriaticum DATA HUB. Data management, protocols harmonization, preparations of guidelines: cross-border tools for maritime spatial planning decision-makers**	
Acronym: HATCH	
Role in the project: Affiliated partner of CORILA	
Duration: 01/06/2022 - 30/06/2023	
Total budget: € 566.621	
ISMAR budget: € 25.000	
Web site: https://www.italy-croatia.eu/web/hatch	
Key words: decision making, monitoring, cross-border platform	
Summary: The project aims at creating a single platform in the Adriatic collecting all the information and data produced by different projects, and in particular Interreg IT-HR, providing a tool useful to promote decision-making based for both political and technical. The existing data relevant for characterizing the Adriatic chemical-physical features and its habitats, for monitoring the wildlife and flora, and for describing the anthropogenic pressures/pollution will be analyzed, compared and organized in a single uniform format. The final outcome will allow to obtain a shared cross-border platform, where data will be made available, fed with the new ones obtained from robust and validated protocols, and that will contain as well information on how to process and manage the input data in order to obtain harmonized outputs.	
Contact person in ISMAR: stefano.menegon@ismar.cnr.it	
Partnership: 1. University of Udine - Department of agricultural, food and animal science (Italy) 2. CORILA - Consortium for coordination of research activities concerning the Venice lagoon system (CNR-ISMAR, IUAV and OGS) (Italy) 3. Marche Region (Italy) 4. Istrian University of Applied Sciences (Italy) 5. Blue World Institute of Marine Research and Conservation (Croatia) 6. University of Split (Croatia)	

Programme: INTERREG ITALY-CROATIA (Strategic Projects) **Priority Axis 1:** Blue Innovation	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Developing innovative technologies for sustainability of Adriatic Sea**	
Acronym: INNOVAMARE	
Role in the project: Partner	
Duration: 01/07/2020 – 30/06/2023	
Total budget: € 5.555.755	
ISMAR budget: € 791.451	
Web site: https://www.italy-croatia.eu/web/innovamare	
Key words: innovative technologies, policy instruments, underwater robotics and sensors	
Summary: Main challenges in Programme area according to EUSAIR are low competitiveness on international markets of SMEs, the effectiveness of the innovation activities, human skills capacities, lack of support schemes and weak involvement of stakeholders and interrelation of business, research and the public sector in sectors of blue economy. To tackle these challenges, INNOVAMARE project aim is to enhance framework conditions on cross-border level by jointly develop and implement strategical and operational level capacity that consist of mix of policy instruments and innovation players as a frame for development of innovative technologies for sustainability of Adriatic Sea. Project is set up on mission-oriented approach that rather than focusing on sectors – as in traditional industrial policy – mission-oriented policy focuses on problem-specific societal challenges, which many different sectors interact to solve. In this case the project focusing on using mix of policy instruments together with innovation players to increase effectiveness of innovation activities of underwater robotics and sensors in direction of sustainability of Adriatic Sea as a crucial strategical societal challenge on cross-border level. INNOVAMARE project has 9 main outputs: 1. development of a cross-border network for scientific-research sector and the private sector based on demand and offers 2. Developed methodology and business plan for DIH for innovative underwater robotics and sensors and living lab in Adriatic Sea,3. Designed and implemented questionnaire for stakeholders, 4. Developed tools and workshop materials for raising human capital, 5. Pilot action I. - creating a prototype that is innovative robotic solution as a platform for development of solutions for monitoring and prediction of the sea pollution, 6. Pilot action II. – analysis of the obtained results on pilot action I and guidelines for the improvement of underwater conditions, 7. Established DIH (Digital innovation Hub) for innovative underwater robotics and sensors and living lab in Adriatic Sea, 8. Developed strategy and action plan for the enhancement of framework conditions for raising collaboration and networking in the field of robotics and sensors for further steps in public policies based on quadruple helix approach, 9. Policy recommendations.	

Contact person in ISMAR: francesca.depascalis@ve.ismar.cnr.it

Partnership:

1. Croatian Chamber of Economy (Croatia)
2. Regional Union of the Chambers of Commerce of Veneto Region (Italy)
3. University of Trieste (Italy)
4. Regional Agency for Technology and Innovation (Italy)
5. National Research Council (Italy)
6. Maritime Technology Cluster FVG (Italy)
7. Communication Technology Srl (Italy)
8. National Institute of Oceanography and Experimental Geophysics (Italy)
9. Ruder Bošković Institute (Croatia)
10. Faculty of Electrical Engineering and Computing (Croatia)
11. University of Dubrovnik (Croatia)
12. University of Rijeka (Croatia)
13. Geomar Ltd (Croatia)
14. Šibenik Knin County (Croatia)

Programme: INTERREG ITALY-CROATIA (Strategic Projects) **Priority Axis 2:** Safety and Resilience	
CNR Strategic Area: AP3 RISKS	
Project title: **Strategic development of flood management**	
Acronym: STREAM	
Role in the project: Partner	
Duration: 01/04/2020 – 30/06/2023	
Total budget: € 9.411.657	
ISMAR budget: € 403.529	
Web site: https://www.italy-croatia.eu/web/stream	
Key words: coastal flooding, flood risk maps, raising citizens'awareness	
Summary: In the last decades, flooding events linked to climate change have been on the increase, rising costs and leaving consequences for communities. Cities in the program area are experiencing urban flooding problems caused by extreme weather. The risk of coastal flooding in the region is expected to increase over the next 50-100 years, with urban areas continuing to expand and sea levels expected to rise. Local authorities and emergency services are not sufficiently prepared to promptly react to crisis situations due to the lack of innovative technologies and adequate equipment. Project STREAM will enhance all stakeholders' competencies to promptly respond to the flood. STREAM objective is to improve monitoring and risks and to improve the management for prompt reaction in events of flood disasters by creating and developing flood risk maps, flood hazard maps and FRMP, as well as by developing EWS along with raising awareness of citizens. This action will result in increasing safety of the project area from natural and man-made disasters, which will reduce the adverse consequences on human health, environment, cultural heritage, and economic aspects of the area associated with floods. Such improvement of the early warning system will reduce the risk of flood disasters and minimize loss.	
Contact person in ISMAR: c.ferrarin@ismar.cnr.it	
Partnership: 1. Zadar County Development Agency Zadra Nova (Croatia) 2. Dubrovnik Neretva County (Croatia) 3. Public Institution Rera Sd for Coordination and Development of Split Dalmatia County (Croatia) 4. University of Zadar (Croatia) 5. Regional Agency for Prevention, Environment and Energy in Emilia Romagna (Italy) 6. Regional Strategic Agency for the Eco- Sustainable Development of the Territory – Apulia Region (Italy) 7. National Research Council (CNR) (Italy)	

8. Euro-Mediterranean Center on Climate Change Foundation (Italy)
9. Politechnic University of Marche (Italy)
10. Marche Region (Italy)
11. Public Body for the Right to Study (Italy)
12. Public Institution Development Agency of Lika- Senj County (Croatia)
13. Karlovac County (Croatia)
14. Town of Poreč – Parenzo (Croatia)
15. City of Venice (Italy)
16. IUAV University of Venice (Italy)
17. Croatian Waters (Croatia)
18. Emilia-Romagna Region (Italy)
19. Regional Agency for Territorial Safety and Civil Protection- Emilia-Romagna Region (Italy)
20. Puglia Region (Italy)

Programme: INTERREG ITALY-CROATIA **Priority Axis 3:** Environmental and Cultural Heritage	
CNR Strategic Area: AP2 RESOURCES	
Project title: **CoAStal and marine waters integrated monitoring systems for ecosystems proteCtion AnD managemEnt**	
Acronym: CASCADE	
Role in the project: Affiliated Partner	
Duration: 01/09/2020 - 30/06/2023	
Total budget: € 5.817.547,00	
ISMAR budget: € 60.000	
Web site: https://www.italy-croatia.eu/web/cascade	
Key words: Maritime Spatial Planning - MSP, Integrated Coastal Zone Management - ICZM, Land-Sea Interaction - LSI	
Summary: CASCADE will develop a set of concerted and coordinated actions including monitoring(observing and modelling) and management (Maritime Spatial Planning - MSP, Integrated Coastal Zone Management - ICZM, Land-Sea Interaction - LSI) to enhance the knowledge and to evaluate the quality and assess the vulnerability of inland, coastal and marine ecosystems in Italy and Croatia with the final objective to restore endangered species and to support integrated management. The integrated modelling and observing systems will be developed to design and implement MSP/LSI/ICZM, management and restoration actions in 11 pilot areas. Pilot actions will assess and protect coastal and marine biodiversity in degraded areas, set up restoration actions, assess the impacts of extreme events on ecosystems and understand how to avoid conflicts and boost synergies in the areas. The project will consolidate long-lasting research capabilities in the field through a concrete dialogue with stakeholders and the participation of Agencies, research centres and universities in order to enhance inland, coastal and marine knowledge. Such shared information and monitoring protocols are essential for supporting concrete actions dealing with environmental vulnerability, fragmentation and safeguarding of ecosystem services at cross-border level.	
Contact person in ISMAR: georg.umgiesser@ismar.cnr.it	
Partnership: 1. Apulia Region (Italy) 2. Fondazione Centro EuroMediterraneo sui cambiamenti climatici (Italy) 3. Institut Ruder Boskovic (Croatia) 4. Dubrovackp-Neretvanska Zupanija – Dubrovnicj – Neretva (Croatia) 5. Agenzia Regionale per la Protezione dell'Ambiente del Friuli (Italy) 6. Università IUAV di Venezia (Italy) 7. Alma Mater Studiorum Università di Bologna (Italy) 8. Agenzia Regionale per la Protezione dell'Ambiente Emilia Romagna (Italy) 9. Delta 2000 Società Consortile ARL (Italy)	

10. Università del Salento (Italy)
11. Institut Za Oceanografiju I Ribarstvo - Institute of Oceanography and Fisheries
12. Jadranski Edukativno-Istrazivacki Centar Za Reagiranja Na Iznenadna Oneciséenja Mora-Atrac (Croatia)
13. City of Nin (Croatia)
14. Università degli Studi del Molise (Italy)
15. Regione Marche (Italy)
16. Public Institution for the Management of Protected Areas in the Area of Split-Dalmatia County Sea and Karst (Croatia)
17. Consorzio Di Gestione Di Torre Guaceto (Italy) Associated partner
18. Region of Istria (Croatia) Associated partner
19. Molise Region (Italy) Associated partner
20. Marine Protected Area Torre del Cerrano (Italy) Associated partner

Programme: INTERREG ITALIA-SLOVENIA **Priority Axis 3:** Protecting and promoting natural and cultural resources	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Rocky habitats and marine environments of the Northern Adriatic: management proposals**	
Acronym: TRETAMARA	
Role in the project: Partner	
Duration: 01/10/2019 - 30/07/2022	
Total budget: € 810.000	
ISMAR budget: € 150.000	
Web site: https://www.ita-slo.eu/it/tretamara	
Key words: rocky outcrops, management proposals, guidelines, best practices	
Summary: In the northern Adriatic Sea there are peculiar marine and coastal habitats that host a very relevant animal and plant biodiversity: they are the underwater biogenic-geogenic rocky outcrops of Friuli Venezia Giulia and Veneto, the dead corallites of Cladocora caespitosa of the Slovenian side pertaining to several coastal ZSC-ZPS along the littorals. In the frame of the previous Trecorala project (INTERREG Ita-Slo 2007-13) the ecological status of these geo-biogenic formations has been assessed: the activity led to the identification of priority habitats such as coralligenous, rhodolith and maerl fonds that have been recognized as sites of EU interest. In Slovenia, the Cladocora caespitosa formations are found in the protected marine areas Natural Monument of Punta Grossa and Strunjan Nature Park. TRETAMARA aims to build upon previous knowledge and promotes the identification of the best management practices to be included in the Management Plans of coastal and marine sites. The project will contribute to the harmonization of management plans in the northern Adriatic basin, also proposing national and transnational guidelines for an integrated management of the marine-coastal habitats of high ecological value: this will be achieved through targeted actions with high innovative content.	
Contact person in ISMAR: alessandro.bergamasco@ve.ismar.cnr.it	
Partnership: 1. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale – OGS (Italy) 2. Consiglio Nazionale delle Ricerche – Istituto di Scienze Marine (CNR-ISMAR) (Italy) 3. Nacionalni Inštitut Za Biologijo, Morska Biološka Postaja Piran (Slovenia) 4. Shoreline Società Cooperativa (Italy)	

Programme: INTERREG ITALIA-SLOVENIA **Priority Axis 3:** Protecting and promoting natural and cultural resources	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Innovative technologies to improve the durability of traditional wooden structures in socio-ecologically sensitive environments**	
Acronym: DURASOFT	
Role in the project: Lead Partner	
Duration: 01/03/2020 - 31/08/2022	
Total budget: € 864.384	
ISMAR budget: € 149.920	
Web site: https://www.ita-slo.eu/it/durasoft	
Key words: wooden service infrastructures, innovative techniques, environmental compatibility	

Summary:

Fishing and agro-pastoral activities, in the Italian lagoons and in the Slovenian highlands have produced, in the course of millennia unique types of housing in which the use of wood is predominant. They are associated with wooden service infrastructures such as piers, moorings, piling and fences. The existence of these structures and the associated cultural heritage, however, depends on constant maintenance that is no longer economically sustainable in humid and coastal environments where the degradation of wood is massive and fast. To overcome this, over the last century, impacting protection techniques and unsuitable materials have been used. Hence, the project will test some innovative techniques developed and produced by the partners aimed to increase the durability of traditional wood species and products, with special focus on soft wood. The treated wood can be used, structures in socio-ecologically sensitive environments within the Adriatic-Alpine area, in traditional buildings and service, making them economically and environmentally sustainable. The environmental compatibility of these techniques will be assessed in the light of the most recent scientific knowledge subject to protocols developed by the partners and transferable to the entire program area.

Contact person in ISMAR: davide.tagliapietra@ve.ismar.cnr.it

Partnership:

1. Consiglio Nazionale delle Ricerche – Istituto di Scienze Marine (Italy)
2. University of Ljubljana (Slovenia)
3. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (Italy)
4. Università Ca' Foscari (Italy)
5. Primorska Gospordarska Zbornica (Slovenia)
6. Silvaprodukt (Slovenia)
7. Agriteco SC (Italy)

Programme: INTERREG INTERREG Italy-France Maritime 2014-2020 **Priority Axis 2:** Protection and valorization of natural and cultural resources and risk management	
CNR Strategic Area: AP3 RISKS	
Project title: **Assistance to Navigation for a Safe Access to Ports**	
Acronym: SINAPSI	
Role in the project: Partner	
Duration: 01/04/2019 – 31/10/2022	
Total budget: € 2.188.294	
ISMAR budget: € 575.025	
Web site: http://interreg-maritime.eu/web/sinapsi	
Key words: maritime transport, safety of navigation, weather real time data	
Summary: Maritime transport is a crucial aspect of Blue Economy since international economic exchanges are based on an efficient and safe transport and logistics system of which ports are a vital element. Operational safety is essential in port areas due to an ever-increasing number of ships whose sizes keep getting bigger. Loading and unloading goods in ports must be as efficient as possible to keep up with growing competition from other ports in the Mediterranean and Northern European areas. However, these operations must guarantee the safety of ships, cargo and operators. Therefore, ensuring the safety of navigation remains an open challenge. Weather and sea conditions can affect, to a large extent, the safe handling of ships inside ports, where space is limited. Knowledge of weather and sea conditions plays a primary role in guaranteeing safety. Despite the application of new technologies, naval accidents due to bad weather and sea conditions are common; for example, the incident of the Sigma cargo ship stranded on the Tuscan coast due to strong winds and rough seas in 2017. SINAPSI's goal is to meet the need of port operators to have real-time data on weather and sea conditions and be able to navigate and handle ships in ports with complete safety. It will achieve this objective by monitoring and simulating weather and sea conditions near and inside ports. The information thus produced will be made available to the stakeholders (Pilots, Commanders, Port and Maritime Authorities) through a dedicated ICT application. SINAPSI will also integrate the current Maritime monitoring network for the measurement of weather-marine parameters.	
Contact person in ISMAR: marcello.magaldi@sp.ismar.cnr.it	
Partnership: 1. Università degli Studi di Genova (Italy) 2. Consiglio Nazionale delle Ricerche CNR-ISMAR (Italy)	

3.	Université de Toulon (France)
4.	Autorità di Sistema portuale del Mar Tirreno Settentrionale (Italy)
5.	Consorzio Laboratorio di Monitoraggio e Modellistica Ambientale (Italy)
6.	European Research Institute Onlus (Italy)
7.	Chambre de Commerce et d'Industrie du Var (France)

Programme: INTERREG MED 2014-2020 **Priority Axis 3:** Protecting and promoting Mediterranean natural and cultural resources	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Actions for Marine Protected Areas**	
Acronym: AMARE PLUS	
Role in the project: Partner	
Duration: 01/06/2021 – 30/06/2022	
Total budget: € 400.000	
ISMAR budget: € 70.000	
Web site: https://amare.interreg-med.eu/	
Key words: GIS, MSFD, Training, Geoportal	

Summary:

The objective of the current restricted call is to build upon the concrete 2014-2020 Interreg MED AMAre projects' achievements and further capitalise on completed project' outputs, bridging with the next programming period requirements, in line with the new EU growth strategy: the European Green Deal.
The call explicitly focuses on "capitalisation" – a fundamental and "key cooperation principle" of the Interreg MED Programme "Strategic Framework". Within this call, the capitalisation principle entails a very precise content, composed of 'transfer' and 'mainstreaming'. These fundamental principles represent the identity of the Interreg MED Programme and are coherent with the promotion of development, of good governance and supported by the European Union Cohesion Policy.
The starting point will be a concrete and finalised deliverables /outputs of the 2014-2020 Interreg MED AMAre completed project. These deliverables/outputs, selected for the transferring process, will be fully operational for triggering a transfer process. The call is specifically dedicated to the transfer of three products: the Spatial Geoportal" on biodiversity and multiple stressors, coupled with Monitoring Protocols, methodologies to address the effects of different combinations of human uses on vulnerable habitats and the " Transferring of best Practices across MPAs", a summary of recommendations arisen from the project.

Contact person in ISMAR: federica.foglini@bo.ismar.cnr.it

Partnership:

1. National Inter University Consortium for Marine Sciences - CONISMA (Italy)
2. National Research Council – Institute of Marine Sciences (Italy)
3. Institute of Marine SDciences – CSIC (Spain)
4. Public Institute Landscape Park Strunjan (Slovania)
5. Association for fishing and maritime activities -AFMA (France)
6. Management Body of Samaria National Park (Greece)

Programme: INTERREG MED **Priority Axis 1**: Promoting Mediterranean innovation capacities to develop smart and sustainable growth	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Mediterranean Innovation STRAtegy for transnational activity of clusters and networks of the Blue Growth**	
Acronym: MISTRAL	
Role in the project: Partner affiliated to the CNR DSSTTA	
Duration: 01/02/2018 – 30/04/2022	
Total budget: € 4.100.000	
ISMAR budget: € 42.344	
Web site: https://mistral.interreg-med.eu/	
Key words: MED cluster, Blue Growth, Smart Specialization Strategies	
Summary: The current MED area innovation performance in the blue growth (BG) sector is behind the EU average and there is a lack of transnational and transversal cooperation between the different quadruple helix actors in the BG. The aim of MISTRAL is to strenghten a transnational partnership made up of 8 countries (2 Ministries, 8 Regions, 5 Clusters, 3 RTOs and other organizations) in order to: i) make marine knowledge and sustainable innovation the key drivers for BG, ii) support MED clusters to become an excellent intermediary of knowledge for increasing blue economy, iii) design and implement sustainable development trajectories harmonised with the MED regions Smart Specialization Strategies. The strong partnership, thanks to the open innovation approach, will act as catalyzer for cooperative sustainable innovation actions, placing MISTRAL in a unique position to help the boost of the BG sector in the MED area responding to the programme challenges. A clustering innovation service pack for BG clusters and operators will improve the innovation performance of at least 300 SMEs with at least 100 experts benefitting from the transnational activities and exchange programmes on capacity building. MISTRAL has the ambition to develop a wider governance vision towards 2020 in the BG sector as well as assuring the effective policy mainstreaming. In conclusion, MISTRAL will be the Blue Innovation wind in the MED area unlocking the innovation potential of the coastal and marine ecosystem.	
Contact person in ISMAR: andrea.barbanti@ve.ismar.cnr.it	
Partnership: 1. Emilia Romagna Region (Italy) 2. ASTER (Italy)	

3. Autonomous Region of Friuli Venezia Giulia (Italy)
4. Hellenic Centrefor MarineResearch (Greece)
5. Maritime Cluster of Balearic Island (Spain)
6. Pole MerMèditerranèe (France)
7. Maritime Cluster of Andalusia (Spain)
8. CNR – DSSTA (Italy)
9. Regione of Kriti (Greece)
10. Alentejo Regional Development Agency (Portugal)
11. National Agency for Research, Technology and Innovation -International Programs Directory (Albania)
12. Aleksander Moisiu University of Durres (Albania)
13. Croatian Chamber of Economy (Croatia)
14. Chrysalis LEAP Limited (Cyprus)
15. Ministry of Agriculture and Fisheries, Food and Environment (Spain)

Programme: INTERREG Italy-France Marittimo 2014-2020 **Priority Axis 2**: Protezione e valorizzazione delle risorse naturali e culturali e gestione dei rischi	

CNR Strategic Area: AP3 RISKS

Project title: **Sistema Transfrontaliero per la Sicurezza in Mare Contro i Rischi della Navigazione e per la Salvaguardia dell'ambiente Marino plus**

Acronym: SICOMAR Plus

Role in the project: Partner

Duration: 01/04/2019 – 30/03/2022

Total budget: € 6.688.230

ISMAR budget: € 413.076

Web site: http://interreg-maritime.eu/it/web/sicomarplus

Key words: navigation safety, governance

Summary:

The project will tackle the issue of safety at sea and the monitoring of the marine environment over a cross-border area whose richness has been threatened by the continuous increasing of marine traffic of goods (especially dangerous goods) and passengers that cross the northern part of the Mediterranenan Sea for work or tourism. The area of interest is the Santuario Pelagos the wider marine protected area in the Mediterranean Sea.

SICOMAR plus aims to improve the safety of navigation in the cross-border maritime space, in particular in the Pelagos Sanctuary area. The project intends to achieve its objectives with the development of technologies and surveillance networks, the reduction of the uncertainty of the meteorological forecasting and marine circulation systems, the creation of emergency support models and risk management and services for safety at sea and environmental protection.

Contact person in ISMAR: marcello.magaldi@sp.ismar.cnr.it

Partnership:

1. Regione Toscana (Italia)
2. Consorzio Laboratorio di Monitoraggio e Modellistica Ambientale per lo sviluppo sostenibile (Italia)
3. Université de Toulon (Francia)
4. Institut FMES (Francia)
5. Agenzia Regionale per la Protezione dell'Ambiente Ligure (Italia)
6. Fondazione CIMA – Centro Internazionale in Monitoraggio Ambientale (Italia)
7. Università degli studi di Genova (Italia)
8. Consiglio Nazionale delle Ricerche (Italia)
9. Agenzia Regionale per la Protezione dell'Ambiente della Sardegna (Italia)
10. Parco Nazionale dell'Arcipelago di La Maddalena (Italia)
11. Comando Generale del Corpo delle Capitanerie di Porto – Guardia Costiera (Italia)

12. Office de l'Environnement de la Corse (Francia)
13. Institut Français de Recherche et d'Exploitation de la MER – IFREMER (France)
14. Service d'incendie et de secours de la Haute-Corse – SDIS 2B (France)
15. Communauté des Communes Golfe de Saint-Tropez (Francia)
16. Institut méditerranéen des hautes études stratégiques (France)

7. EUROPEAN TENDERS

Among the several EU Tenders CNR-ISMAR, in particular the branch of Rome, has participated to those lunched by ESA and Copernicus programmes due to the affinity with their topic fields.

The European Space Agency (ESA) is an intergovernmental organisation of 22 member states dedicated to the exploration of space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world.

Copernicus, previously known as GMES (Global Monitoring for Environment and Security), is the European Programme for the establishment of a European capacity for Earth Observation. It offers information services that draw from satellite Earth Observation and in-situ (non-space) data. The European Commission manages the Programme. It is implemented in partnership with the Member States, the European Space Agency (ESA), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the European Centre for Medium-Range Weather Forecasts (ECMWF), EU Agencies and Mercator Océan.

7.1 CNR-ISMAR IN TENDER PROGRAMMES

Continue the success of the Institute in this kind of programmes managing 27 projects 11 funded by ESA, 15 by Copernicus and 1 by EUMETSAT for a ISMAR grant share of 13.008.984,95. In 12 projects the institute is playing the role of PI. The network established with other partners since long time has produced successful results allowing the Institute, and in particular the branch of Rome, to receive a high number of projects.

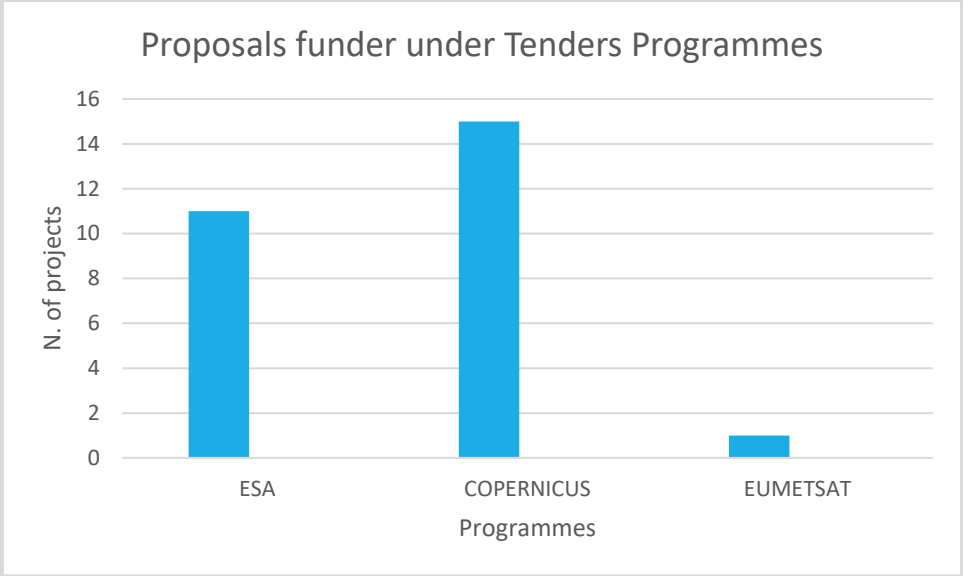


Fig. 18 Projects funded under Tender Programmes

List of ISMAR projects funded under EU Tenders

Programme: ESA	
CNR Strategic Area: AP5 TECHNOLOGIES	
Project title: **OSIP Remote Sensing for Marine Litter-Early Technology Development Scheme**	
Acronym: ESA-OSIP-RSML	
Role in the project: Partner	
Duration: 20/07/2020 - 19/07/2022	
Total budget: € 175.000	
ISMAR budget: € 30.000	
Web site: https://ideas.esa.int/servlet/hype/IMT?documentTableId=45087625536680480&userAction=Browse&templateName=&documentId=b442d4e2f5503a5a6a12f39755d9d39c	
Key words: remote sensing, marine litter, hydrodynamic modelling, pollution pathways	
Summary: Monitoring areas closer to plastic marine litter sources such as rivers and estuarine systems has the potential to improve mitigation strategies. Upscaling in-situ point data of litter with earth observation (EO) and hydrodynamic models is our central concept. Sentinel-2 and 3, together with data from similar satellite missions, will be used to monitor discharging rivers and their estuaries based on river plume detection inferred from suspended particulate matter maps. Multi-type in-situ data will be collected at various points along the pollution pathway. Imagery taken from installed cameras on bridges or other infrastructure will be analyzed using deep-learning approaches in order to detect floating plastic in rivers (in-situ type 1). This will provide improved inputs to transport models. Water samples from estuaries and coastal areas using manta trawls (in-situ 2) are used to quantify plastic litter abundances. High-resolution monitoring via automated analysis of drone imagery along the shoreline (in-situ 3) will be established for accumulation analyses as well as collecting beach samples through field surveys (in-situ 4). Integration of in-situ data, multi-scale EO and hydrodynamic modelling serves as the development basis for a monitoring system of plastic debris in aquatic ecosystems, allowing for the first time an end-to-end depiction of real-world debris transport pathways.	
Contact person in ISMAR: francesco.falcieri@ve.ismar.cnr.it	
Partnership: 1. Remote Sensing Solutions GmbH (Germany) 2. Asociación Española de Basuras Marinas (Spain) 3. Dr. Shungudzemwoyo P. Garaba, Carl von Ossietzky Universität Oldenburg (Germany) 4. CNR Istituto Scienze Marine (Italy) 5. Universität Bayreuth, Animal Ecology I (Germany)	

6. Universidade de Coimbra (Portugal) 7. HYDROMOD Service GmbH (Germany)

Programme: ESA	
CNR Strategic Area: AP5 TECHNOLOGIES	
Project title: **Detection and tracking of large marine litter based on high-resolution remote sensing time series, machine learning, and ocean current modelling**	
Acronym: ESA-TRACE	
Role in the project: Partner	
Duration: 03/08/2020 – 31/12/2022	
Total budget: € 175.000	
ISMAR budget: € 15.000	
Web site: https://www.gfz-potsdam.de/en/section/remote-sensing-and-geoinformatics/projects/trace/	
Key words: detection, tracking of macro-litter, prevention litter dispersal, satellite technology	
Summary: The overall goal is to obtain precise and reliable data on floating macro-litter regarding their quantity, position, accumulation zones, material properties, floating depth, and sources, which may serve as a basis for litter recovery, source elimination, and prevention of litter dispersal. The combination of modern satellite technology, deep learning and trajectories forecast can potentially be applied wordwilde and can help to monitor the open sea.	
Contact person in ISMAR: michol.ghezzo@ve.ismar.cnr.it	
Partnership: 1. Helmholtz Centre Potsdam (Germany) 2. IsardSAT S.L. (Spain) 3. CNR-ISMAR (Italy)	

Programme: ESA	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Ocean CIRculation from ocean COLour observations**	
Acronym: ESA-CIRCOL	
Role in the project: Principal Investigator	
Duration: 01/11/2019 – 15/02/2023	
Total budget: € 298.092	
ISMAR budget: € 247.072	
Web site: https://eo4society.esa.int/projects/circol/	
Key words: oceanic currents, high frequency and high resolution observations	
Summary: The monitoring of the oceanic surface currents is a major scientific and socio-economic challenge. Ocean currents represent one of the fundamental elements that modulate natural and anthropogenic processes at several different space and time scales, from global climate change to local dispersal of tracers and pollutants, with relevant impacts on marine ecosystem services and maritime activities (e.g. optimization of the ship routes, maritime safety, coastal protection). An appropriate monitoring of the oceanic currents must rely on high frequency and high resolution observations of the global ocean, which are achieved using satellite measurements. At present, no satellite sensor is able to provide a direct measurement of the ocean currents – The indirect and synoptic retrieval of the large-scale geostrophic component of the sea-surface motion is given by satellite altimetry at a spatial (~100km) and temporal (~one week) resolution which is not sufficient for many applications, even more in semi-enclosed basins as the Mediterranean Sea where the most energetic variable signals are found at relatively small scales. In this context, the objective of the CIRCOL (Ocean Circulation from Ocean Colour Observations) project is to improve the retrieval of altimeter-derived currents in the Mediterranean Basin combining the largescale, altimeter-derived geostrophic currents with the high-resolution dynamical information contained in sequences of satellite-derived surface Chlorophyll (Chl) observations. The project will be implemented in two phases.	
Contact person in ISMAR: daniele.ciani@cnr.it	
Partnership: 1. CNR Consiglio Nazionale delle Ricerche (Italy) 2. CLS Collecte Localisation Satellites (France)	

Programme: ESA	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Copernicus Contributing Missions access Support Functions and platform**	
Acronym: ESA-PRISM	
Role in the project: Subcontractor	
Duration: 01/12/2020 - 31/12/2025	
Total budget: n.a.	
ISMAR budget: € 125.542	
Web site: https://earth.esa.int/eogateway/instruments/prism	
Key words: data quality control, quality control service, quality of data set	
Summary: The Copernicus Space Component Data Access (CSCDA) Copernicus Contributing Missions access Support Functions and platform (PRISM) includes the operations, maintenance and evolution of the ensemble of existing supporting functions, processes, tools and infrastructures that coordinate the overall data access and information flow between the Copernicus Missions (i.e. including both the Contributing Mission Entities (CCMEs) and the Sentinels) and the Copernicus Services as well as eligible European Union Institutions, Public Authorities, Union Research Projects. Within this frame, the PRISM CSCDA Data Quality Control (CQC) CSCDA Quality Control Service is in charge of monitoring the quality of datasets and all delivered data products, and supports the investigation of any data anomaly. The CNR will support Serco Italia in the scientific analysis of the Copernicus Contributing Missions (CCMs) data.	
Contact person in ISMAR: davide.dionisi@cnr.it - gianluigi.liberti@cnr.it	
Partnership:	

Programme: ESA	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **ocean CIRculation from ocean COLour observations**	
Acronym: ESA-WOC	
Role in the project: Subcontractor	
Duration: 31/05/2020 – 31/05/2022	
Total budget: n.a.	
ISMAR budget: € 103.988	
Web site: n.a.	
Key words: 3D currents and vertical motion, long-term oceanic variability	
Summary: In the framework of the ESA-World Ocean Circulation project, CNR will coordinate Theme 2: "3D currents and vertical motion". CNR will be in charge of the development of a daily product of 3D ocean currents (including the vertical component), at mesoscale-resolving spatial resolution, over a wide section of the central/North Atlantic Ocean. The 3D currents will be estimated down to depths below the deepest mixed layer starting from the algorithms developed and used within the Copernicus Marine Service and CIRCOL project. CNR will also assist and collaborate with end-users in the analysis of the new data to explore the impact of long term oceanic variability and the role of frontal meanders and eddies in the transport and dispersal of larvae and on the migratory behaviours of selected species.	
Contact person in ISMAR: bruno.buongiornonardelli@cnr.it - daniele.ciani@cnr.it	
Partnership:	

Programme: ESA	
CNR Strategic Area: AP1 CLIMATE	
Project title: **Plastic Litter Project: Detection and monitoring of artificial plastic targets with satellite imagery and UAV**	
Acronym: ESA-PLP	
Role in the project: Partner	
Duration: 01/06/2020 – 30/05/2022	
Total budget: € 175.000	
ISMAR budget: € 35.000	
Web site: n.a.	
Key words: Multi- and hyper-spectral imagery, UAV cameras, datasets	
Summary: This project is for designing and deploying permanent at-sea infrastructure andre-deployable target structures, with polymer composition representative of what is reported in the literature, for the calibration and validation of marine debris detection methodologies. Multi- and hyper-spectral imagery from UAV mounted cameras will form part of the datasets produced. All data will be stored on a database to be shared with the scientific community upon request.	
Contact person in ISMAR: : stefano.aliani@sp.ismar.cnr.it	
Partnership: 1. University of the Aegian (Greece) 2. CNR-ISMAR (Italy) 3. A.S. Prote Maritime Ltd (Cyprus)	

Programme: ESA	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Mapping Windrows as Proxy for Marine Litter Monitoring from Space**	
Acronym: ESA-WASP	
Role in the project: Partner	
Duration: 06/05/2020 – 05/01/2022	
Total budget: € 100.000	
ISMAR budget: € 10.000	
Web site: n.a.	
Key words: Subtropical garbage patches, Sentinel-2 Marine Litter Data Processor	
Summary: There is high interest in identifying potential hotspots for litter accumulation. Subtropical garbage patches have outstanding concentrations of marine litter (ML), but they still have lower concentration than other accumulations. An example of ephemeral hotspots are windrows, sub-mesoscale fronts and other forms of water circulation in the upper layer of the project "EO Track for Marine Litter in the Mediterranean Sea" has proved that Sentinel-2 can detect and report on presence of those accumulations as proxies. These occurrences have combinations of ML and usually other organic debris, but recent investigations have shown they have significant higher ML concentrations with respect the general levels of a given basin. We propose to exploit the recently developed prototype Sentinel-2 Marine Litter Data Processor and check its capability for monitoring purposes. The main task of this activity will be running the processor for the entire archive of S-2A/B images over the entire Mediterranean Sea, including Portugal, Cantabric Sea and Gulf of Biscay coastal areas.	
Contact person in ISMAR: stefano.aliani@sp.ismar.cnr.it	
Partnership: 1. ARGANS (United Kingdom) 2. University of Cadiz – UCA (Spain) 3. CNR-ISMAR (Italy)	

Programme: ESA – OCEAN HEALTH (ITT AO/1-10757/21/I-DT)	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Detection and threats of marine heat waves**	
Acronym: CAREHeat	
Role in the project: Partner	
Duration: 01/02/2022 – 01/01/2024	
Total budget: € 495.804	
ISMAR budget: € 149.880	
Web site: n.a.	
Key words: marine heat waves, marine ecosystems	
Summary: As global ocean temperatures continue to rise, Marine Heat Waves (MHW) have become more widespread, threatening marine ecosystems and their services for food-provision, livelihoods and recreation. Predicting the occurrence, intensity and duration of MHW, and understanding their impacts on marine ecosystems is essential for management planning of ecosystems services, a key step towards developing science-based solutions for sustainable development. CAREHeat will develop novel strategies to identify MHW, assess the status and trends of MHW, and determine their effect on marine ecosystems. This will be achieved following a multidisciplinary approach capitalizing on the large potential offered by satellite Earth observations, complemented with automated (Argo and Biogeochemical-Argo) field measurements, biogeochemical modelling and emerging machine learning technologies. CAREHeat will: 1) develop, validate and cross-compare novel EO MHW products; 2) Produce an improved multidimensional global MHW Atlas, and provide a 4D MHW reconstruction Experimental Dataset; 3) Advance the understanding and prediction of MHW development, and assess the single and combined effect of MHWs and other anthropogenic stressors (acidification, eutrophication, deoxygenation) on marine dynamics, function, and biodiversity; 4) Assess the usefulness of the novel MHW indices relevant for marine ecosystems stakeholders (fishery, aquaculture, marine protected areas), contributing towards science-based solutions in support of decision-makers and marine ecosystem management strategies; 5) Provide recommendations for a Science Agenda and 5-year science roadmap.	
Contact person in ISMAR: rosalia.santoleri@cnr.it - emanuele.organelli@cnr.it - angela.landolfi@cnr.it	
Partnership: 1. CNR-ISMAR (Italy) 2. CLS (France) 3. + Atlantic (Portugal) 4. ENEA (Italy) 5. IFREMER (France) 6. Mercator Ocean (France)	

Programme: ESA	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Harmony Mission Performance and Requirement Consolidation Activity for Ocean Applications**	
Acronym: HARMONY-EXPRO	
Role in the project: Subcontractor	
Duration: 08/02/2022 – 09/12/2023	
Total budget: € 499.744	
ISMAR budget: € 58.000	
Web site: n.a.	
Key words: Earth Observation, simulation	
Summary: Harmony - a mission dedicated to the observation and quantification of small-scale motion and deformation fields – has been recommended to proceed to phase A as a candidate for ESA's 10th Earth Explorer. Aim of this activity is to justify, refine, trace and consolidate Harmony mission performances and mission requirements to SRL-5 or above through the following objectives: OBJ-1: Trace and justify Harmony requirements to scientific and user needs. Based on documented scientific user needs and applications, establish traceability for all mission requirements set out in the Harmony MRD. OBJ-2: Confirm Harmony L2 and L3 performance and product requirements. Based on the latest information from literature, international studies and documentation relevant to the Harmony mission, justify scientifically mission requirements. OBJ-3: Confirm Harmony L1 performance and product requirements through sensitivity analysis. OBJ-4: Evaluate and confirm Harmony SRL evolution using consistent Scientific Readiness Assessments of scientific activity in parallel with Harmony Phase A/B1 implementation. OBJ-5: Provide Phase A/B1 System Scientific Support to HEEPS and System Study Activities. Respond to ad-hoc request to support the progress in the Phase A/B1 system studies and HEEPS activities. OBJ-6: Promote the Harmony mission at the international level. OBJ-7: Consolidate Harmony requirements to a final set of recommendations to mature the mission requirements that address the Harmony mission aim and objectives at SRL 5 or above.	
Contact person in ISMAR: gianluigi.liberti@cnr.it	

Programme: ESA	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **ESA Climate Change Initiative Plus (CCI+) Phase one - OCEAN COLOUR**	
Acronym: OC-CCI+	
Role in the project: Subcontractor	
Duration: 30/03/2019 - 29/03/2022	
Total budget: € n.a.	
ISMAR budget: € 50.050	
Web site: https://climate.esa.int/en/projects/ocean-colour/	
Key words: utilities data, Copernicus	
Summary: This project focuses on the Ocean Colour ECV encompassing water-leaving radiance in the visible domain, derived chlorophyll and inherent optical properties and utilises data archives from Copernicus, ESA, NASA and NOAA.	
Contact person in ISMAR: rosalia.santoleri@ismar.cnr.it	
Partnership: 1. Brockmann Consult (Germany) 2. CNR 3. Foundation of the Faculty of Sciences of the University of Lisbon (FCUL) 4. HYGEOS (France) 5. Helmholtz-Zentrum Geesthacht (HZG) (Germany) 6. JRC (EU) 7. Pixalytics 8. Plymouth Marine Laboratory (PML) (UK) 9. Solvo	

Programme: ESA	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Cdom-Proxy Retrieval From Aeolus Observations**	
Acronym: ESA-COLOR	
Role in the project: Subcontractor	
Duration: 10/03/2021 – 10/09/2022	
Total budget: € 146.881	
ISMAR budget: € 48.580	
Web site: http://ricerca.ismar.cnr.it/color/	
Key words: ESA, AEOLUS data set	
Summary: The objective of the COLOR (CDOM-proxy retrieval from aeOLus ObseRvations) project is to assess the feasibility of deriving an in-water AEOLUS product from the analysis of the ocean sub-surface backscattered component of the 355 nm signal acquired by the ALADIN (Atmospheric LAser Doppler INstrument). The project will focus on the potential retrieval of the ocean particle optical properties at 355 nm: diffuse attenuation coefficient for downwelling irradiance, Kd [m-1], and sub-surface hemispheric particulate backscatter coefficient, bbp [m-1]. COLOR activities are organized in three different but interacting phases: 1) Consolidation of the scientific requirements; 2) Implementation and assessment of AEOLUS COLOR prototype product; 3) Scientific roadmap. Furthermore, data collection activity will feed phase 1 and 2, encompassing both AEOLUS dataset and the ancillary reference/validation datasets. The overall proposed approach is based on the transfer of the lidar consolidated know-how from atmospheric to oceanic applications through AEOLUS observation data analysis and ocean radiative transfer numerical modelling.	
Contact person in ISMAR: davide.dionisi@cnr.it	
Partnership: 1. CNR Consiglio Nazionale delle Ricerche (Italy) 2. Aequora (Portugal) 3. SERCO ITALIA SPA (Italy) **4.** Università della Basilicata (Italy)	

Programme: Visiting Scientist Activity at the Ocean Sea Ice Satellite Application Facilities (OSI-SAF) of EUMETSAT	EUMETSAT OSI SAF OCEAN AND SEA ICE
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Coastal PenWP**	
Acronym: VS21_03	
Role in the project: Partner	
Duration: 01/11/2021 - 31/03/2022	
Total budget: € 36,278	
ISMAR budget: € 36,278	
Web site: https://osi-saf.eumetsat.int/community/stories/	
Key words: land contamination, coastal areas EUMETSAT	

Summary:

Coastal winds are of paramount importance for a large variety of both civil and scientific applications. Today, scatterometer-derived winds represent the golden standard for satellite-derived winds.
However, the impact of land contamination in coastal areas may lead to undesired biases that can be mitigated by careful pre-processing. In particular, excessively contaminated footprints should be discarded, and the low contaminated ones should be "corrected" to remove the land contribution. EUMETSAT OSI-SAF plays a leading role in the distribution of operational winds and research and development (R&D). One of its aims is to improve wind accuracy and sampling, especially near the coast. This project is the follow-up of the projects VS20_01 and VS20_03. The final aim of these projects is to improve both the accuracy and sampling of the winds derived from the American scatterometer SeaWinds onboard the satellite mission QuikSCAT.

The main goals of this project are:
a) Implement a Land Contribution Ratio (LCR) based Normalized Radar Cross Section (NRCS) correction scheme
b) Assess the most accurate averaging procedure among the boxcar averaging and the noise-based averaging of the available measurements
c) Implement the sea NRCS regression scheme in the PenWP processor

Contact person in ISMAR: giuseppe.grieco@cnr.it

Partnership:

1. KNMI (Netherlands)
2. Institut de Ciències del Mar - ICM-CSIC (Spain)
3. CNR-ISMAR (Italy)

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Validation and Intercomparison of Global Ocean Reanalyses for Mesoscale**	
Acronym: COP-GLORAN-LOT5	
Role in the project: Principal Investigator	
Duration: 01/01/2022 - 31/12/2024	
Total budget: € 90.000	
ISMAR budget: € 90.000	
Web site: n/a	
Key words: GLORAN, CMEMS	
Summary: The Global Ocean Reanalysis (GLORAN) component of CMEMS is designed to provide, among a large portfolio of products, long-term physical reanalyses of the global ocean, covering at least the era of satellite altimetry, along with their scientific assessment. CNR-ISMAR is leading the activities of validation and intercomparison of CMEMS ensemble global reanalyses (GREP) focusing on mesoscale eddies. We will use a three dimensional eddy tracking scheme to understand the statistics of eddy population, duration in GREP and compare with higher resolution of ocean reanalysis (CMEMS GLORYS12). The eddy tracking will provide us the base to investigate eddy induced kinetic energy, mixed layer depth, vertical velocity, Ekman pumping and heat/salt transport, etc. The objective is to understand the uncertainty of the climate signals present in reanalyses dataset at mesoscale and to ensure the quality of reanayses data used in ocean and climate studies related to mesoscale eddies.	
Contact person in ISMAR: chunxue.yang@cnr.it	
Partnership: CNR-ISMAR (Italy)	

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Validation and inter-comparison of global ocean reanalyses for long term changes in the ocean state**	
Acronym: 21003-COP-GLORAN-Lot8	
Role in the project: Principal Investigator	
Duration: 01/01/2022 - 31/12/2023	
Total budget: € 90.000	
ISMAR budget: € 90.000	
Web site: n/a	
Key words: GLORAN, CMEMMS	
Summary: The Global Ocean Reanalysis (GLORAN) component of CMEMS is designed to provide, among a large portfolio of products, long-term physical reanalyses of the global ocean, covering at least the era of satellite altimetry, along with their scientific assessment. CNR-ISMAR proposes the independent validation and inter-comparison of the GREP global ocean reanalyses, looking in detail at the low-frequency changes, trends, and climatologically relevant diagnostics, deduced from the GREP ocean reanalyses along with other reanalysis products belonging to the CMEMS catalogue and outside it. Observation-only products will also be used for reference. The scientific team involved in the project has a long-standing experience in ocean reanalysis development, production and validation, and assessment of key parameters such as ocean heat and salt content, sea level and its steric component, and slowly varying processes. We will focus our studies not only on such relevant variables, assessed at both global and regional levels, but also on sea level budget studies, ocean heat content optimization through a multi-platform approach, and analysis of the thermohaline circulation, volume, heat, and salt transports across the main oceanic sections, and extreme events such as marine heat waves.	
Contact person in ISMAR: andrea.storto@cnr.it	
Partnership: CNR-ISMAR (Italy)	

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Copernicus Marine Service - Multi Observations Thematic Assembly Centre - CNR Production Unit**	
Acronym: CMS-MOB-TAC	
Role in the project: Partner	
Duration: 01/01/2021 - 31/12/ 2024	
Total budget: € 1.900.000	
ISMAR budget: € 180.000	
Web site: http://marine.copernicus.eu	
Key words: Copernicus Marine Service Multi Observations Thematic Assembly Center	
Summary: In the framework of the Copernicus Marine Service Multi Observations Thematic Assembly Center (CMS-MOB-TAC), CNR will be in charge of two production lines for global Sea Surface Salinity (SSS)/Sea Surface Density (SSD), and global vertical velocities (OMEGA3D). Specifically, CNR Production Unit (PU) will implement three evolutions of the present processing chains, including: the ingestion of SMAP data in the SSS/SSD chain, the upgrade of the SSS/SSD product to 1/8° daily processing, the upgrade of the OMEGA3D processing chain to the algorithm developed within ESA-WOC project	
Contact person in ISMAR: bruno.buongiornonardelli@cnr.it	
Partnership: 1. CLS (Collecte Localisation Satellites) (France) Coordinator 2. CNR (Consiglio Nazionale delle Ricerche) (Italy) 3. LSCE (Laboratoire des Sciences du Climat et de l'Environnement) (France) 4. LOV (Laboratoire d'Océanographie de Villefrance) (France) 5. IFREMER (Institut Français de Recherche pour l'Exploitation de la Mer) and CATDS (Centre Aval de Traitement des Données du Satellite SMOS) (France)	

Programme: Copernicus Marine Training Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **EUMETSAT ITT**	
Acronym: EUMETSAT ITT	
Role in the project: Subcontractor	
Duration: 01/01/2022 – 31/12/2023	
Total budget: € 251.040	
ISMAR budget: € 51.040	
Web site: n.a.	
Key words: Copernicus, Sentinel, marine, training ocean colour	
Summary: Following the successes of the first phase of the European Commission Copernicus programme, EUMETSAT is continuing and expanding its offer of data access services, marine data products, as well as marine training activities and user support services, under phase two. EUMETSAT operates the Sentinel-3, Sentinel-6 and Jason-3 satellites, and provides level-1 and level-2 marine data products for ocean colour, sea surface temperature, and altimetry science and applications. User support services include data access, customisation, and visualisation platforms, web-based technical information about products, as well as a helpdesk available to answer a full range of user queries on the products and their use. Interactive training activities are designed to accommodate a diverse range of audiences, both research and operational, putting trainee needs and interests at the centre of learning objectives. A focus on co-development of resources and participant-led learning interventions allows participants to tailor their own experiences towards development of the skills and knowledge that will help them in their own applications and work tasks. Building on four years of successful general courses, this project will develop from EUMETSAT further specialised training and advanced courses for the marine community.	
Contact person in ISMAR: vittorio.brando@cnr.it	
Partnership:	

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Copernicus Marine: Provision of ocean observation product**	
Acronym: CMEMS LOT7_INSTAC	
Role in the project: Subcontractor	
Duration: 15/12/2021 – 31/12/2024	
Total budget: € 5.450.000	
ISMAR budget: € 100.000	
Web site: n.a.	
Key words: HF radar, ocean currents, ocean observation, copernicus marine	
Summary: The mission of the In Situ Thematic Centre (INS TAC) is to provide integrated in situ products built from in situ observations acquired from outside Copernicus Marine Service data providers to fit the needs of Copernicus Marine Service internal and external users. It is a distributed centre composed of 6 regional centres working closely with the EuroGOOS ROOS (Regional Operational Observing System) and a Global centre well connected to the JCOMM networks (Joint WMO-IOC Commission for Oceanography and Marine Meteorology). INS TAC also works closely with the SeaDataNet infrastructure that coordinates a network of European National Data Centres which archive observation data acquired within scientific campaign and EMODNet, which is a network of organisations supported by the EU's integrated maritime policy. The in situ products are either assimilated in forecasting models by MFCs , used as ground truth for models from the Monitoring and Forecasting Centers (MFC) or Satellite Thematic Centre (TAC) product validation or provided to Copernicus Marine Service users for Research and downstream activities.	
Contact person in ISMAR: carlo.mantovani@cnr.it	
Partnership: 1. IFREMER (France) 2. AZTI (Spain) 3. BSH (Germany) 4. CLS (France) 5. CNE (Italy) 6. HCMR (Greece) 7. IMR (Norway) 8. IO-BAS (Bulgaria) 9. NOLOGIN (Spain) 10. OceanScope (France) 11. Puertos del Estado (Spain) 12. POKAPOK (France) 13. SMHI (Sweden)	

14. SOCIB (Spain)
15. SYKE (Finland)
16. UiB (Norway

Programme: Copernicus Climate Change Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Advancing ocean data assimilation methodology for climate applications**	
Acronym: ERGO2	
Role in the project: Partner	
Duration: 01/07/2022 - 30/06/2025	
Total budget: € 1.200.000	
ISMAR budget: € 225.000	
Web site: n.a.	
Key words: data assimilation, atmosphere, land, ocean, sea-ice and ocean waves	

Summary:

This proposal builds on the development already carried out under a previous C3S contract (C3S_321b), which implemented the components needed to enable an ensemble of data assimilations (EDA) for ocean reanalyses. The main goal of this contract is to further integrate these individual components and to develop additional data assimilation (DA) tools so the next generation of C3S climate reanalysis can benefit from better exploitation of the available observations. The activity within this contract will contribute to the following production streams:

- OCEAN6: multi-decadal uncoupled ocean reanalyses for climate studies and initialization of seasonal/decadal coupled forecasts. This will use NEMO4 forced by ERA5 surface forcing, and the latest version of NEMOVAR. The service sought will help to finalize the final configuration of OCEAN6 and assist with monitoring during production. OCEAN6 will also serve as reference and anchor for ERA6, described next. The production of OCEAN6 is intended to start before Q1-2023.
- ERA6: the next generation of C3S' s Reanalysis System which will be conducted using a coupled data assimilation methodology (at an outer-loop level) to provide a monitoring capability for the Earth System, including atmosphere, land, ocean, sea-ice and ocean waves, and to be ready for production in early 2024. The service sought shall advance the ocean and data assimilation methodology to ensure improved exploitation of surface observations.
- ERA6-Ocean-offline: a multidecadal uncoupled ocean reanalysis forced by ERA6 surface forcing, produced in a sequential manner. The service sought aims at improving the reliability of the low- frequency climate signals.

Contact person in ISMAR: andrea.storto@cnr.it

Partnership:

1. INRIA (France),
2. CERFACS (France)
3. CNR-ISMAR

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **evaluation of the WAter Mass Balance in Ocean Reanalyses with space geodetic measurements**	
Acronym: WAMBOR	
Role in the project: Partner	
Duration: 01/07/2022-30/06/2024	
Total budget: € 150.000	
ISMAR budget: € 52.000	
Web site: n.a.	
Key words: satellite gravity measurements, ocean mass changes	
Summary: The objective of the WAMBOR (WAter Mass Balance in Ocean Reanalyses) project is to improve the observational constraints on the water mass balance in ocean reanalyses with satellite geodetic measurements. Large uncertainties affect the water mass balance in ocean model forcing. The exchanges of freshwater fluxes between the continents and the ocean rely on climatological estimates of the river discharge, that are by construction unable to capture the full variability of the global water cycle. The GRACE and GRACE-FO satellite gravity missions are able to quantify the redistribution of water masses at the Earth's surface over nearly two decades (2002 - present day). The WAMBOR project will set up a production chain to estimate ocean mass changes from GRACE and GRACE-FO satellite gravity measurements, that will be extended over the satellite altimetry era (1993 - 2020) with the fusion of several independent data sources. The freshwater fluxes between the continents and the oceans will then be deduced from the water mass balance equation solved at global scale over the ocean and at regional scale over land. Finally, several ocean model experiments will be carried out to test the sensitivity of the ocean circulation to improved freshwater forcing. In summary, the WAMBOR project will prepare the addition of new satellite data (GRACE and GRACE-FO) in the Copernicus Marine Environment Monitoring Service (CMEMS) and investigate how these new data can improve ocean models and reanalyses.	
Contact person in ISMAR: andrea.storto@cnr.it	
Partnership: 1. Magellium (France) 2. CNR-ISMAR (Italy)	

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Copernicus Marine - Digital Operations of Dissemination Services - LOT-1 Operating the Dissemination Unit**	
Acronym: COP2-DU	
Role in the project: Lead Partner	
Duration: 01/01/2022 – 30/09/2023	
Total budget: € 4.500.000	
ISMAR budget: € 490.000	
Web site: https://marine.copernicus.eu/	
Key words: Copernicus programme, end-users, forecast, oceanography, ocean & climate, data analysis and processing, operational mode, service providers.	

Summary:

The Copernicus Marine Service (or Copernicus Marine Environment Monitoring Service) is the marine component of the Copernicus Programme of the European Union. It provides free, regular and systematic authoritative information on the state of the Blue (physical), White (sea ice) and Green (biogeochemical) ocean, on a global and regional scale. It is funded by the European Commission (EC) and implemented by Mercator Ocean International. It is designed to serve EU policies and International legal Commitments related to Ocean Governance, to cater for the needs of society for global ocean knowledge and to boost the Blue Economy across all maritime sectors by providing free-of-charge state-of-the-art ocean data and information.

It provides key inputs that support major EU and international policies and initiatives and can contribute to: combating pollution, marine protection, maritime safety and routing, sustainable use of ocean resources, developing renewable marine energy resources, supporting blue growth, climate monitoring, forecasting, and more. It also aims to increase awareness amongst the general public by providing European and global citizens with information about ocean-related issues.

Product Management function is ensured by a central IT element of the system – the Marine Data Store (MDS), composed by Central DU and DRAS systems – where all product data will be stored, registered and organized for their exploitation and a Marine Information System (MIS) manages all IT data flows.

The Central Dissemination Unit (DU): it is the main operational Back-End component of the system which allows collection of data, its storage and backing up, and delivering all standard delivery interfaces on which all Front-End services such as the Central Portal (and 3rd party websites) rely on.

Contact person in ISMAR: vega.forneris@cnr.it

Partnership:

1. CNR-ISMAR (Italy)
2. ACRI-ST (France))
3. ADWAISEO (Luxembourg)
4. ETT (Italy)
5. IFREMER (France)
6. INNUERE (Italy)
7. LASERROMAE (Italy)
8. SERCO-Italia (Italy)
9. T-SYSTEMS (France)

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Copernicus Marine - Production Provision of Ocean Observation Products Thematic Assembly Centre OC TAC_LOT2**	
Acronym: Copernicus Marine Ocean Colour Thematic Assembly Center LOT 2	
Role in the project: Lead Partner	
Duration: 01/01/2022- 31/12/2024	
Total budget: € 3.645.461	
ISMAR budget: € 1.263.875	
Web site: https://marine.copernicus.eu/about/producers/oc-tac	
Key words: Ocean Colour, operational oceanography, satellite	

Summary:

The Ocean Colour Thematic Assembly Centre (OC TAC) operates the European Ocean Colour component within the Copernicus Marine Service, bridging the gap between space agencies and end-user with high-quality core ocean colour products for the Global Ocean and the European regional seas based on multiple satellite missions.

OCTAC provides in a timely and sustained manner a set of the Essential Ocean Variables (EOVs) that can be retrieved from Ocean Colour radiometry, i.e., CHL, IOPs and PFTs/PSCs (Phytoplankton Functional Groups and community structure). Global and regional products are higher level observational combined products providing an added value to standard products delivered by the space agencies. Regional products provide higher accuracy than standard global products as the regionalisation of processing chains takes into account the bio-optical characteristics of each regional sea. Blended datasets are generated by applying the appropriate algorithms across the open ocean and coastal waters.

Contact person in ISMAR: vittorio.brando@cnr.it

Partnership:

1. CNR-ISMAR (Italy)
2. AEQUORA LDA (Portugal)
3. ACRI-ST S.A.S., (France)
4. Brockmann Consult GmbH (Germany)
5. INNUERE CONSULTING (Italy)
6. Plymouth Marine Laboratory (United Kingdom) (01/01/2022 - 31/03/2023)
7. Royal Belgian Institute of Natural Sciences (Belgium)
8. Suomen ympäristökeskus SYKE (Finland)

Programme: Copernicus Marine Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Copernicus Marine - Production Provision of Ocean Observation Products Thematic Assembly Centre (TAC)- SST TAC LOT3**	
Acronym: : Copernicus Marine Service SST TAC	
Role in the project: Lead Partner	
Duration: 01/01/2022 - 31/12/2024	
Total budget: € 1.756.718	
ISMAR budget: € 524.421	
Web site: n.a.	
Key words: Sea Surface Temperature (SST), Operational Oceanography, Satellite sensors, Climate, Ocean Monitoring Indicators	

Summary:

CNR-ISMAR leads the Copernicus Marine Service Sea Surface Temperature (SST) Thematic Assembly Centre (TAC). The SST TAC, a consortium composed by different production units (PUs), is the service in charge of the operational production of state-of-the-art SST products covering the Global Ocean (GLO) and the European Seas, namely the North West Shelf/Iberia-Biscay-Irish Seas (ATL), Baltic Sea (BAL), Black Sea (BS) and Mediterranean Sea (MED).

All these products are primarily based on satellite observations and provided as merged multi-sensors (level-3) and gap-free (level-4) near real time (NRT) and multi-year (or reprocessed, REP) datasets, designed respectively for operational and climate applications.

This TAC works to continuously improve the service, addressing specific requirements from the users, improving the quality and accuracy of the products delivered, maintaining up-to-date the processing chains through e.g. integration of new generation satellite sensors (as e.g. SLSTR from the Sentinel-3A/-3B/-3C satellites), and releasing new products.

SST TAC maintains and updates on a regular basis the provision of the so-called SST Ocean Monitoring Indicators (OMIs) and contributes to the Ocean State Report to provide consistent descriptions of the ocean state over the past decades.

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Partnership:

1. CNR-ISMAR (Italy)
2. DMI (Danish Meteorological Institute) (Denmark)
3. Ifremer (French Research Institute for Exploitation of the Sea) (France)
4. Met.No (Norwegian Meteorological Institute) (Norway)
5. Innuere Consulting (Italy)

Programme: Copernicus Climate Change Service	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Technical Solutions for C3S2_520: Quality Assurance for Datasets in the Climate Data Store**	
Acronym: C3S2_520	
Role in the project: Lead Partner	
Duration: 01/02/2022 - 31/12/2026	
Total budget: € 5.550.000	
ISMAR budget: € 1.329.144,00	
Web site: n.a.	
Key words:	
Summary: The project enhance the quality and efficiency of the C3S Evaluation and Quality Control (EQC) function through the delivery of an efficient and timely quality assurance of C3S climate datasets. The final goal is to facilitate users in the dataset selection and the self-assessment fitness-for-purpose of the selected datasets. The objective of C3S2_520 is to continue the EQC effort addressed in previous EQC contracts (C3S_511 and C3S_512), evolve the existing EQC concepts and infrastructure already put in place, and further consolidate, harmonise and streamline the entire framework, including its methodologies, procedures and outputs.	
Contact person in ISMAR: chunxue.yang@cnr.it	
Partnership: 9. Consiglio Nazionale delle Ricerche (Italy) 10. Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici (CMCC) (Italy) 11. Centre National de la Recherche Scientifique (CNRS) (France) 12. Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC) (Spain) 13. Agenzia Nazionale Per Le Nuove Tecnologie, L'energia E Lo Sviluppo Economico Sostenibile (ENEA) (Italy) 14. Norwegian Meteorological Institute (Met Norway), Nansen Environmental and Remote Sensing Center (NERSC) (Norway) 15. Vrije Universiteit Brussel (VUB) (Belgium) 16. The Climate Data Factory (TCDF) 17. CoLAB +Atlantic (+Atlantic) (Portugal)	

8. CNR-ISMAR IN OTHER PROGRAMMES

CNR-ISMAR has received 17 projects from different EU and international programmes for a grant share of € 3.250.721,95. It is worth to underline that in the LIFE Programme the project LIFE.DREAM is coordinated by CNR-ISMAR and that 3 projects have been funded by the ONR programme while 3 dealing with MSP topic under EMFAF programme REGINA MSP, MSP-GREEN and REMAP and MSP-MED always dealing with the same topic under EASME programme. The 2 projects financed by MIUR-JPI Ocean, the 1 by JRC, the 1 by Biodiversa , the 1 by Erasmus + shows that researchers are exploring also other kind of programmes with remarkable results.

The 3 projects funded in the frame of Bilateral cooperation (with Azerbaijan, Japan and Lebanon) for a total amount of € 28.000 ensure the exchange of know-how among the CNR-ISMAR and other Institutes at worldwide level.

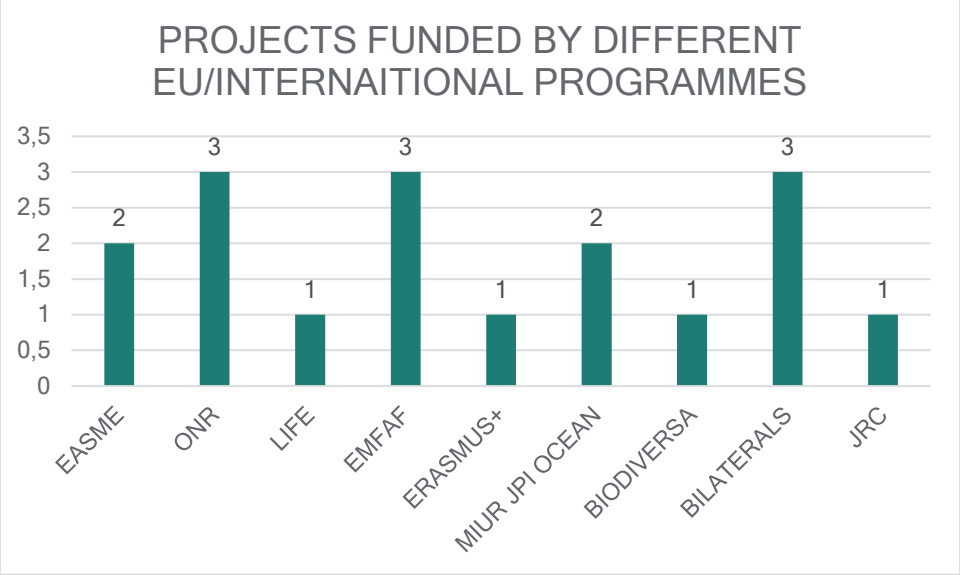

Fig. 19: Projects funded under different EU/International Programmes

List of CNR-ISMAR projects funded under Other Programmes

Programme: Office of Naval Research – ONR	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Vertical velocities and 3D pathways from Lagrangian and microstructure data**	
Acronym: 3D-pathways	
Role in the project: Lead Partner	
Duration: 01/07/2018 – 14/07/2022	
Total budget: € 141.555	
ISMAR budget: € 141.555	
Web site: https://www.nre.navy.mil/	
Key words: drifter data, thermocline and microstructure properties, vertical transport	
Summary: The goal of this project is to contribute to the understanding and prediction of processes of vertical transport from the surface to depth through the joint analysis of Lagrangian data at the surface and water column data from LADCP and microstructure glider. The proposed research will contribute to the identification and characterisation of high vertical velocity regions and 3D pathways in the frontal area of interest in the South Western Mediterranean Sea. This will be achieved through the development of new methodologies and through the participation to the planning, implementation and analysis of the multiplatform experiments. The proposed work will be carried out along the following two main lines: • a targeted analysis of drifter data will be performed to identify surface convergence regions with high vertical velocities; • thermohaline and microstructure properties in the corresponding interior regions will be characterised using a glider equipped with a Micro Rider, and estimates of vertical velocities from LADCP data.	
Contact person in ISMAR: maristella.berta@ismar.cnr.it	

Programme: Office of Naval Research – ONR	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Multiplatform observations (Lagrangian , microstructure and microplastic) for the study of vertical velocities and subduction**	
Acronym: 3D-pathways II	
Role in the project: Lead Partner	
Duration: 01/12/2021 – 29/02/2024	
Total budget: € 135.037	
ISMAR budget: € 135.037	
Web site: https://www.nre.navy.mil/	
Key words: drifter data, thermocline and microstructure properties, vertical transport	
Summary: The goal of this proposal is to contribute to the identification and characterization of high vertical velocity regions and 3Dpathways in frontal areas ,through the joint analysis of Lagrangian data at the surface, Argofloat samplings and microstructure observations. Vertical dynamics will be further explored by using microplastics and microfibers as a subduction tracer with samples collected in the water column and surface layers.	
Contact person in ISMAR: maristella.berta@ismar.cnr.it	

Programme: OFFICE NAVAL RESEARCH (ONR)	
CNR Strategic Area: AP6 IMPACTS	
Project title: **Vital Rates Cuvier's beaked wales: A multi regional comparative assessment**	
Acronym: ZIFIO	
Role in the project: Sub-contractor	
Duration: 01/07/2021 – 29/09/2023	
Total budget: € 300.000	
ISMAR budget: € 20.000	
Web site: n.a.	
Key words: Population dynamics, demographic parameters, Cuvier's beaked whale, multi-region, disturbance	
Summary: The goal of this project is to estimate and compare vital rates for Cuvier's beaked whales at five study areas around the world. These regions have widely ranging histories of military sonar use: from virtually none, to decades of frequent use that continues today. Population level effects are a pressing concern in areas where whales are chronically exposed and Population Consequences of Disturbance models have been developed to help understand what these effects might be. The results of this proposal would both inform key parameters and validate resulting projections of those models, which rely heavily on vital rate data that are currently deficient or non-existent for most Cuvier's beaked whale populations.	
Contact person in ISMAR: simone.tenan@ismar.cnr.it	

Programme: LIFE-2021-SAP-NAT	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Deep REef restoration And litter removal in the Mediterranean sea**	
Acronym: LIFE-DREAM	
Role in the project: Lead Partner	
Duration: 01/09/2022 - 31/08/2027	
Total budget: € 5.308.472	
ISMAR budget: € 1.140.739	
Web site: n.a.	
Key words: biodiversity, Natura 2000, ML recovery and recycling	

Summary:

The EU's biodiversity strategy for 2030 promotes the recovery of the biodiversity of European natural ecosystems through extending conservation networks, preventing and reducing anthropic impacts, and restoring the degraded natural heritage. Marine Deep Reefs (DR) are ecologically relevant benthic habitats acting as CO2 sinks and attracting a highly diverse associated fauna. The multiple pressures DR are currently facing (e.g., climate change, fishery and littering) make the need to protect and restore these habitats more urgent. Marine Litter (ML) can affect the health status of DR, leading to the loss of associated ecological functions. Through an innovative, sustainable approach, the LIFE DREAM Project aims at mitigating the anthropic pressure on deep sensitive habitats (DR) and promoting their protection, recovery and preservation. LIFE DREAM will comprise active intervention to aid the regeneration of DR and will provide supporting information to extend the Natura 2000 network to the deep-sea by integrating biological data on DR and ecosystems services they supply with spatial data on human activities. Active restoration (deployment of artificial structure as substrate for DR the forming-species growth) will be integrated with passive restoration activities (ML removal in correspondence of DR). The involvement of fishers and stakeholders within LIFE DREAM activities intends to enhance the impact of the project and boost a social behavior change. Following the principles of the circular economy, among the ambitions of the Project is pairing the recovery with recycling of materials at the end of their lifecycle, converting the recovered ML in 2nd generation fuel that will reduce the CO2 emissions. The results of LIFE DREAM would represent the baseline to extend the Natura 2000 network to the deep Mediterranean Sea and to restore deep sensitive habitats by providing best practices for DR restoration and the related costs and benefits.

Contact person in ISMAR: federica.foglini@bo.ismar.cnr.it

Partnership:

1. Consiglio Nazionale delle Ricerche (Italy)
2. Universita degli Studi di Bari Aldo Moro (Italy)

3. Hellenic Centre for Marine Research (Greece)
4. Net European Consulting Srls (Italy)
5. Enaleia Astiki Mi Kerdoskopiki Etaireia (Italy)
6. Universita Politecnica delle Marche (Italy)
7. Agencia Estatal Consejo Superior de Investigaciones Cientificas (Spain)
8. Universita degli Studi di Napoli Federico II (Italy)
9. Regione Puglia (Italy)
10. Region of Thessaly (Italy)
11. Stazione Zoologica Anton Dohrn (Italy)
12. Federpesca - Federazione Nazionale delle Imprese di Pesca (Italy)
13. Organizacion De Productores Pesqueros de Almeria(Spain)
14. Universita degli Studi di Roma Tor Vergata (Italy)

Programme: ERASMUS +	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Supporting the development of socially-inclusive Blue Challenges in schools in the Mediterranean Sea-basin**	
Acronym: BlueS_Med	
Role in the project: Partner	
Duration: 01/09/2020 – 31/08/2023	
Total budget: € 448.169	
ISMAR budget: € 49.807	
Web site: n.a.	
Key words: educational activities on marine issues, innovative approaches	
Summary: The Erasmus+ project entitled "Supporting the development of socially-inclusive Blue Challenges in schools in the Mediterranean Sea-basin" (BlueS_Med) aims at developing, testing and evaluating innovative approaches to integrate ocean/marine issues and challenges in the curriculum and educational activties of schools in different Mediterranean countries. The project will build on the following principles: (a) co-building - ensuring children/pupils contribute to the co-design of "their" Blue challenge - putting co-responsibility and action at the center of their Blue Challenge; (b) interactive and proactive - making use of all e-tools and social medias to support implementation and peer-to-peer exchanges, while giving the priority to "practical activities" that give a feeling about the ocean and the human-ocean relationships; (c) inclusive - giving special attention to mobilise children from different social groups, to generate gender unbiased questions and to learning about the principle of democracy (discussing, listening, accepting while being still mobilised) when designing and implementing their Blue challenge; (d) sustainable - ensuring the footprint of the project and of the actions proposed under the Blue Challenge of each school is minimised - and that potential environmental and social ancillary benefits are delivered whenever possible and relevant.	
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Partnership: 1. Acteon Sarlfrance (France) 2. Consiglio Nazionale delle Ricerche (Italy) 3. Associazione Nazionale Insegnanti di Scienze Naturali (Italy) 4. European Research Institute Associazione (Italy) 5. Hellenic Centre for Marine Research (Greece) 6. Dimokritio Panepistimio T) 7. Agence Française Pour La Biodiversité (France) 8. Institut De La Mer De Villefranche (France) 9. Parc National Des Calanques (France	

Programme: MIUR JPI OCEANS	
CNR Strategic Area: AP1 CLIMATE	
Project title: Fluxes and Fate of (Small) Microplastics in Northern European Waters	
Acronym: FACTS - MIUR JPI OCEANS	
Role in the project: Partner	
Duration: 01/01/2020 – 31/12/2022	
Total budget: € 2.000.000	
ISMAR budget: € 144.150	
Web site: n.a.	
Key words: microplastics contamination, distribution and transport of MP	
Summary: FACTS will create new knowledge and improve our mechanistic understanding on the sources, transport, occurrence, and fate of small microplastics in the northern marine waters. FACTS will combine state-of-the-art analytical, monitoring and modelling approaches in feedback cycles to describe transport and geographical sources of microplastics contamination as well as sinks from the temperate waters of the southern North Sea to the Arctic waters of the Barents Sea. It analyses the distribution of MP in the water column and quantifies Skagerrak as a major sink zone. Investigated transport processes range from drift scenarios to air transport to aggregation and sinking processes. FACTS also zooms in on the geographic scale to study microplastic transport and fate in a semi enclosed fjord system. The goal is to address the question of how MP move vertically in the water column with time under comparatively well-defined hydrodynamic conditions. FACTS is structured around a set of sampling campaigns reaching from the German Bight to Svalbard, where samples are collected from large research vessels, smaller research vessels, fishery vessels and land based boats. Plastic particle concentrations, obtained from the proposed sampling campaigns are implemented into oceanographic models. The modelling approach is used to integrate release and transport scenarios, and the likelihood and timescale for particle pathways is estimated based on sinking, defragmentation, and beach ingrates, obtained from observations.	
Contact person in ISMAR: stefano.aliani@sp.ismar.cnr.it	
Partnership: 1. Aalborg Universitet (Denmark) 2. Alfred-Wegener-Institut Helmholtz-Zentrum für Polar und Meeresforshung (Germany) 3. Norwegian Institute for Air Research (Norway) 4. Carl von Ossietzky Universität Oldenburg (Germany) 5. Consiglio Nazionale delle Ricerche- Istituto di Scienze Marine (Italy) 6. Havforskningsinstituttet (Norway) 7. Norwegian Research Centre AS (Norway)	

8. GEOMAR Helmholtz Zentrum für Ozeanforschung Kiel (Germany)
9. Göteborgs Universitet (Sweden)
10. Technische Universität Berlin (Germany)
11. 5750 Imhoff Drive (USA)
12. Universitetet i Bergen (Norway)
13. Continental Reifen Deutschland GmbH (Germany)
14. Ocean Scientific International LTD (United Kingdom)
15. Heriot-Watt University (United Kingdom)

Programme: MIUR JPI OCEANS - Underwater noise call	
CNR Strategic Area: AP3 RISKS	
Project title: **ecOsystem Responses to Constant offsHorE Sound specTRA**	
Acronym: ORCHESTRA	
Role in the project: Partner	
Duration: 36 months	
Total budget: € 2.000.000	
ISMAR budget: € 345.048	
Web site: n.a.	
Key words: copepods, physical-biological interactions, underwater noise	

Summary:

The dynamic of marine communities between and within ecosystems depend on responses to a multivariate set of changes such as climate warming and environmental pollution. The increase of anthropogenic underwater noise (AUN) through oil exploitation, ship traffic and the construction and operation of wind turbines alters the marine acoustic environment significantly and is now considered a global challenge. AUN can harm a variety of taxa by impairing an individual's physiological, ethological, and fitness relevant behaviors. These behaviors include orientation, searching mates, anti-predator behavior and foraging. Benthic and planktonic invertebrates are playing a key role as a dynamic link between lower and higher trophic levels in the world's oceans. However, data on the effects of AUN on these organisms are scarce but crucial for the implementation of mitigation strategies for GES. ORCHESTRA combines interdisciplinary expertise on plankton, benthos, fish and underwater acoustics from five Institutions of four countries. Together, we will fill the presented knowledge gaps by sampling and through laboratory and field experiments with a focus on behavioral and physiological/molecular changes on key species and on community effects. The experiments will be conducted in a multiple stressor, AUN and warming scenarios, approach. The AUN exposure in the laboratory (playbacks and simulations) and in the field (the real deal) is decided upon the current development in ship traffic and offshore wind farming. The resulting data will be combined with information on local soundscapes in order to produce maps of risks. In the end, our results should be implemented in strategies for the mitigation of AUN impacts on marine ecosystem key species and further contribute to the development of measures and criteria/indices to reach GES.

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Partnership:

1. Institute of Marine Research (Germany)
2. Universitet Gent (Belgium)
3. Christian-Albrechts Universität zu Kiel (Germany)
4. Università degli Studi di Padova (Italy)
5. Consiglio Nazionale delle Ricerche (Italy)
6. Alfred Wegener Institut Helmholtz Zentrum für Polar- und Meeresforschung (Germany)

Programme: European Marine Observation and Data Network EASME/2020/OP/0006	
CNR Strategic Area: AP4 EARTH OBSERVATION	
Project title: **Emodent Batimetry 2020**	
Acronym: EMODNET BATIMETRY	
Role in the project: Partner	
Duration: 20/12/2020 – 31/12/2022	
Total budget: € 154.500	
ISMAR budget: € 131.000	
Web site: https://www.emodnet-bathymetry.eu/	
Key words: Bathymetry; interoperable data; multibeam; European data infrastructure	
Summary: The project aims to integrate and harmonize EMODnet services and portals of the 7 lots (bathymetry, geology, chemistry, physics, habitats, biology, human activities), increasing the visibility, usability and interoperability of bathymetric data in European seas.	
Contact person in ISMAR: marzia.rovere@ismar.cnr.it	
Partnership: 1. Service Hydrographique et Océanographique de la Marine (Shom) (France) 2. Mariene Informatie Service 'MARIS' BV (MARIS) (The Netherlands) 3. Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER) (France) 4. National Oceanography Centre (NOC) (United Kingdom) 5. United Kingdom Research & Innovation (UKRI), (United Kingdom) 6. Consiglio Nazionale delle Ricerche (CNR) (Italy) 7. Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) (Italy) 8. Instituto Español de Oceanografía (IEO) (Spain) 9. Geological Survey (Ireland) 10. Instituto Hidrográfico (IHPT) (Portugal) 11. Instituto Português do Mar e da Atmosfera, I.P. (IPMA) (Portugal) 12. Hellenic Centre for Marin e Research (HCMR) (Greece) 13. Institute of Oceanology - Bulgarian Academy of Science (IOBAS) (Bulgaria) 14. Bundesamt für Seeschifffahrt und Hydrographie (BSH)(Germany) 15. GRID - Arendal (GRID) (Norway) 16. Flemish Government, Agency for Maritime and Coastal Services (MDK) (Belgium) 17. GGS geo consultancy BV (GGSGC) (The Netherlands) 18. OceanWise Limited (OCEANWISE) (United Kingdom)	

19. Agencia Estatal Consejo Superior de Investigaciones Cientificas (CSIC) (Spain)
20. Norwegian Mapping Authority –Hydrographic Service (NHS) (Norway)
21. Stichting Nederlandse Wetenschappelijk Onderzoek Instituten Royal NIOZ (the Netherlands)
22. Swedish Maritime Adminis tration (SMA) (Sweden)
23. Istituto Idrografico Della Marina (IIM) (Italy)
24. Maritime Administration of Latvia (MAL) (Latvia)
25. Teledyne RESON A/S (Denmark),
26. Danube Delta National Institute (DDNI) (Romania)
27. Geodetic Institute of Slovenia (GIS) (Slovenia)
28. EOMAP GmbH & Co. KG (EOMAP) (Germany)
29. Stockholm University-Department of Geological Sciences (SU) (Sweden)
30. Stichting Deltares (DELTARES) (the Netherlands)
31. Vlaams Instituut voor de Zee (VLIZ), (Belgium)

Programme: EASME-DG Mare	
CNR Strategic Area: AP2 RESOURCES	
Project title: **Towards the operational implementation of MSP in our common Mediterranean Sea**	
Acronym: MSP-MED	
Role in the project: Partner	
Duration: 01/03/2020 – 30/10/2022	
Total budget: € 3.135.915	
ISMAR budget: € 295.149	
Web site: https://www.msp-platform.eu/projects/toward-operational-implementation-msp-our-common-mediterranean-sea	
Key words: MSP, planning, sustainable development, ocean governance	
Summary: Maritime Spatial Planning emerged worldwide as an important policy tool for planning efficiently marine resource and sustainable development of maritime space. It can also be used to strengthen cross-border cooperation and to support improved ocean governance. The overall objective of MSP-MED is to favour the MSP Directive's implementation in the Mediterranean Sea, by supporting the establishment of coherent and coordinated maritime spatial plans across the Mediterranean, for promoting a sustainable and long lasting "blue" development. The MSP-MED project will capitalize the results of important EC-funded projects on MSP, recently carried out and ongoing, involving a large part of the EU Member States of the Mediterranean and their MSP Competent Authorities, promoting also the active participation of the other MS and of non-EU Mediterranean countries	
Contact person in ISMAR: andrea.barbanti@ve.ismar.cnr.it	
Partnership: 1. Consorzio per il Coordinamento delle Ricerche Inerenti al Sistema Lagunare di Venezia - CORILA (Italy) 2. Agence Francaise pour la Biodiversitè (France) 3. Service Hydrographique et Oceanographique de la Marine (France) 4. Instituto Espanol de Oceanografia (Spain) 5. PANEPISTIMIO THESSALIAS (Greece) 6. Planning Authority (Malta) 7. Ministry of Environment Energy and Climate Change (Greece) 8. Regionalni Razvojni Center Koper Zavod (Slovenia)	

Programme: EMFAF-2021-PIA-MSP	
CNR Strategic Area: AP 2 RESOURCES	
Project title: **Reviewing and Evaluating the Monitoring and Assessment of Maritime Spatial Planning**	
Acronym: REMAP	
Role in the project: Affiliated to CORILA	
Duration: 01/11/2022 – 31/10/2025	
Total budget: € 1.917.103	
ISMAR budget: € 221.828	
Web site: n.a.	
Key words: MSP, data tools, models, data infrastructures	
Summary: This project is focused in setting-up strategies and approaches to review maritime spatial plans (MSP), and in particular grounded on the interest for the development of data tools, models and reuse of operational data infrastructures, allowing interoperability and enabling Member States (MS) to share MSP data and assessment information. The main objective is to provide EU MS with ReMAP innovative technical framework for the support of the European MSP process. The ReMAP technical framework is mainly aimed at the review, assessment performance and improvement of the adopted plans. ReMAP consortium and proposed framework build on the efforts of the Technical Expert Group (TEG) on MSP data and EMODnet to harmonize EU MSP layer and propose innovative approach of modular analytics. These modular analytics include (10+1) simplified analytical modules and related (web) tools considering environmental, economic, social, governance and safety aspects. This approach decreases the complexity of the assessments and, at the same time, increases the probability to be reused by wide MSP community.	
Contact person in ISMAR: stefano.menegon@ismar.cnr.it	
Partnership: **1.** Universidad de Las Palmas de Gran Canaria (Spain) 2. The Baltic Marine Environment Protection Commission (Finland) 3. Centro Tecnologico del Mar - Fundacion Cetmar (Spain) 4. Service Hydrographique et Oceanographique de La Marine (France)	

5.	Corila - Consorzio per Il Coordinamento delle Ricerche Inerenti al Sistema Lagunare di Venezia (Italy)
6.	Consiglio Nazionale delle Ricerche (Italy)
7.	Università Iuav di Venezia (Italy)
8.	Centro de Estudios y Experimentacion de Obras Publicas – Cedex (Spain)

Programme: EMFAF-2021-PIA-MSP	
CNR Strategic Area: AP 2 RESOURCES	
Project title: **Regions to boost National Maritime Spatial Planning**	
Acronym: REGINA-MSP	
Role in the project: Affiliated to CORILA	
Duration: 01/11/2022 – 30/10/2024	
Total budget: € 1.957.909	
ISMAR budget: € 140.272	
Web site: n.a.	
Key words: MSP, governance, policy and planning	
Summary: REGINA MSP aims at improving the participation of regional and local authorities and stakeholders in maritime spatial planning. This governance level provides an adequate scale for detailed planning of marine areas and for integrating European and national policy requirements with local specificities and needs. The project combines a general analysis at the European level aiming at creating a compendium of regional experiences on MSP and identifying persisting gaps with an in-depth MSP-focused analysis at the level of sub-national case studies in five Atlantic and Mediterranean EU countries (Ireland, France, Spain, Italy and Greece). REGINA MSP methodology includes analysis of existing policy and planning documents, literature review, collection and assessment of spatial data, interviews with actors and engagement of regional and local stakeholders. CNR-ISMAR is involved in all project activities, working in particular on the definition of a common methodological approach to case studies and on the implementation of the Italian case in Sardinia region. Besides reports, the project will deliver policy-oriented papers and briefs targeting different users (the EU, countries and regions).	
Contact person in ISMAR: e.ramieri@ismar.cnr.it	
Partnership: **1.** CEREMA - Centre for Studies and Expertise on Risks, the Environment, Mobility and Urban Planning (France) 2. SHOM - Naval Hydrographic and Oceanographic Service (France) 3. CSIC IEO - Spanish National Research Council - Institute of Oceanography (Spain) 4. UCC - University College Cork (Ireland) 5. CORILA - Consortium for coordination of research activities concerning the lagoon of Venice (Italy) 6. CNR-ISMAR – National Research Council - Institute of Marine Sciences (Italy) **7.** University IUAV of Venice (Italy) 8. PUSPS - Panteion University of Social and Political Sciences (Greece) 9. AUTh - Aristotle University of Thessaloniki (Greece) 10. CPMR - Conference of Peripheral Maritime Regions of Europe	

11. DHLGH – Department of Housing, Local Government and Heritage (Ireland)
12. CETMAR – Centro Tecnologico del Mar (Spain)

Programme: EMFAF-2021-PIA-MSP	
CNR Strategic Area: AP 2 RESOURCES	
Project title: **Maritime Spatial Planning as enabler of the European Green Deal**	
Acronym: MSP-GREEN	
Role in the project: Affiliated to CORILA	
Duration: 01/11/2022 – 30/10/2024	
Total budget: € 1.933.548	
ISMAR budget: € 195.382	
Web site: n.a.	
Key words: MSP, governance, policy and planning	
Summary: The European Green Deal (EGD) is an ambitious package of policy initiatives to set the EU on the path to a green transition, improving the well-being and health of citizens and future generations. MSP-GREEN recognises that EGD components within MSP plans are still limited and must be reinforced and operationalised. The project aims at developing a framework to analyse and strengthen the role of MSP plans as "marine enablers" of the EGD, focusing on the topics of particular relevance for the marine environment and the sustainable transition of the blue economy: climate change mitigation and adaptation, circular blue economy, protection of marine biodiversity, marine renewable energies, healthy and sustainable food from the sea. MSP-GREEN approach builds on three major components: analysis, innovation (via valuable practises and new actions), and transferability. Recommendations on how to strengthen the EGD ambition of EU MSP plans and boost EGD implementation with actions addressed by MSP will be prepared based on the project results and by consulting experts and practitioners at EU level. CNR-ISMAR contributes to several project activities and will lead WP4 "Towards a Greener MSP for Europe: scaling-up and innovating" aiming at defining the recommendations to make MSP an enabler of the EGD.	
Contact person in ISMAR: e.ramieri@ismar.cnr.it	
Partnership: 1. CORILA - Consortium for coordination of research activities concerning the lagoon of Venice (Italy) 2. University IUAV of Venice (Italy) 3. CNR-ISMAR – National Research Council - Institute of Marine Sciences (Italy) 4. CSIC IEO - Spanish National Research Council - Institute of Oceanography (Spain) 5. CEREMA - Centre for Studies and Expertise on Risks, the Environment, Mobility and Urban Planning (France) 6. Regional Council of Southwest Finland (Finland) 7. CCMS - Centre for Coastal and Marine Studies (Bulgaria) 8. Ministry of Environmental Protection and Regional Development (Latvia) 9. State Regional Development Agency (Latvia) – associated partner	

10. University of Western Brittany (France)
11. IFREMER – French Research Institute for Exploration of the Sea (France)
12. Federal Hydrographic and Maritime Agency (Germany) - associated partner

Programme: JRC 2022	
CNR Strategic Area:	
Project title: AAOT (Acqua Alta Oceanographic Tower) services JRC/IPR/2022/NP/0855	
Acronym: AAOT	
Role in the project: Lead Partner	
Duration: 12/07/2022 – 11/07/2027	
Total budget: € 120.000	
ISMAR budget: € 120.000	
Web site: n.a.	
Key words: radiometer, AAOT, JRC	
Summary: Host the JRC AERONET-OC autonomous above-water radiometer and related services as specified at point 1.4.3 of the Tender Specifications for 4 years (2022-2026).	
Contact person in ISMAR: angela.pomaro@ismar.cnr.it	
Partnership:	

Programme: Biodiversa+ 2021 Call for Proposals	
CNR Strategic Area: AP4	
Project title: **Plankton biodivErsity Through Remote sensing and omIcs in the MEDiterranean sea**	
Acronym: PETRI-MED	
Role in the project: Partner	
Duration: 01/04/2023 – 30/04/2026	
Total budget: € 1.400.000	
ISMAR budget: € 249.000	
Web site: n.a.	
Key words: microbial plankton, biodiversity, ecosystem	
Summary: The objective of PETRI-MED is to develop novel strategies to determine and monitor the status and trends of microbial plankton biodiversity in the entire Mediterranean Sea, supporting the assessment of the impact of ecological connectivity on local biodiversity and ecosystem functioning. This will be achieved following a highly multidisciplinary approach, capitalizing on the large potential offered by the past and ongoing satellite missions, complemented with field measurements (optical, physical, chemical, and genomic),biogeochemical/ecosystem/marine currents modelling, and artificial intelligence technologies. PETRI-MED will allow to:- identify spatio-temporal patterns in the microbial plankton community distribution and biodiversity;- assess key controls of biodiversity patterns, including ecological connectivity, natural (e.g., river runoffs and marine currents) and human-related forcing (e.g., use of land and coastal ecosystems).	
Contact person in ISMAR: emanuele.organelli@cnr.it	
Partnership: 1. Consejo Superior de Investigaciones Científicas (Spain) 2. Consiglio Nazionale delle Ricerche (Italy) 3. National Institute of Biology (Slovenia) 4. Sorbonne University (France) 5. Institute of Agriculture and Food Research and Technology (Spain)	

9. CNR-ISMAR PROPOSALS AND SUCCESS RATE

In 2022 the Institute has submitted 48 project proposals. The majority of the proposals have been submitted under the Programme Horizon Europe followed by the Tenders and Other Programmes. Due to the closing period of Interreg Programme only 6 proposals related to capitalization typology have been submitted.

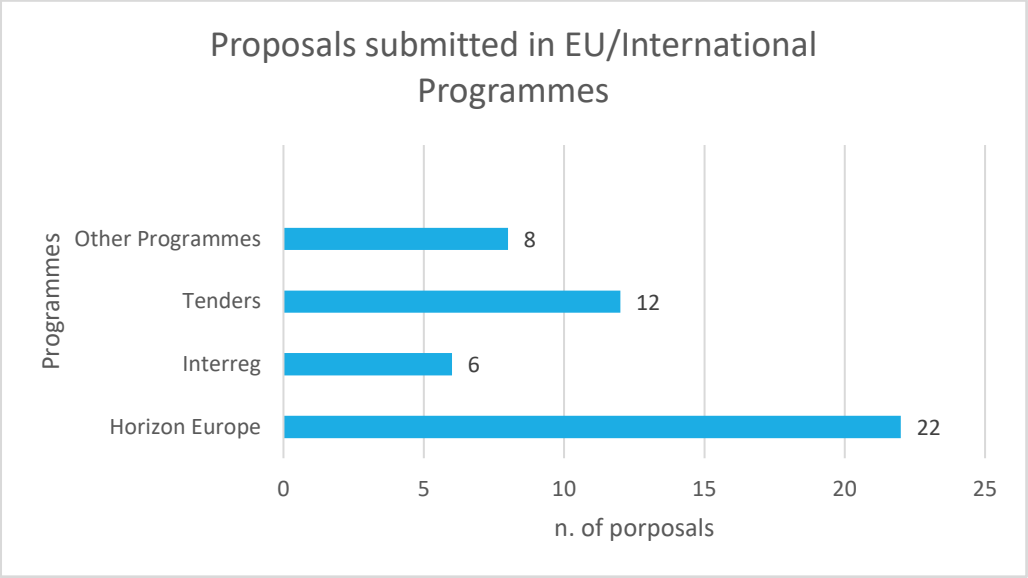

Fig. 20: N. of Proposals submitted in EU/International Programmes

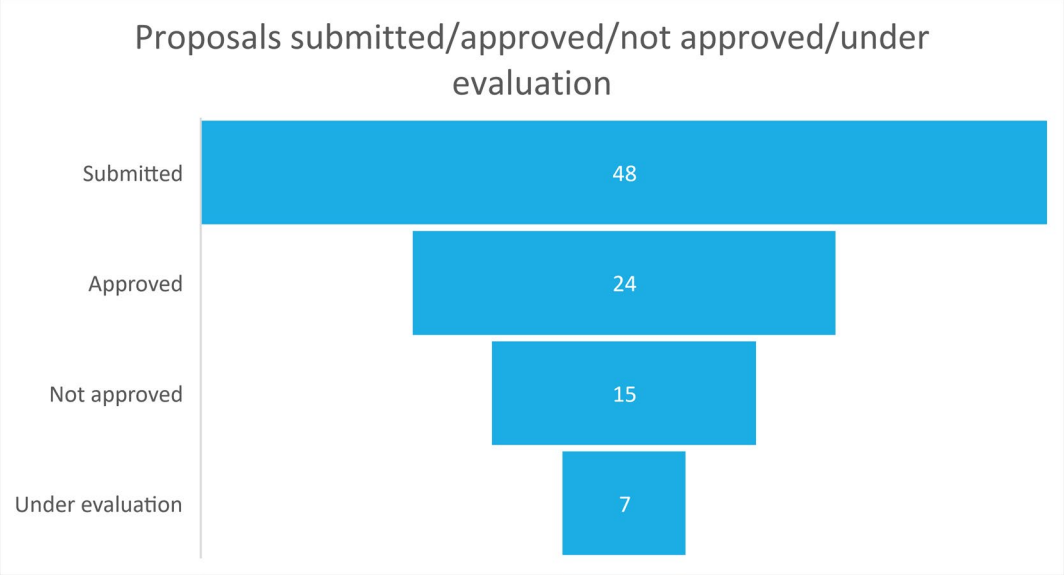

Fig.21: Proposals submitted/ approved/not approved/under evaluation

The general success rate is 58,53%. It is worth to mention that concerning the CNR Project Strategic Areas the majority of the proposals have been submitted under the AP4 followed by AP2 and AP3 with the same numbers.

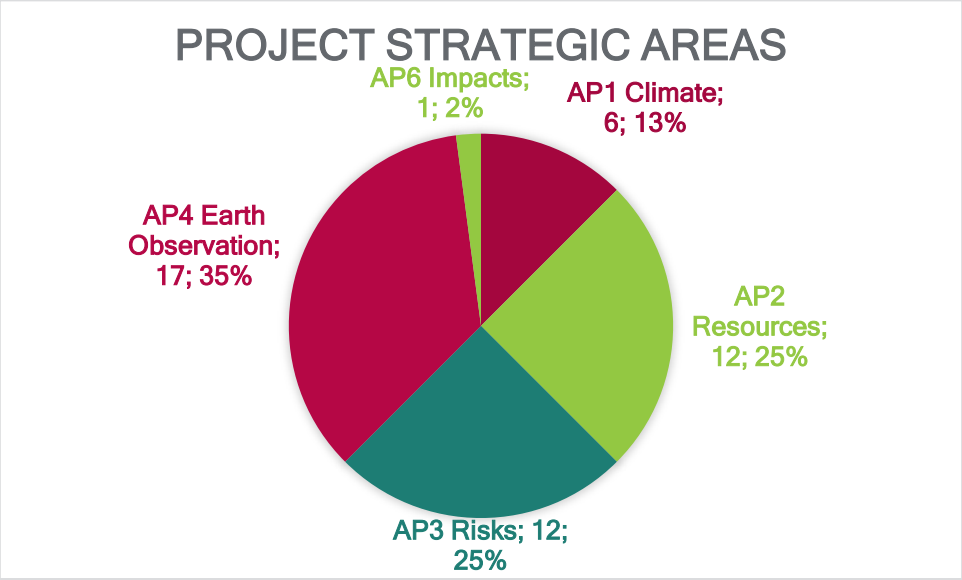

Fig. 22: Project Strategic Areas for the Proposals

The success rate for each programme is the following:

- Horizon Europe (50%)
- Interreg (66,66%)
- Tenders (70%)
- Other programmes (75%%)

10. CONCLUSIONS

This report prepared at the end of the Rosalia Santoleri's mandate illustrates the progress made by CNR-ISMAR researchers and technologist in the acquisition of EU and international projects.

Thanks to the set up of the CNR-ISMAR Project Office, that has worked on a transversal basis supporting researchers both in the proposal and reporting phases, the involvement in the EU and international projects has been increased with a good success rate.

In 2022, 88 projects were launched and implemented, 1 project more respect to the previous year.

The high number of proposals submitted (48) and the quite good success rate (58,53%) testify the effective ability of ISMAR's researchers to be competitive at European level.

It is worth to mention the following positive aspects:

- the participation to the initial phase of Horizon Europe with 10 projects has enlarged the visibility and reliability of the institute;
- the variety of topics which characterize the 6 branches has increased the opportunity to participate to different calls;
- even the participation in Interreg territorial programmes, therefore not really scientific, has meant that the CNR-ISMAR could offer local authorities data and support to develop decision support systems and provide inputs for governance and the acquisition of 2 projects under the capitalization calls proves the good work done;
- the high number of projects shows that researchers are motivated and have developed a good know-how thanks to the tools and staff at their disposal;
- the set up of a Communication Office has increased the promotion of the projects' results visibility through the use of social media and other initiatives;

Concerning the criticalities:

- there is a different rate of engagement among the six branches in the EU projects although they cooperate in different projects, this is due the dimension of the branch and the type of work carried out. In fact there are branches more focused on national projects or services (Naples, Trieste and partially Bologna);
- It is necessary to improve the number of administrative staff in order to provide appropriate support to the researcher in submitting proposals as Lead Partner;
- Although the number of projects in Horizon Europe is quite good it would be advisable to focus the participation in projects with a relevant budget for the institute due to the heavy work to be carried out for the management.

ANNEX 1

RUNNING PROJECTS

N.	Programme	Acronym	Project Title	Total Budget	ISMAR Budget	Role	Responsible	Project start year	Project end year	Sede	Tematic Area
1	HORIZON EUROPE	NECCTON	New Copernicus capability for trophic ocean networks	9.999.373,00 €	208.000,00 €	PP	Braga	01/01/2023	31/12/2026	Venezia	AP4
2	HORIZON EUROPE	MARCO BOLO	MARine COastal BiOdiversity Long-term Observations	8.614.089,00 €	181.188,00 €	PP	Bergami	01/12/2022	30/11/2026	Bologna	AP2
3	HORIZON EUROPE	DANUBE4all	Restoration of the Danube River Basin Waters for Ecosystems and People from Mountains to Coast	8.920.473,00 €	200.000,00 €	PP	Ferarrin	06/12/2022	31/12/2027	Venezia	AP2
4	HORIZON EUROPE	EUROGOSHIP	Developing a Research Infrastructure Concept to Support European Hydrography	2.998.546,00 €	196.763,00	PP	Schroeder	01/12/2022	01/12/2025	Venezia	AP4
5	HORIZON EUROPE	DANUBIUS-IP	Implemetantion Phase of DANUBIUS-RI	1.302.655,000 €	56.250,00 €	PP	De Pascalis	01/10/2022	30/09/2025	Venezia	AP3
6	HORIZON EUROPE	MSP4BIO	Improved Science-Based Maritime Spatial Planning to Safeguard and Restore Biodiversity in a coherent European MPA network	3.490.501,00 €	300.875,00 €	PP	Bongiorni	01/08/2022	31/07/2025	Venezia	AP2
7	HORIZON EUROPE	PREP4BLUE	Preparing the Research & Innovation Core for Mission Ocean, Seas & Waters	4.997.690,00 €	326.738,00 €	PP	Falcieri	01/06/2022	31/05/2025	Venezia	AP2
8	HORIZON EUROPE	ACCIBERG	Arctic Cross-Copernicus forecast products for sea Ice and iceBERGs	2.999.315,00 €	90.000,00 €	PP	Storto	01/01/2023	31/12/2026	Roma	AP1
9	HORIZON EUROPE	CROSSGOV	Coherent and cross-compliant ocean governance for delivering the EU Green Deal for European Seas	2.999.997,50 €	236.783,75 €	PP	Barbanti	01/09/2022	31/08/2025	Venezia	AP6
10	HORIZON EUROPE	Blue Nights	A touch of Blue in the EU Research Night for a more Sustainable Use of the Ocean	622.835,00 €	109.850,00 €	**LP**	Alvisi	01/03/2022	29/02/2024	Bologna	AP2
Sub-total				**46.945.474,50 €**	**1.906.447,75 €**						
1	H2020	EUROFLEETS+	An alliance of European marine research infrastructure to meet the evolving needs of the research and industrial communities	9.999.360,00 €	37.317,00 €	PP	Vetrano	01/02/2019	31/01/2023	Lerici	AP2
2	H2020	FORCOAST	A new hyperspectral radiometer integrated in automated networks of water and land bidirectional reflectance measurements for satellite validation	2.288.911,00 €	81.250,00 €	PP	Falcini	01/11/2019	30/04/2022	Roma	AP4
3	H2020	HYPERNETS	A new hyperspectral radiometer integrated in automated networks of water and land bidirectional reflectance measurements for satellite validation	4.500.000,00 €	346.735,00 €	PP	Brando	01/02/2018	31/01/2022	Roma	AP4
4	H2020	MAELSTROM	Smart technology for Marine Litter SusTainable RemOval and Management	6.809.461,00 €	868.750,00 €	**LP**	Madricardo	01/01/2021	31/12/2024	Venezia	AP2
5	H2020	RELIANCE	Research Lifecycle Management technologies for Earth Science Communities and Copernicus users in EOSC	1.999.972,00 €	189.125,00 €	PP	Foglini	01/01/2021	31/12/2022	Bologna	AP7

6	H2020	ENDURUNS	Development and demonstration of a long-endurance sea surveying autonomous unmanned vehicle with gliding capability powered by hydrogen fuel cell	7.908.265,00 €	550.875,00 €	PP	Marini	01/11/2018	31/10/2022	Lerici	AP5
7	H2020	EUROqCHARM	EUROpean quality Controlled Harmonization Assuring Reproducible Monitoring and assessment of plastic pollution	2.045.000,00 €	119.375,00 €	PP	Aliani	01/11/2020	31/10/2023	Lerici	AP1
8	H2020	JERICO-S3	Joint European Research Infrastructure of Coastal Observatories: Science, Service, Sustainability	9.999.933,00 €	471.115,00 €	PP	Griffa	01/02/2020	31/01/2024	Lerici	AP4
9	H2020	JERICO-DS	Joint European Research Infrastructure of Coastal Observatories - Design Study	2.555.531,00 €	145.500,00 €	PP	Griffa	01/10/2020	30/09/2023	Lerici	AP4
10	H2020	ENVRI-FAIR	ENV ironmental Research Infrastructures building Fair services Accessible for society, Innovation and Research	18.997.878,00 €	132.187,00 €	PP	De Pascalis	01/01/2019	30/06/2023	Venezia	AP4
11	H2020	CERTO	Copernicus Evolution - Research for Transitional-water Observation	2.843.000,00 €	350.000,00 €	PP	Santoleri	01/01/2020	31/12/2022	Roma	AP4
12	H2020	ATLANTECO	Atlantic Ecosystems Assessment, Forecasting & Sustainability	10.925.660,00 €	253.762,00 €	PP	Bongiorno Nardelli	01/09/2020	30/08/2024	Napoli	AP4
13	H2020	eLTER+	eLTER Advanced Community Project Plus	10.065.009,00 €	41.354,90 €	PP	Bergami	01/02/2020	31/01/2025	Bologna	AP1
14	H2020	MEDIX	Marine Environmental DynamIcs and seX-based analysis for climate change adaptation in marine spatial planning	269.003,00 €	244.903,00 €	**LP**	Gissi	23/12/2020	23/12/2022	Venezia	AP4
15	H2020	EUROSEA	Improving and integrating the European Ocean Observing and Forecasting System	12.642.177,00 €	30.000,00 €	PP	Mantovani	01/11/2019	31/12/2023	Lerici	AP4
16	H2020	SATURN	Solutions At Underwater Radiated Noise	8.965.964,00 €	250.000,00 €	PP	Barbanti	01/02/2021	31/01/2025	Venezia	AP2
17	H2020	NAUTILOS	New Approach to Underwater Technologies for Innovative, Low-cost Ocean obServation	9.048.349,00 €	134.134,00 €	PP	Sparnocchia	01/10/2020	30/09/2024	Trieste	AP4
18	H2020	4S	Satellite Seafloor Survey Suite	2.672.650,00 €	272.175,00 €	PP	Rovere	01/10/2020	31/10/2023	Bologna	AP4
19	H2020	MINKE	Metrology for Integrated Marine Management and Knowledge-Transfer Network	4.994.955,00 €	77.336,00 €	PP	Schroeder	01/04/2021	31/03/2025	Venezia	AP4

20	H2020	BRIDGE-BS	Advancing Black Sea Research and Innovation to Co-Develop Blue Growth within Resilient Ecosystems	8.999.877,50 €	443.750,00 €	PP	Barbanti	01/06/2021	30/11/2025	Venezia	AP2
21	H2020	DOORS	Developing Optimal and Open Research Support for the Black Sea	9.795.350,00 €	350.000,00 €	PP	Bellafiore	01/06/2021	31/05/2025	Venezia	AP2
22	H2020	ENGI - EIT Raw Materials	ENGIE. Encouraging Girls to Study Geosciences and Engineering	1.113.917,00 €	102.125,00 €	PP	Giuliani	01/09/2020	31/12/2022	Bologna	AP2
Sub. Tot.				**149.440.222,50 €**	**5.491.768,90 €**						
1	INTERREG IT-HR	ADRIACLIM	Climate change information, monitoring and management tools for adaptation	8.823.415,00 €	390.000,00 €	PP	Ferrarin	01/01/2020	31/12/2022	Venezia	AP1
2	INTERREG IT-HR	STREAM	Strategic development of flood management	9.411.657,00 €	403.529,00 €	PP	Ferrarin	01/04/2020	31/12/2022	Venezia	AP3
3	INTERREG IT-HR	INNOVAMARE	Developing innovative technologies for sustainability of Adriatic Sea	5.555.755,00 €	553.288,00 €	PP	De Pascalis	01/07/2020	31/12/2022	Venezia	AP2
4	INTERREG IT-HR	CREATE	Climate REsponses for the AdriaTic rEgion	599.692,00 €	92.000,00 €	PP	Bonaldo	01/06/2022	30/06/2023	Venezia	AP1
5	INTERREG IT-HR	HATCH	Hadriaticum DATA HUB. Data management, protocols harmonization, preparations of guidelines: cross-border tools for maritime spatial planning decision-makers	566.621,00 €	25.000,00 €	AP	Menegon	01/06/2022	30/06/2023	Venezia	AP2
6	INTERREG-IT-HR	CASCADE	CoAStal and marine waters integrated monitoring systems for ecosystems protection AnD managemEnt	5.817.547,00 €	60.000,00 €	SC	Umgiesser	01/09/2020	31/12/2022	Venezia	AP2
Sub. Tot.				**30.774.687,00 €**	**1.523.817,00 €**						
1	INTERREG ITA-SLO	DURASOFT	Innovative technologies to improve the durability of traditional wooden structures in socio-ecologically sensitive environments	864.384,00 €	149.920,00 €	**LP**	Tagliapietra	01/03/2020	31/08/2022	Venezia	AP2
2	INTERREG ITA-SLO	TRETAMARA	Rocky habitats and marine environments of the Northern Adriatic: management proposals	810.000,00 €	127.500,00 €	PP	Bergamasco	01/02/2020	30/07/2022	Venezia	AP2
Sub. Tot.				**1.674.384,00 €**	**277.420,00 €**						
1	INTERREG MED	AMARE PLUS	Actions For Marine Protected Areas	400.000,00 €	70.000,00 €	PP	Foglini	01/06/2021	30/06/2022	Bologna	AP2
2	INTERREG MED	MISTRAL	Mediterranean Innovation STRAtegy for transnational activity of clusters and networks of the Blue Growth	4.100.000,00 €	42.344,00 €	PP (DTA)	Barbanti	01/02/2018	31/01/2022	Venezia	AP2
Sub. Tot.				**4.500.000,00 €**	**112.344,00 €**						
1	INTERREG IT-FR	SINAPSI	asSIstenza alla Navigazione per l'Accesso ai Porti in Sicurezza	2.188.294,00 €	575.025,00 €	PP	Magaldi	01/04/2019	31/10/2022	Lerici	AP3
2	INTERREG IT-FR	SICOMAR plus	Sistema Transfrontaliero per la Sicurezza in Mare Contro i Rischi della Navigazione e per la Salvaguardia dell'ambiente Marino plus	6.688.230,00 €	413.076,00 €	PP	Magaldi	01/06/2018	28/02/2022	Lerici	AP3
Sub. Tot.				**8.876.524,00 €**	**988.101,00 €**						
1	TENDER ESA	OC-CCI+	ESA Climate Change Initiative Plus (CCI+) Phase one - OCEAN COLOUR		50.128,00 €	SC	Santoleri	30/03/2019	29/03/2022	Roma	AP4
2	TENDER ESA	ESA-OSIP-RSML	OSIP Remote Sensing for Marine Litter-Early Technology Development Scheme	175.000,00 €	30.000,00 €	PP	Falcieri	20/07/2020	19/07/2022	Venezia	AP5
3	TENDER ESA	ESA – CIRCOL	ocean CIRculation from ocean COLour observations)	297.092,00 €	247.072,00 €	**PI**	Ciani	01/11/2019	15/02/2023	Roma	AP4

4	TENDER ESA	ESA-PRISM	Copernicus Contributing Missions access Support Functions and platform (PRISM): ESA PRISM ITT - ITT AO/1-9421/18/I-LG - Subcontract SERCO- ISMAR		125.542,95 €	SC	Liberti, Dionisi	01/12/2020	31/12/2025	Roma	AP4
5	TENDER ESA	ESA-PLP	Plastic Litter Project: Detection and monitoring of artificial plastic targets with satellite imagery and UAV	175.000,00 €	35.000,00 €	SC	Aliani	15/06/2020	14/06/2022	Lerici	AP1
6	TENDER ESA	ESA-WASP	Mapping Windrows as Proxy for Marine Litter Monitoring from Space	100.000,00 €	10.000,00 €	PP	Aliani	04/05/2020	05/01/2022	Lerici	AP4
7	TENDER ESA	ESA-WOC	World Ocean Circulation	147.220,00 €	103.988,00 €	PP	Buongiorno Nardelli, Dionisi	31/05/2020	31/05/2022	Napoli	AP4
8	TENDER ESA	ESA-TRACE	Detection and tracking of large marine litter based on high-resolution remote sensing time series, machine learning, and	175.000,00 €	15.000,00 €	PP	Ghezzo	01/08/2020	31/12/2022	Venezia	AP5
9	TENDER	CMEMS-DU-LOT1	85-OD-MF-CMEMS LOT1: Dissemination Service of CMEM'S Near-Real Time and forecast Products	1.681.640,00 €	1.036.610,00 €	**LP**	Forneris, Santoleri	30/11/2017	30/06/2021	Roma	AP4
10	TENDER	CMEMS-DU-LOT2	85-OD-MF-CMEMS LOT2: Dissemination Service of CMEM'S Multi-Year Products	1.681.640,00 €	1.036.610,00 €	**LP**	Forneris, Santoleri	30/11/2017	30/06/2021	Roma	AP4
11	TENDER	CMEMS-LOT7_INSTAC	Copernicus Marine: Provision of ocean observation product INSTAC	5.450.000,00 €	100.000,00 €	**SC**	Mantovani	15/12/2021	31/12/2024	Lerici	AP4
12	TENDER	COP-DU	Copernicus Marine - Digital operations of dissemination service LOT1	4.500.000,00 €	490.000,00 €	**LP**	Forneris	01/01/2022	30/09/2023	Roma	AP4
13	TENDER	Cop-GLO_RAN_Lot_8	Validation and intercomparison of global reanalysis for ong term changes in the ocean state	90.000,00 €	90.000,00 €	**LP**	Storto	01/01/2022	31/12/2023	Roma	AP1
14	TENDER	Cop-GLO_RAN_Lot_5	Validate and Intercomparison of mesoscale eddies in Global Reanalyses	90.000,00 €	90.000,00 €	**LP**	Chunxue Yang	01/01/2022	31/12/2023	Roma	AP1
15	TENDER	OSI_VSA21_03	Coastal PenWP		36.278,00	SC	Grieco	01/11/2021	31/03/2022	Napoli	AP4
16	TENDER	EUMETSAT ITT 20/221413	Marine Training Service in Copernicus Phase	251.040,00 €	51.000,00 €	SC	Brando	15/01/2022	31/12/2024	Roma	AP4
17	TENDER	CMEMS-MOB-TAC	Copernicus 2 - Multi Observations Thematic Assembly Centre -	1.900.000,00 €	180.000,00 €	PP	Bongiorno Nardelli	01/12/2021	31/12/2024	Napoli	AP4
18	TENDER	CMEMS-OC-TAC	Copernicus 2 - Ocean Colour Thematic Assembly Centre	2.210.000,00 €	1.340.000,00 €	**LP**	Brando	01/01/2022	31/12/2024	Roma	AP4
19	TENDER	CAREHeat	deteCtion and threAts of maRinE Heat waves	495.804,00 €	149.880,00	**LP**	Santoleri/Organelli	01/02/2022	01/01/2024	Roma	AP4
20	TENDER	COLOR	CDOM-proxy retrievals from aeOLus ObseRvations	146.881,00 €	48.580,00	**LP**	Dionisi	15/11/2021	14/11/2022	Roma	AP4
21	TENDER	ESA-HARMONY	Harmony Mission Performance and Requirement Consolidation Activity for Ocean Applications	499.744,00 €	58.000,00	SC	Liberti	15/11/2021	30/06/2023	Roma	AP4
22	TENDER	COPERNICUS MARINE - DIGITAL: OPERATIONS OF DISSEMINATION SERVICES	COPERNICUS MARINE - DIGITAL OPERATIONS OF DISSEMINATION SERVICES LOT-1 Operating the Dissemination Unit	280.000,00 €	280.000,00 €	**LP**	Forneris	01/01/2022	31/12/2024	Roma	AP4
23	TENDER	COPERNICUS MARINE OCEAN COLOUR THEMATIC ASSEMBLY CENTER LOT 2	COPERNICUS MARINE - PRODUCTION PROVISION OF OCEAN OBSERVATION PRODUCTS THEMATIC ASSEMBLY CENTRE OC TAC_LOT2	3.645.461,00 €	1.263.875,00 €	**LP**	Brando	01/01/2022	31/12/2024	Roma	AP4

24	TENDER	COPERNICUS MARINE OCEAN COLOUR THEMATIC ASSEMBLY CENTER LOT 3	COPERNICUS MARINE - PRODUCTION PROVISION OF OCEAN OBSERVATION PRODUCTS THEMATIC ASSEMBLY CENTRE (TAC)- SST TAC LOT3	1.756.718,00 €	524.421,00 €	**LP**	Pisano	01/01/2022	31/12/2024	Roma	AP4
25	TENDER	C3S2_520	Copernicus Climate Change Service: Technical Solutions for C3S2_520: Quality Assurance for Datasets in the Climate Data Store	5.500.000,00 €	5.550.000,00 €	**LP**	Yang/Santoleri	01/02/2022	31/12/2026	Roma	AP1
26	TENDER	ERGO2	Advancing ocean data assimilation methodology for climate applications	1.200.000,00 €	225.000,00 €	PP	Storto	01/07/2022	30/06/2025	Roma	AP4
27	TENDER	WAMBOR	evaluation of the WAter Mass Balance in Ocean Reanalyses with space geodetic measurements	150.000,00 €	52.000,00 €	PP	Storto	01/07/2022	30/06/2024	Roma	AP4
Sub. Tot.				**32.598.240,00 €**	**13.218.984,95 €**						
1	ONR	3D-pathways	Vertical velocities and 3D pathways from Lagrangian and microstructure data	141.555,00 €	141.555,00 €	**PI**	Griffa/Berta	01/07/2018	14/07/2022	Lerici	AP4
2	EASME	EMODNET-BATIMETRY 2020	European marine Observation and data network 2020	154.500,00 €	131.000,00 €	PP	Rovere	20/12/2020	31/12/2022	Bologna	AP4
3	MIUR-JPIOCEAN	FACTS - MIUR JPI OCEANS	Fluxes and Fate of (Small) Microplastics in Northern European Waters	3.747.000,00 €	100.905,00 €	PP	Aliani	01/09/2020	31/08/2023	Lerici	AP1
4	MIUR JPI OCEANS	ORCHESTRA	ecOsystem Responses to Constant offsHorE Sound specTRA	2.000.000,00 €	345.048,00 €	PP	Bergamasco	n.a.	n.a	Venezia	AP3
5	ONR	ZIFIO (ONR)	Vital Rates Cuvier, beaked wales: A multi-regional comparative assessment	300.000,00 €	20.000,00 €	PP	Tenan	01/07/2021	29/09/2023	Venezia	AP6
6	EASME-DGMARE	MSP-MED	Towards the operational implementation of MSP in our common Mediterranean Sea	3.135.916,00 €	260.148,00 €	AP	Barbanti	01/03/2020	30/10/2022	Venezia	AP2
7	ERASMUS+	BlueS_Med	Supporting the development of socially-inclusive Blue Challenges in schools in the Mediterranean sea-basin	448.169,00 €	49.807,00 €	PP	Alvisi	01/09/2020	31/08/2023	Bologna	AP2
8	LIFE	LIFE-DREAM	Deep REef restoration And litter removal in the Mediterranean sea	5.308.472,00 €	1.140.739,00 €	**LP**	Foglini	01/09/2022	31/08/2027	Bologna	AP2
9	EMFAF	REMAP	Reviewing and Evaluating the Monitoring and Assessment of Maritime Spatial Planning	1.917.103,00 €	221.828,00 €	AP	Menegon	01/11/2022	31/10/2025	Venezia	AP2
10	EMFAF	MSP_GREEN	Maritime Spatial Planning as enabler of the European Green Deal	1.933.548,00 €	195.382,00 €	AP	Ramieri	01/11/2022	30/10/2024	Venezia	AP2
11	EMFAF	REGINA-MSP	Regions to boost National Maritime Spatial Planning	1.957.909,00 €	140.272,00 €	AP	Ramieri	01/11/2022	30/10/2024	Venezia	AP2

12	JRC	AAOT	AAOT (Acqua Alta Oceanographic Tower) services JRC/IPR/2022/NP/0855	120.000,00 €	120.000,00 €	LP	Pomaro	12/07/2022	11/07/2027	Venezia	AP4
13	Biodiversa	PETRI-MED	Plankton biodivErsity Through Remote sensing and omIcs in the MEDiterranean sea	1.400.000,00 €	249.000,00 €	PP	Organelli	01/04/2023	30/04/2026	Roma	AP4
14	ONR	3D Pathways II	Multiplatform observations (Lagrangian, microstructure and microplastic) for the study of vertical velocities and subduction	135.037,95 €	135.037,95 €	LP	Berta	01/12/2021	29/02/2024	Lerici	AP1
Tot. OTHER PROGRAMMES				**22.699.209,95 €**	**3.250.721,95 €**						
1	Bilateral	CASPIAN-AZERBAIJAN	Mud Volcanism in the Caspian Sea Region: Deciphering the interplay between tectonics and mud/fluid flow through onshore correlations	12.000,00	12.000,00 €	-	Polonia	2020	2023	Bologna	AP2
2	Bilateral	LESCAS - LEBANON	The LEbanese Submarine CAnyon System connecting the shelf with the deep sea: physico-chemical-biological characterisation	8.000,00	8.000,00 €	-	Schroeder	2020	2022	Venezia	AP2
3	Bilateral	EOLO- JAPAN	Extreme Oceanic waves during tropicaL, trOpical-like, and bomb cyclONEs	8.000,00	8.000,00 €	-	Benetazzo	2020	2022	Venezia	AP2
Sub. Tot.				**28.000,00**	**28.000,00 €**						
GENERAL TOTAL				**297.536.741,95 €**	**26.797.605,55 €**						