Community4Nature

SHARING/REUSE

Deliverable 1.4.2: Executive Synthesis of available
"resources"

1st report (12/2023) - Private

Deliverable	D.1.4.2. Executive Synthesis of available "resources"
Due date	December 2023
Actual submission date	December 2023
Work package	WP1 SHARING/REUSE
Dissemination level	Private/confidential

Responsible partner: National Institute of Biology (NIB).

Authors: Ana Rotter (NIB), Daniel Bosch Ibáñez (NIB), Ernesta Grigalionyte-Bembič (NIB).

Reviewers: Loukia Prentza, Vera Bougiouri (NTUA), Maria Vives Ingla and Annelies Broekman (CREAF).

Revision history

Date	Author/ Reviewer	Version/Notes
20 December 2023	Daniel Bosch Ibáñez Ernesta Grigalionyte-Bembič	1st draft - V1
21 December 2023	Ana Rotter	2nd draft – V2
28 December 2023	Loukia Prentza	Review
4 January 2023	Vera Bougiouri	Review
22 January 2023	Maria Vives Ingla Annelies Broeakman	Review
2 February 2024	Ernesta Grigalionyte-Bembič	Final version -Final

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

TABLE OF CONTENTS

Content

About Community4Nature project

Mediterranean regions share common challenges related to the impact of global change: environmental degradation, biodiversity loss, and lack of appropriate governance mechanisms. The current fragmentation of institutional, financial, and political arenas, as well as a lack of coordinated support, can be overcome by identifying past and current opportunities and solutions that have been developed through joint cooperation in national, regional, and European projects. This will benefit future potential implementers, increase the capitalization potential of developed solutions, boost common interests, and tackle current inertia towards participation in collaborative environments. Transnational cooperation is a key enabler for capitalising on lessons learned from pilot cases and successful policy practices.

Community4Nature (C4N) and Dialogue4Nature (D4N) projects within the Natural Heritage Mission of the Interreg Euro-MED Programme aim to achieve coordination among different levels of knowledge, and development of best practices and policies to approach the challenges of biodiversity protection and climate change mitigation/adaptation. The aim of both projects is to enhance the coordination of multi-level stakeholders, such as public authorities, sectoral agencies, schools, academic & research centres, non-governmental organizations (NGOs), etc., in the Mediterranean area. The real novelties of C4N and D4N projects within the Interreg Euro-MED Programme's Mission on Natural Heritage are:
i) the "tailor-made approach" that applies to all planned activities, and
ii) the availability of an initial "core community" which allows a smooth identification and engagement of the target groups.

The Community4Nature project in particular, aims to establish a Community of Practice and, concretely, deliver an Adaptive Resources recipient for collecting available solutions,, a Methodology for assessing the potential of these "resources", and a portfolio of services embedded in the Community's Amplification Room, including a mentorship programme addressed to specific target groups.

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

According to the coupled philosophy of "resource valorisation", C4N always exploits, reuses, reshapes the available knowledge, the existing practices and infrastructure (produced by Euro-MED thematic and strategic projects) to avoid the duplication of efforts and to amplify the results.

1. Executive summary

Deliverable 1.4.2: Executive Synthesis of available "resources" is one of the C4N deliverables of Work Package 1 (WP1) SHARING/REUSE. WP1's main objective is to facilitate the re-use of knowledge/practices coming from past initiatives, such as projects within the Interreg Euro-MED Programme, i.e., Thematic Projects (TPs) among others. This will be achieved by establishing a community of practice and by building conditions for identifying transferable results and concrete solutions for climate change mitigation/adaptation and the protection of natural resources.

The first step towards this approach was the establishment of a methodology for resource collection within the D1.4.1 (Resources collection methodology), finalized in June 2023. The methodology was the basis for developing the Adaptive Resources Recipient, the tool for collecting and presenting the resources.

This Deliverable presents a summary of 157 inputs received by project partners and associated partners, using the template, collected from July 2023 to December 2023 (I. data collection phase).

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

2. Scope of the document

The main aim of the deliverable 1.4.2: Executive Synthesis of available "resources" is to provide an overview of the data collected using the Community4Nature [data collection template](#), during the first data collection phase, which lasted from July 2023 to December 2023.

The deliverable 1.4.2: Executive Synthesis of available "resources" is composed of 5 sections.

Sections 1, 2, and 3 provide the main information about this document, including the scope and the main objectives.

Section 4 provides an overview of the data collected. Each subsection of section 4 analyses separate parts of the Community4Nature data collection template and presents in charts up to 10 of the most frequent answers. In addition, the TOP 3 most chosen answers are illustrated by 3 examples each, so the reader of the deliverable can better understand the data collected and how it is connected to the specific part of the template.

There are only two exceptions – subsection 4.1.2. "Problem and solution" and subsection 4.6. "HOW" – which were free text sections and the respondents were not directed to specific answers. Therefore, there is no chart with the most frequent answers, but only 3 examples illustrated for each subsection.

Finally, section 5 presents the conclusions of this deliverable.

3.Objectives

The main objective of this deliverable is to summarise and present results of the data collection that was conducted from July 2023 to December 2023 (I. data collection phase).

Moreover, the data analysed and presented in this deliverable will be used as communication material to be shared with the Natural Heritage Mission partners, associated partners, and stakeholders, initially through internal and external project activities, with future extension to an openly available resource repository that will be placed on the projects' website.

4. Collected data

A total of 157 inputs have been received from Community4Nature and Dialogue4Nature projects partners and their associated partners. Project partners were asked to fill in at least three resources (past and current practices related to Natural Heritage Mission's objectives), while associated partners were asked to include at least one resource. Not all partners provided the requested input, thus the ones who still did not provide any input, will be encouraged to provide data in the new data collection phase starting from January 2024.

4.1. WHAT

Section "WHAT" of the data collection template is composed of 5 subsections and assists in describing the field in which a problem occurred, which challenge was addressed, and what was suggested as a solution to address the identified challenge.

4.1.1. CHALLENGE

From the 39 identified challenges, the TOP 10 are presented in the chart below (multiple choices were available).

TOP 10 Challenges

Challenge	Value
Climate Change	53
Biodiversity loss	51
Coastal and marine ecosystems	48
Marine pollution	38
Air, water and land pollution	35
Sustainable management of natural resources	35
Degradation of ecosystems	30
Preservation of marine biodiversity and restoration of degraded marine environments	28
Preservation and restoration of ecosystems and biodiversity	28
Habitat loss (destruction, fragmentation or degradation)	20
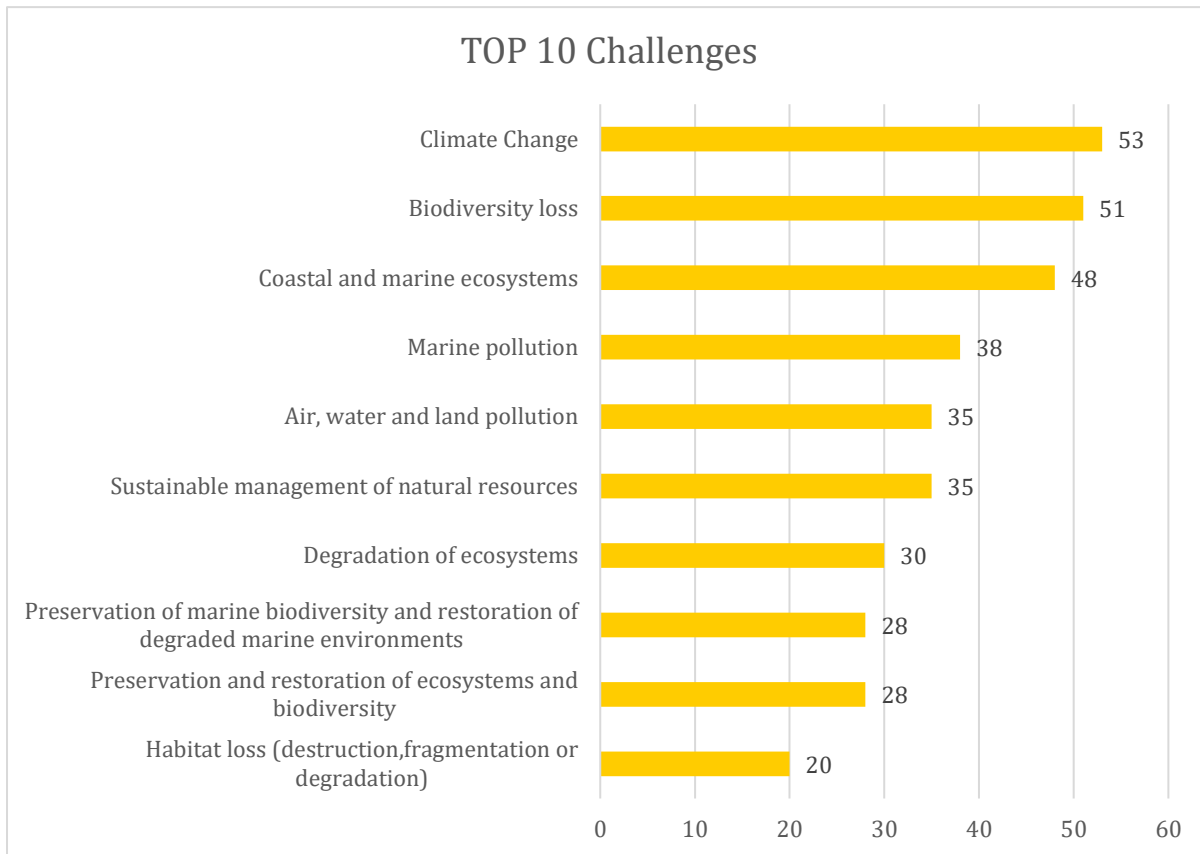
Climate change was identified by respondents as the most addressed challenge – 53 times. Below, one can find 3 examples of climate change as a challenge and the solutions addressing it.

Example 1
Challenge addressed: Climate change.
Solution: Integrate data on factors contributing to tipping points in the areas of marine carbon, oxygen, and nutrient cycles as well as marine ecosystems.

Example 2
Challenge addressed: Climate change, Ocean acidification.
Solution: Study the population dynamics of a species of coccolithophores.

Example 3
Challenge addressed: Biodiversity loss, Climate change, Forest ecosystem, Global warming, Wildfires.

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Solution: Funding is basic to move any project forward. Life Climark project proposes using the Climate Credit market to fund multifunctional management projects.
The basic idea is for companies to buy climate credits, which are then used to pay for all or part of a forestry project. For companies the Climate Credit mark constitutes a secure, controlled way of managing their contributions, ensuring visibility and transparency. For those managing woodlands, it is a way to diversify income sources for their work, based on the benefits their activities generate for society. Climate Credits offer companies an opportunity to offset their carbon and water footprints voluntarily by investing in forest management in Catalonia.

Biodiversity loss was identified by respondents as the second most addressed challenge – 51 times. Below, one can find 3 examples of biodiversity loss as a challenge and the solutions addressing it.

Example 4
Challenge addressed: Biodiversity loss, Marine pollution.
Solution: By using prior experiences from previous EU projects as well as acquiring new data and knowledge, the Interreg South Baltic project aims to look at proactive methods/technologies for preventing nutrients/pollutants and microplastics reaching the Baltic Sea.

Example 5
Challenge addressed: Biodiversity loss, Climate change, Degradation of ecosystems, Coastal and marine ecosystem, Preservation and restoration of ecosystems and biodiversity, Preservation of marine biodiversity and restoration of degraded marine environments, Marine pollution.
Solution: In 2018 the Barcelona City Council, together with the citizens and key agents of the city, designed the strategy plan for the coastal areas of the city, known as Pla Litoral. This roadmap sets out the future of Barcelona's coastline as a space completely open to the sea to be enjoyed by citizens, which will become a public space with urban continuity, well-communicated, and cohesive, with uses and activities linked to the Blue and Social Economy and adapted to the energy transition and climate change.

Example 6
Challenge addressed: Biodiversity loss, Climate change, Coastal and marine ecosystem, Ocean acidification, Preservation and restoration of ecosystems and biodiversity, Preservation of marine biodiversity and restoration of degraded marine environments, Restoration of freshwaters, wetlands, degraded land, etc., Sustainable management of natural resources, Marine pollution.
Solution: Active reef restoration, developing the tools for reef rehabilitation.

Coastal and marine ecosystems were identified by respondents as the third most addressed challenge – 48 times. Below, one can find 3 examples

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

of Coastal and marine ecosystems as a challenge and the solutions addressing it.

Example 7
Challenge addressed: Climate change, <u>Coastal and marine ecosystem</u>, Preservation of marine biodiversity and restoration of degraded marine environments.
Solution: Studying bacteria-containing proteorhodopsin to understand the influence of pH in the oceans.

Example 8
Challenge addressed: Biodiversity loss, Degradation of ecosystems, <u>Coastal and marine ecosystem</u>, Habitat loss (destruction, fragmentation, or degradation), Preservation and restoration of ecosystems and biodiversity, Preservation of marine biodiversity and restoration of degraded marine environments, Restoration of freshwaters, wetlands, degraded land, etc, Terrestrial and freshwater ecosystems.
Solution: Gathering information from protected areas and integrating the data in virtual platforms.

Example 9
Challenge addressed: Biodiversity loss., <u>Coastal and marine ecosystem</u>, Marine pollution.
Solution: The Interreg MEDSEALITTER developed standardised protocols to gather consistent data on marine litter and its impact on marine biodiversity at different spatial scales, using a variety of platforms (aerial, big medium small vessels, drone, litter ingested by sea turtles). Based also on the protocols developed within the MEDSEALITTER experience, Italy developed a National Monitoring program including beach litter, floating litter, seafloor litter, micro-litter, and litter ingested by biota in order to verify the marine good environmental status (GES) according to the threshold values defined or trend assessment.

4.1.2. Problem and solution

The subsection is describing problems identified and solutions suggested by template respondents. As problems and solutions are very closely related, both are presented in this subsection.

Template's respondents had to describe the problem and solution in a free-text box using a maximum of 2000 characters. To harmonize the answers, the information was analysed and reduced to a single sentence that would be easily understandable, informative and sufficient for adaptive Resource Recipient users to understand and compare it to others.

Below, one can find examples of three pairs of problems identified and the solutions used to address them.

Example 10
Problem explanation: In recent years, the inadequacy of water treatment plants in removing nitrogen and phosphorus, as well as the nitrogen and phosphorus-rich water carried into the Izmir Bay from fields after rains have caused an overpopulation of Ulva in spring and autumn. As a result of the decomposition of Ulva biomass, the foul odour emitted into the environment is a source of discomfort for the surrounding community and threatens natural life by causing deterioration of water quality.
Solution: Within the national project, different solution envisaged to utilise Ulva biomass have been proposed, such as the use of Ulva biomass in food applications, for biogas production, and for bioplastics to be used as building materials. In addition to previously mentioned activities, a zero-waste target with a biorefinery approach was developed; it is aimed to reach the final product with successive processes by utilising the same biomass. Within the scope of the project, additional chemical, and taxonomic analyses will be carried out on the Ulva biomass to be collected from Izmir Bay in the spring and autumn periods.

Example 11
Problem explanation: Little is known about the impact in indigenous and non-indigenous artists of ocean pollution.
Solution: Analyse people familiar with indigenous artist practices to compare their relationships with pollution.

Example 12
Problem explanation: The former salt works (5,000 ha of lagoon, salt marsh and dunes), are located in the Rhône delta, in the Camargue Regional Nature Park. This site belongs to a vast coastal area of 6,542 ha located in the communes of Arles (Salin-de-Giraud) and Les Saintes-Maries-de-la-Mer. Formerly developed for salt production from 1950 to 2008, the site is characterised by a strong artificialisation of the water cycle and a disconnection of the lagoons which served as basins for salt preconcentration.
Solution: Restoration of the natural characteristics and processes of the ecosystem to ensure connectivity among different water bodies, increase natural resilience, and reduce the effects of climate change and risks of natural disasters. Interventions have been implemented according to the Nature-based Solution (NbS) approach and have included the restoration of gravitational water flows and abandonment of seafront dykes, leading to the creation of a natural littoral.
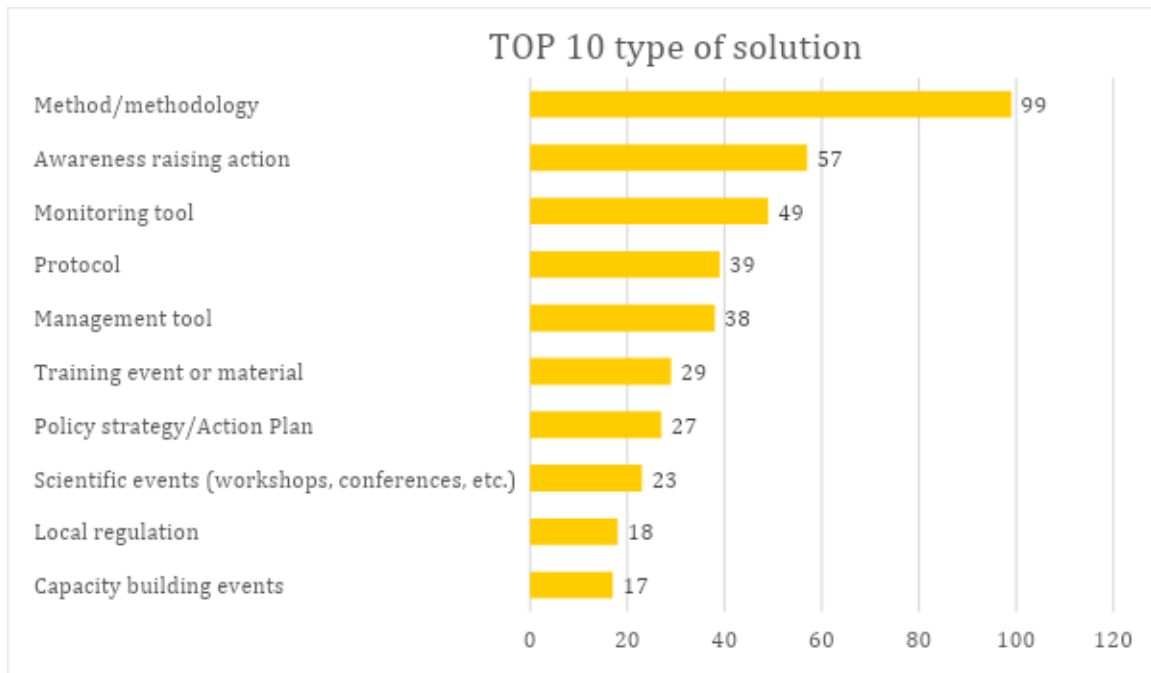
7.1.3. Type of solution

From the 36 identified solutions, the TOP 10 are presented in the chart below (multiple choices were available).

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

TOP 10 type of solution

Method/methodology was identified by respondents as the most used type of solution – 99 times. Below, one can find 3 examples of method/methodology identified as a type of solution.

Example 13

Solution: Develop a climate prediction system, produce consistent climate information, and develop methodologies in the framework of [European Climate Prediction system project](). The system will combine initialised climate predictions on the multi-annual timescale with longer-term climate projections and high-resolution regional downscaling, using observations for evaluation. Methodologies will be developed to characterise uncertainty and to seamlessly blend the predictions and projections. Users will be engaged through active user groups. The system will be utilised with users to co-produce information suitable for European climate service activities. A set of demonstrators will show the value of this information in real-world applications with user involvement. Key outputs will include disseminating and publishing the project's methodologies, and user-relevant data and knowledge.

Type of solution: Method/methodology.

Example 14

Solution: A voluntary governance tool, an innovative methodology for water and wetlands management. Based on the active participation of local stakeholders, consisting of a series of shared, specific, and detailed commitments and actions to protect wetlands and their surroundings.

Type of solution: Method/methodology, Management tool.

Example 15
Solution: Throughout the design of the adaptation plans the BeWater project team identified common aspects and needs, as well as barriers and facilitators in the design and future implementation of adaptation plans. These lessons learnt have been synthesised in a handbook for drafting adaptation plans.
The handbook is intended to provide the reader with the necessary information to guide a participatory development of a River Basin Adaptation Plan. The handbook begins with more general information on the context of the BeWater project and highlights the importance of adaptation, the state of the art in river basin planning, society's role in the process, and finally, the need for resilient social-ecological systems.
Type of solution: Method/methodology.

Awareness raising action was identified by respondents as the second most used type of solution – 57 times. Below, one can find 3 examples of awareness raising action identified as a type of solution.

Example 16
Solution: Education, information and science communication are fundamental for promoting environmental awareness and providing the public with the necessary knowledge to address current and future environmental challenges.
Type of solution: Awareness raising action, Scientific events (workshops, conferences, etc.), Training event or material, Capacity building events.

Example 17
Solution: The aim of the project is to develop and improve existing eco-tourism services by increasing environmental awareness of the public, building eco-touristic infrastructure, providing environmental education, and improving public-private cooperation. Conserving, protecting, promoting, and developing natural and cultural heritage.
Type of solution: Awareness raising action

Example 18
Solution: Permanent education (formal, unformal, unformal), strong focus on local community engagement.
Type of solution: Awareness raising action, Protocol, Method/methodology, Capacity building events, Policy brief/paper, Financial tool.

Monitoring tool was identified by respondents as the second most used type of solution – 49 times. Below, one can find 3 examples of monitoring tools identified as a type of solution.

Example 19

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Solution: Three innovative approaches for sea turtle conservation:
- Autonomous aerial vehicles use to detect nests along large areas and to identify the marine hot-spot areas.
- GSN-GPS tracking devices developed by the project to track an adequately large number of turtles needed for hot-spot identification.
- Usage of visual deterrents in fishing nets for reducing turtle bycatch.

Type of solution: Monitoring tool

Example 20
Solution: Creating a floating box of sensors that will collect data and send it to the control centre for analysis.
Type of solution: Monitoring tool.

Example 21
Solution: The NEPTUNUS project will provide key actions for resource efficiency based on life cycle thinking, incorporating producers, policy makers and consumers in the decision-making process.
Type of solution: Policy strategy/Action Plan, Monitoring tool, Management tool

4.2. POLICY CONTEXT

According to the feedback provided by questionnaire respondents, the section on policy context was the most complicated and time consuming to fill in. To choose policies that are addressed in the provided solution, it was necessary to have read at least the preamble of the legal acts provided in the questionnaire. This is an important barrier since it requires some special knowledge or legal background.
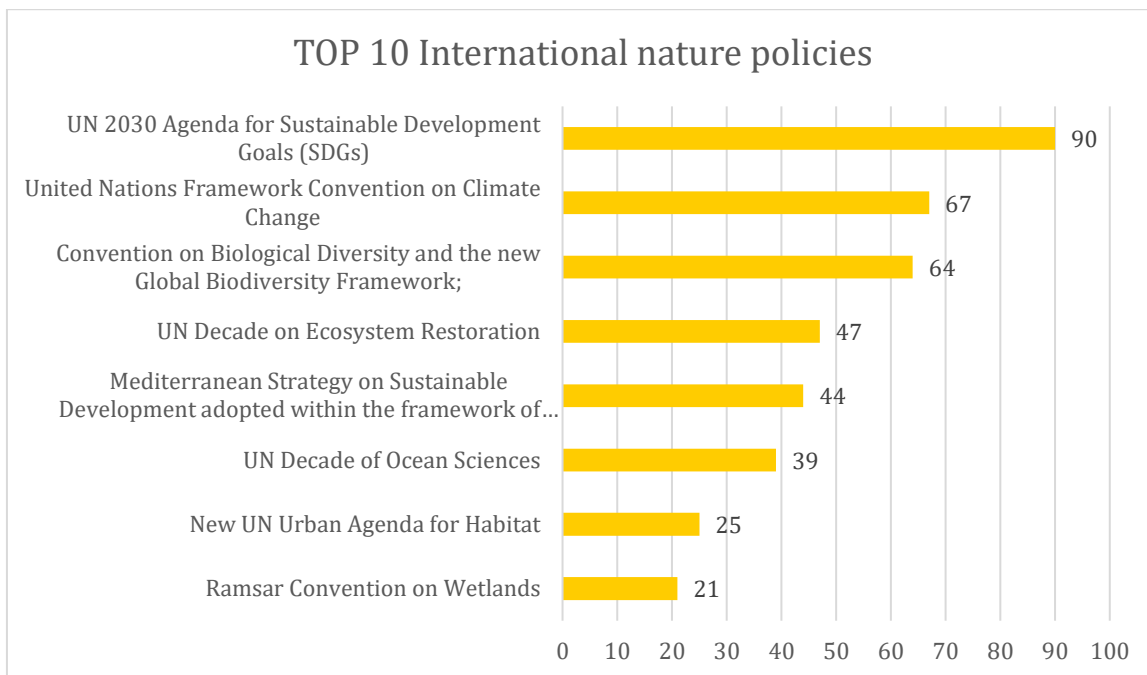
4.2.1. International nature policies

In total, 15 international nature policies were identified, 8 of them were suggested in the template, while 7 more were volunteered by respondents (multiple responses were allowed). The top 8 policies were selected more than once and therefore presented below.

TOP 10 International nature policies

Policy	Value
UN 2030 Agenda for Sustainable Development Goals (SDGs)	90
United Nations Framework Convention on Climate Change	67
Convention on Biological Diversity and the new Global Biodiversity Framework;	64
UN Decade on Ecosystem Restoration	47
Mediterranean Strategy on Sustainable Development adopted within the framework of...	44
UN Decade of Ocean Sciences	39
New UN Urban Agenda for Habitat	25
Ramsar Convention on Wetlands	21

The most common policy identified by template respondents was the UN 2030 Agenda for Sustainable Development Goals (SDGs) - 90. Below, one can find 3 examples identifying the UN 2030 Agenda for Sustainable Development Goals (SDGs) as the most relevant international policy document.

Example 22
Problem explanation: The loss of biodiversity is related to all other issues that are important for a holistic analysis/evaluation, including ecosystems, climate change, pollution, urban design, human intervention, water, and so on.
Solution: Defining climate refugees and their connecting networks. A study should be carried out to identify the best places that could constitute refuges for species (animals and vegetables) that suffer from climate and atmospheric changes and define the connectivity links between them. Both must have high protection regulations, but which allow them to coexist with humans. It would thus be possible to preserve some ecosystems even if they are affected by climate change.
Identified international policy: Convention on Biological Diversity and the new Global Biodiversity Framework, UN 2030 Agenda for Sustainable Development Goals (SDGs), United Nations Framework Convention on Climate Change, Ramsar Convention on Wetlands, UN Decade on Ecosystem Restoration.

Example 23

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Problem explanation: Innovative actions within the context of the blue economy in the Mediterranean region have not been developed as in other regions of Europe (e.g. Northern Europe), thus negatively affecting access to innovative solutions in the market. The lack of adequate funding is one of the main reasons for this situation. It should be noted that the EU Member States in the Mediterranean are having difficulties attracting funding and investments for innovation in the context of blue economy and growth.
Solution: Crowdfunding can bridge the gap between developing an innovative idea through research and accessing it as a commercial product or service. It can be an appropriate lever for the commercial testing of innovative solutions on the market, thus reducing the need for government funding or loans.
Identified international policy: UN 2030 Agenda for Sustainable Development Goals (SDGs), United Nations Framework Convention on Climate Change, Mediterranean Strategy on Sustainable Development adopted within the framework of the UNEP/Mediterranean Action Plan—Barcelona Convention system, Integrated Maritime Policy to the achievement of the "Europe 2020" strategy goals for smart, sustainable, and inclusive growth.

Example 24
Problem explanation: Inland Waterway Transport (IWT) causes considerable emissions of air pollutants NOx and PM10.
Solution: The objective of LIFE CLINSH project was to improve air quality in urban areas situated close to ports and inland waterways, by accelerating IWT emission reductions.
Identified international policy: UN 2030 Agenda for Sustainable Development Goals (SDGs)

The second most addressed international policy was the United Nations Framework Convention on Climate Change - 67. Below, one can find 3 examples identifying the United Nations Framework Convention on Climate Change as the most relevant international policy document.

Example 25
Problem explanation: Negative effects of plastic pollution and climate change, biodiversity loss.
Solution: The SEA MARVEL project aims to raise awareness on the risks concerning marine ecosystems and mitigate the effects of plastic pollution, exploitation of marine resources, invasion of alien species, and the effects of climate change; in order to maintain and reactivate marine ecosystems and Natura 2000 protected sites.
Identified international policy: Convention on Biological Diversity and the new Global Biodiversity Framework, United Nations Framework Convention on Climate Change.

Example 26
Problem explanation: Plastics pollution in marine and freshwater ecosystems and the nefarious effects on the biodiversity living in these ecosystems.

Solution: Searching for plastics-degrading bacteria which can use it as a carbon source, that way producing biodegradable bioplastics (polyhydroxyalkanoates, PHA) and other value-added products (exopolysaccharides, EPS) that are useful for cosmetics, medical, textile, and food industries**.**
Identified international policy: Convention on Biological Diversity and the new Global Biodiversity Framework, UN 2030 Agenda for Sustainable Development Goals (SDGs), United Nations Framework Convention on Climate Change, New UN Urban Agenda for Habitat, UN Decade on Ecosystem Restoration, UN Decade of Ocean Sciences.

Example 27
Problem explanation: Impacts of climate change in municipalities.
Solution: Online decision support tool for climate change adaptation planning to increase the resilience of municipalities.
Identified international policy: United Nations Framework Convention on Climate Change.

In the third place of the most frequently identified international policies, one can find the [Convention on Biological Diversity](#) and the [new Global Biodiversity Framework](#). These two legal documents were chosen by 64 respondents as relevant international policy documents are related to the problem and solution identified by them. Below, there are 3 examples given.

Example 28
Problem explanation: Terrestrial and freshwater ecosystems are under pressure due to various human activities. Not only wastewaters but also discharge of various materials, which may not be harmful   at first but which have a strong impact on the catchment area.
Solution: Stronger penal policy along with raising awareness may be effective. Works on the environment, which have a strong harmful effect on biodiversity, must be totally banned. Higher number of species need to be strictly protected.
Identified international policy: Convention on Biological Diversity and the new Global Biodiversity Framework, Ramsar Convention on Wetlands

---

Example 29
Problem explanation: Climate change threatens to upend ecosystems and human food security.
Solution: Research into social and economic nature-based solutions that lead to restoration and protection of habitats, sustainable seafood harvesting, etc.
Identified international policy: Convention on Biological Diversity and the new Global Biodiversity Framework, UN 2030 Agenda for Sustainable Development Goals (SDGs), United Nations Framework Convention on Climate Change, UN Decade on Ecosystem Restoration, UN Decade of Ocean Sciences, Mediterranean Strategy on Sustainable Development adopted within the framework of the UNEP/Mediterranean Action Plan—Barcelona Convention system
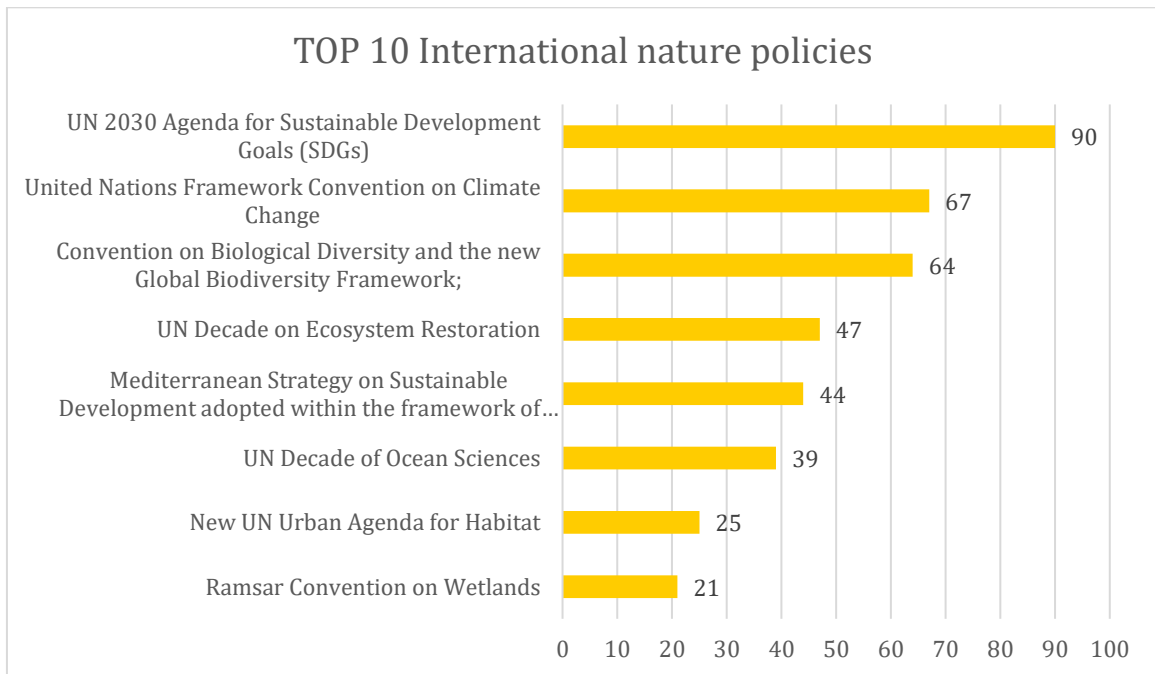
> **Example 30**
> **Problem explanation:** Biodiversity is under threat due to a multitude of factors, including habitat destruction, overexploitation, pollution, climate change, and invasive species. Unprecedented levels of biodiversity loss undermine some of society's most important goals.
> **Solution:** The IUCN Red List of Threatened Species is the world's most comprehensive information source on the extinction risk of animals, fungi, and plants. Experts place species into one of the IUCN Red List Categories, based on a series of assessment criteria. For each species, The IUCN Red List provides information about its range, population size, habitat, and ecology, use and/or trade, threats, and conservation actions.
> **Identified international policy:** Convention on Biological Diversity and the new Global Biodiversity Framework, UN 2030 Agenda for Sustainable Development Goals (SDGs), Ramsar Convention on Wetlands

4.2.2. European nature policies

Out of 27 identified European nature policies, 19 were provided by the template and 8 were suggested by respondents. The TOP 10 European nature policies are presented in the table below (multiple choices were possible).

TOP 10 International nature policies

Policy	Value
UN 2030 Agenda for Sustainable Development Goals (SDGs)	90
United Nations Framework Convention on Climate Change	67
Convention on Biological Diversity and the new Global Biodiversity Framework;	64
UN Decade on Ecosystem Restoration	47
Mediterranean Strategy on Sustainable Development adopted within the framework of…	44
UN Decade of Ocean Sciences	39
New UN Urban Agenda for Habitat	25
Ramsar Convention on Wetlands	21

The most commonly addressed European nature policy was the [European Green Deal](#), which was chosen by 66 respondents. Below, one can find 3 examples identifying the European Green Deal as a relevant European nature policy document.

Example 31
Problem explanation: Degradation of ocean health caused by emissions of waste plastics and marine plastic pollution. A large proportion of marine plastic is composed of abandoned, lost, and discarded fishing gear (ALDFGs).
Solution: A systemic shift from linear to circular value chains for plastic and a shift in the current perception of single-use or discarded plastics from waste to resource among businesses, consumers, and communities.
Identified European policy: European Green Deal, Communication from the Commission: Blue Growth opportunities for marine and maritime sustainable growth (13.09.2012), Common Fisheries Policy (CFP), European Maritime Fisheries and Aquaculture Fund (EMFF), EU Strategy on Plastics in a Circular Economy

---

Example 32
Problem explanation: To understand collective urban impacts, streamlining data aggregation and optimising resources, such as staff time and urban indicators of ecological impacts need to be harmonised and standardised. There is a need for a comprehensive system of indicators, flexible enough to cater to a wide range of users, but solid enough to facilitate comparative measurement. The need is urgent given the accelerated loss of biodiversity worldwide, the extraordinary potential for cities to ameliorate or exacerbate the crisis, the imperative to strengthen urban resilience in the face of climate change, and the necessity for all institutions to make measurable contributions to targets in the Kunming-Montreal Global Biodiversity Framework.
Solution: Measuring and monitoring are essential for the effective management of natural capital by cities. Qualitative and quantitative indicators can convey valuable information on the status and trends of natural capital stocks, the flows of services they generate, the efficacy of conservation measures, and the impacts of urban consumption on nature globally. The International Union for Conservation of Nature (IUCN) has developed the IUCN Urban Nature Indexes (UNI), a series of indices aiming to measure the ecological performance of cities. To that end, it brings together existing indicators and data sources to create a single coherent yet flexible tool valuable to both local governments and larger-scale governance institutions.
Identified European policy: European Green Deal, EU Strategy on Adaptation to Climate Change and A European Climate Pact (within the Green Deal), EU Restoration Law

---

Example 33
Problem explanation: Policymaking requires high-quality data on marine ecosystems.
Solution: Studies on deep-sea ecosystems with research cruises.
Identified European policy: European Green Deal, EU Strategy on Adaptation to Climate Change and A European Climate Pact (within the Green Deal), Marine strategy

---

framework directive, EU Policy on Blue Growth, Initiative for the sustainable development of the blue economy in the western Mediterranean (19/04/2017), Report on the Blue Growth Strategy: Towards more sustainable growth and jobs in the blue economy (31/03/2017), Communication from the Commission: Innovation in the Blue Economy: realising the potential of our seas and oceans for jobs and growth - COM(2014) 254/2 (13/05/2014), Marine Knowledge 2020: roadmap accompanying the document, Communication from the Commission: Blue Growth opportunities for marine and maritime sustainable growth (13.09.2012), Common Fisheries Policy (CFP), European Maritime Fisheries and Aquaculture Fund (EMFF)

The EU Biodiversity strategy for 2030 was the second most commonly identified European nature policy document, addressing problems and solutions specified by respondents. This European nature policy document has been selected 60 times. Below, one can find 3 examples related to the EU Biodiversity strategy for 2030.

Example 34
Problem explanation: The business models of companies working sustainably in the production of macro and microalgae are confined to the selling of the biomass as a whole, fresh, dried, or salted, which is then supplied to food companies, but their infrastructure should be improved in order to be able to sell more refined products to the pharmaceutical and cosmetic sectors.
Solution: development of new technologies and engineering processing that will allow companies to progress in their business model by allowing them to prepare new and more refined products for the pharmaceutical and cosmetic sectors.
Identified European policy: EU Biodiversity strategy for 2030, European Green Deal, EU Strategy on Adaptation to Climate Change and A European Climate Pact (within the Green Deal), Water framework directive, Marine strategy framework directive, EU Policy on Blue Growth, Initiative for the sustainable development of the blue economy in the western Mediterranean (19/04/2017), Report on the Blue Growth Strategy: Towards more sustainable growth and jobs in the blue economy (31/03/2017), Communication from the Commission: Blue Growth opportunities for marine and maritime sustainable growth (13.09.2012)

Example 35
Problem explanation: Understanding social and ecological vulnerability to climate change is key for Marine Protected Areas (MPAs) to be able to adapt. Vulnerability refers to the degree to which a marine protected area is susceptible to the impact of climate change (in this case, heat waves and rising sea temperatures) and defines how severe the effects may be.
Solution: A standardised and replicable Socio-Ecological Vulnerability Assessment has been implemented within the MPA-Engage project. The socio-ecological vulnerability of the MPA is assessed by calculating a multidimensional index, which takes into account

both ecological and social aspects, and it is qualitatively expressed as "very high", "high", "medium", or "low".

Ecological vulnerability refers to the susceptibility to climate change of the habitats and species that are part of the MPA's conservation objectives. Social vulnerability focuses on human activities occurring in the MPA, in accordance with the activities allowed in the area.

By classifying the vulnerability of species, habitats, and users, MPAs can prioritise adaptation responses to address the most urgent impacts of climate change.

Identified European policy EU Biodiversity strategy for 2030, EU Strategy on Adaptation to Climate Change and A European Climate Pact (within the Green Deal), Marine strategy framework directive, EU Policy on Blue Growth, Marine Knowledge 2020: roadmap accompanying the document.

Example 36

Problem explanation: Bottlenose dolphins are threatened by habitat degradation and loss. The main threats come from coastal urbanisation, port construction, boat traffic, shipping, pollution by industrial and agriculture activities, overfishing, and overexploitation.

Solution: The main objective of the ARION project was the improvement of the conservation status of the bottlenose dolphin in the Portofino marine protection area (MPA). The main achievement was the development of the acoustic detection and surveillance system, which is today fully in place and operational, able to detect the presence of dolphins in the target area, generate an alarm, transmit and notify it to sailors.

Identified European policy: EU Biodiversity strategy for 2030, Directive 2008/56 - Framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (17.06.2008) Barcelona Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean of 1995 (further to the earlier version of 1976) (UNEP-MAP) Directive 92/43 - Conservation of natural habitats and of wild fauna and flora- Habitats Directive (21.05.1992) COM(2011) 244 final "Our life insurance, our natural capital: an EU biodiversity strategy to 2020" (03.05.2011)

Finally, the third most selected European nature policy was EU Strategy on Adaptation to Climate Change and a European Climate Pact (within the Green Deal). This document was identified as a European nature policy document addressing problems and solutions identified by respondents 54 times. Below, one can find 3 relevant examples.

Example 37

Problem explanation: The development of the UN Convention on the Law of the Sea is hampered in some countries by the lack of reliable data on marine ecosystems.

Solution: Analysis of the relation between science and policy using bibliometrics and interviews.

Identified European policy: EU Strategy on Adaptation to Climate Change and A European Climate Pact (within the Green Deal)

Example 38
Problem explanation: The village of Erill-la-Vall in the Spanish Pyrenees is heavily affected by debris flow problems, where sediments are fed from tributary creeks and into a main debris flow channel leading to the village. The source area consists of thick (>50 m) deposits of glacial till. The annual precipitation of the area is about 1,100 mm/year, mainly in the fall and spring. However, intensive showers in July-August seem to have worsened the effect on the debris flow potential.
Solution: Project to stabilise the Erill la Vall ravine moraine to avoid landslides that could affect the inhabited centre. European project H2020 PHUSICOS aims to reduce the risk in mountain areas through the application of nature-based solutions.
The Erill la Vall project relies on revegetation measures to limit erosion and the use of constructions made with local wood logs to minimize the energy of the streams to reduce sediment feeding in the main debris flow channel.
This action coincides with the principles of the new Catalan Climate Change Adaptation Strategy 2021-2030 (ESCACC30) and its application is possible in other areas of the Pyrenees massif affected by the same problem.
Identified European policy: EU Strategy on Adaptation to Climate Change and A European Climate Pact (within the Green Deal).

Example 39
Problem explanation: Agriculture is one of the sectors that are strongly impacted by the problems caused by climate change, as it directly depends on climatic factors, such as temperature, sunlight, and precipitation for its viability. Although certain impacts of climate change may be beneficial, there will be severe consequences that can put agricultural activities at a significant risk. The negative impacts include reduced crop yields due to high temperatures, increased water demand for irrigation, and reduced water availability due to prolonged periods of droughts and water scarcity, which will in turn lead to conflicting water demands between the agricultural and other sectors.
Solution: The aim of the ADAPT2CLIMA Decision Support tool is to enhance understanding of climate change and its impacts on agriculture in order to support farmers, policy makers, and other relevant stakeholders (agronomists, agribusiness industry, etc.) in adaptation planning.
Identified European policy: EU Strategy on Adaptation to Climate Change and A European Climate Pact (within the Green Deal), Water framework directive

4.2.3. Mediterranean nature policies

Out of 19 identified Mediterranean nature policies, the TOP7 are presented in the table below (multiple choices were available). These correspond to those chosen more than once.
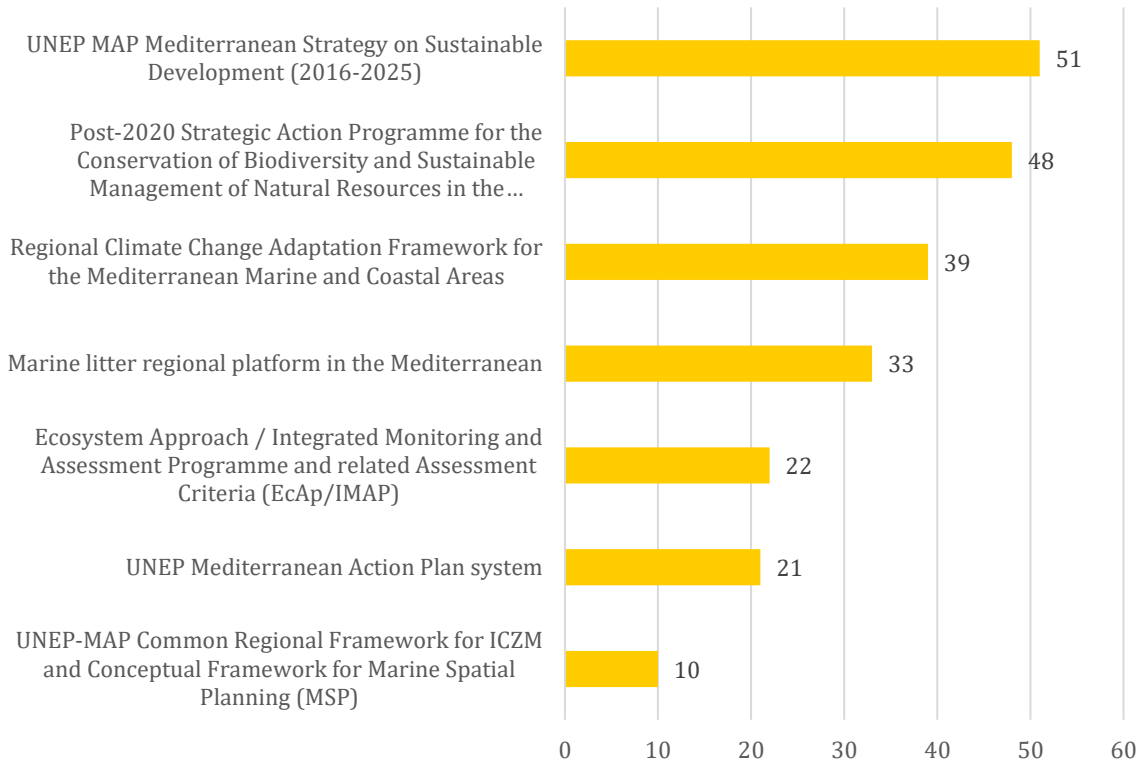
TOP7 Mediterranean nature policies

Policy	Value
UNEP MAP Mediterranean Strategy on Sustainable Development (2016-2025)	51
Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the…	48
Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas	39
Marine litter regional platform in the Mediterranean	33
Ecosystem Approach / Integrated Monitoring and Assessment Programme and related Assessment Criteria (EcAp/IMAP)	22
UNEP Mediterranean Action Plan system	21
UNEP-MAP Common Regional Framework for ICZM and Conceptual Framework for Marine Spatial Planning (MSP)	10

The most commonly addressed Mediterranean nature policy was the UNEP MAP Mediterranean Strategy on Sustainable Development (2016-2025), which was chosen by 51 respondents. Below, one can find 3 examples.

Example 40

Problem explanation: Marine conservation, especially the designation of marine protected areas (MPAs), is not enough incorporated into Marine Spatial Planning. In practice, MSP and MPAs designation are often taking place in parallel to each other, with relatively little integration between them.

Solution: MSP4BIO project is developing and deploying innovative integrated management approaches and tools that will maximise environmental protection while at the same time considering socio-economic impacts. Outputs and generated knowledge from MSP4BIO will represent a major step forward in upscaling and widespread implementation of such tools and frameworks. MSP4BIO will co-develop and test an ad hoc innovative, flexible Ecological-Socio- Economic management framework (ESE) that allows for better integration of systemic biodiversity considerations in MSP as well as in sectoral planning processes.

Addressed Mediterranean policy: UNEP Mediterranean Action Plan system, UNEP MAP Mediterranean Strategy on Sustainable Development (2016-2025), Post-2020 Strategic

---

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region" (Post-2020 SAP BIO), UNEP-MAP Common Regional Framework for ICZM and Conceptual Framework for Marine Spatial Planning (MSP), Ecosystem Approach/Integrated Monitoring and Assessment Programme and related Assessment Criteria (EcAp/IMAP)

Example 41
Problem explanation: Human activities are changing marine environments leading to degradation of biodiversity.
Solution: Evaluation and characterisation of the links between marine biodiversity and ecosystems, and their benefits for coastal communities.
Addressed Mediterranean policy: UNEP Mediterranean Action Plan system, <u>UNEP MAP Mediterranean Strategy on Sustainable Development (2016-2025)</u>, Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region" (Post-2020 SAP BIO), Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas, Ecosystem Approach / Integrated Monitoring and Assessment Programme and related Assessment Criteria (EcAp/IMAP)

Example 42
Problem explanation: Management of small-scale fishery (SSF) within and around a set of Mediterranean MPAs.
Solution: Development a "regional-based governance toolkit" to strengthen MPA management capacity of sustainable small-scale fishery (SSF).
Addressed Mediterranean policy: UNEP MAP Mediterranean Strategy on Sustainable Development (2016-2025), Ecosystem Approach / Integrated Monitoring and Assessment Programme and related Assessment Criteria (EcAp/IMAP)

[Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region" (Post-2020 SAP BIO)](#) was the second most identified Mediterranean nature policy document   addressing problems and solutions specified by respondents. This Mediterranean nature policy document has been selected 48 times. Below, one can find 3 examples.

Example 43
Problem explanation: In the Mediterranean Sea, the intensive use of maritime space calls for integrated management to avoid cumulative impacts and users' conflicts. Maritime Spatial Planning (MSP) – the harmonisation of human activities in marine areas - is advocated as a powerful approach to reach these goals.
Solution: Scaling up strategies and recommendations at a transnational level adopting an ecosystem-based approach to MSP considering the goals of the Marine Strategy

Framework Directive (MSFD) across MPAs. MPA managers, public institutions, and key stakeholders working within the MPAs will benefit from the results of the project.
Addressed international policy: Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region" (Post-2020 SAP BIO), Ecosystem Approach / Integrated Monitoring and Assessment Programme and related Assessment Criteria (EcAp/IMAP)

Example 44
Problem explanation: In South of Portugal (Alentejo), a huge decrease in step birds in Natura 2000 areas is observed, due to climate change and acceleration of crop cycle (cereals and pastures), which is non-compatible with bird's reproduction cycle.
Solution: Start working with farmers; implement a rescue plan for Montagu's harrier (*Circus Pygargus*) and define measures with the Portuguese Ministry of Agriculture to fund agricultural policy to support the loss of income from not harvesting crops early allowing the birds to complete their cycle; simultaneously complement it with an ex situ rescue plan.
Addressed Mediterranean policy: Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region" (Post-2020 SAP BIO)

Example 45
Problem explanation: The FAME project addresses threats that the Atlantic Area is facing, such as the degradation of the marine environment and the loss of biodiversity.
Solution: The creation of Marine Protected Areas (MPA) in some of the Member States participating in the project. The exchange of experiences enabled by networking will help achieve more rapid progress in this area. The FAME project intends to achieve tangible results by collecting data to obtain a better overview of the Atlantic marine environment. Networking will improve the dissemination of results and contribute to decision making in the connected disciplines.
Addressed Mediterranean policy: Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region" (Post-2020 SAP BIO).

Finally, the third most selected Mediterranean nature policy document was the Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas. This document was identified by respondents 39 times. Below, one can find 3 examples.

Example 46
Problem explanation: There are many gaps in the understanding of the effects of ocean acidification.
Solution: Determine organisms and ecosystems sensitive to ocean acidification.
Addressed international policy: Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas

---

> **Example 47**
> **Problem explanation:** Relevant changes in water policy after the launching of the Water Framework Directive in 2000 promoting ecosystem protection and sustainable use, generated stakeholder's resistance, conflicts, and a lively social debate in the Iberian Peninsula. Public participation in water management demands sound scientific and independent technical support.
> **Solution**: The Water Policy Observatory (OPPA) was created in 2006 by the Foundation for a New Water Culture (FNCA), an Iberian NGO composed of academicians, professionals, and social activists devoted to water policy questions, with the purpose of accompanying the Water Framework Directive implementation process. The Observatory produces reports on different aspects with relevance in the public debate on water policy.
> **Addressed Mediterranean policy:** Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas

> **Example 48**
> **Problem explanation:** There is a lack of information on how climate change will affect the world.
> **Solution**: Provide projections on water surface temperatures and simulations.
> **Addressed Mediterranean policy:** Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas

4.3. WHO

This section is composed of two subsections that analyses data on who were the solutions' giver (developer, provider) and takers (final beneficiaries, users). Analysed data will enable identification of the categories of givers and takers that are underrepresented or overrepresented. This will assist in tailoring data collection strategies and engaging more, thus collected data will be more representative and various.
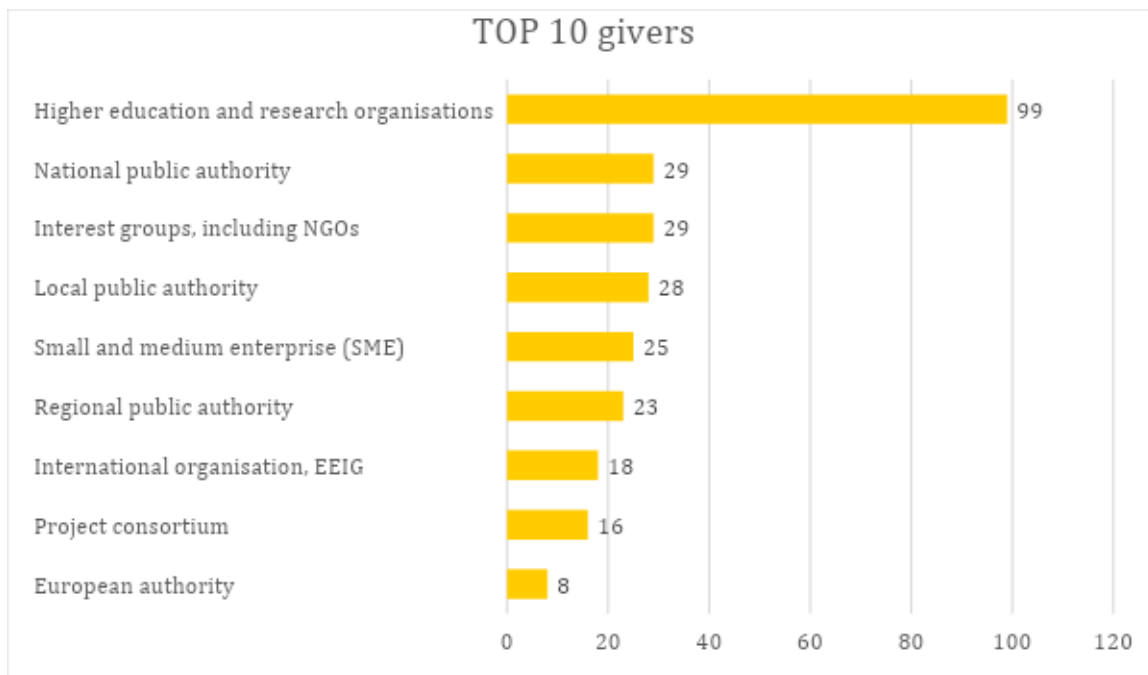
4.3.1. Giver

33 givers were identified, 15 of them were listed as predefined options in the initial form, while the rest were suggested by respondents (multiple choices were allowed). Some of the respondents were more specific and instead of identifying a wider group or type of giver they indicated very specific givers, such as specific municipality (which could fall under category of local authorities), the World Bank (international organization), etc.

TOP 10 givers

Giver	Value
Higher education and research organisations	99
National public authority	29
Interest groups, including NGOs	29
Local public authority	28
Small and medium enterprise (SME)	25
Regional public authority	23
International organisation, EEIG	18
Project consortium	16
European authority	8

The analysis of data shows that the most common givers were "higher education and research organizations" – the entry was chosen 99 times. Below, one can find 3 examples of "higher education and research organizations" being givers of solutions.

Example 49

Problem explanation: Desertification, sea water intrusion, severe drought and improper management of natural resources have degraded agricultural and non-agricultural land, depleted water resources, and menaced biodiversity and local populations.

Solution: Within NEXUS NESS project four living labs were created following the RRI Roadmap methodology, describing the grand challenges and creating a water-energy-food-ecosystem Nexus transition vision and action plan through training, capacity building, modelling and indicators.

Giver: Higher education and research organisations, Small and medium enterprise (SME), Project consortium

---

Example 50

Problem explanation: Though marine biodiversity supports ecosystems essential for human health, little is known about its dynamics.

Solution: Acquiring and compiling data into a free- access online hub; developing technologies, methodologies, and models.

Giver: Higher education and research organisations

Example 51
Problem explanation: The Equilibrium Climate Sensitivity (ECS) is the numeric relation between carbon dioxide emissions and the raise in global temperature. Currently, this comprises a wide range that limits global warming predictions.
Solution: Revision of current hypothesis in the light of satellite weather information to reduce the uncertainty in ECS.
Giver: Higher education and research organisations

"Interest groups, including NGOs" were identified as the second most common givers, it was selected by 29 template respondents. Below, one can find 3 examples.

Example 52
Problem explanation: The main addressed problems, related to the securing of Mediterranean monk seal (*Monachus monachus*) survival, are:
- Human-related monk seal mortality and
- Deterioration of the monk seal's habitat.

Also, there is lack of information on the status of the Mediterranean monk seal in Greece.
Solution: To collect information on the status of the Mediterranean monk seal in Greece, MOm/The Hellenic Society for the Study and Protection of the Monk Seal (a Greek non–governmental environmental organisation) designed an application.
The "Saw-a-Seal: Seal sighting tool" is an interactive application which can help monitor the population of the Mediterranean monk seal in Greece. It provides the information/data that are needed and can later be used to propose new protection measures, focus efforts on specific places, and understand this beautiful but endangered marine mammal even better. It is mainly focused on professionals that spend most of their time at sea, but it is easy to use and available for anyone visiting a beach or the open sea.
Giver: Interest groups, including NGOs

Example 53
Problem explanation: According to "estat de la Natura 2020" and LPI in Catalonia 50% of freshwater, 30% of agricultural and 15% of forest habitat related species have been lost in the last 20 years. Furthermore, the conservation status of habitats of community interest shows overall negative trends.
Solution: Land stewardship and environmental volunteering as tools to facilitate governance of biodiversity between civil society, public administration, private sector, and research
Giver: Interest groups, including NGOs

Example 54
Problem explanation: Overexploitation of natural resources.
Solution: Systematic policy instruments.

> **Giver**: Local public authority, <u>Interest groups, including NGOs</u>, Higher education and research organisations, Small and medium enterprise (SME)

"National public authorities" are the third most frequently identified givers (29 times). Below, one can find 3 examples.

Example 55
Problem explanation: In relation to the problems selected, today a digitalisation and characterization of the coastal strip at a national level is required with the characteristics of: completeness, uniformity, reliability, updating
Solution: The use of ISPRA coastal coverage, the information contained in the ISPRA geodatabase of the characterization of coastal areas, can help to analyze and monitoring the problem of Integrated coastal zone management (ICZM); Coastal and marine ecosystem and Climate Change
Giver: <u>National public authority</u>

Example 56
Problem explanation: Water plastic pollution impacts marine and freshwater ecosystems.
Solution: To study different cleaning technologies and removal strategies; to incentive local population and reused collected plastics.
Giver: <u>National public authority</u>, Interest groups, including NGOs, International organisation, EEIG, Small and medium enterprise (SME).

Example 57
Problem explanation: Different management approaches to fisheries need to be evaluated.
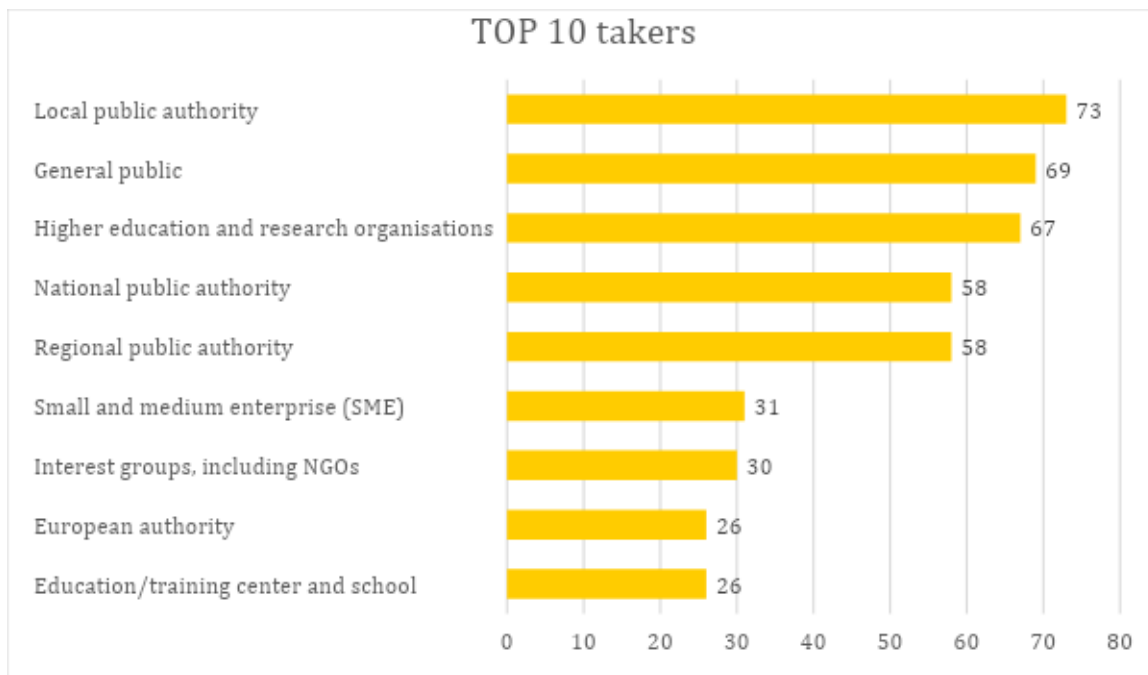**Solution**: Use models to determine possible management solutions.
Giver: <u>National public authority</u>, Higher education and research organisations

---

4.3.2. Taker

As many as 34 takers were identified from the data submitted. Of these, 15 of them were listed as defined options in the initial form, while the rest were included by the respondents (multiple choices were allowed). Some of the respondents wanted to be more specific, thus instead of assigning a taker to the already existing categories, they took advantage of the option "Other" to specify them (for example, farmers, forest owners, fisheries of the Baltic Sea, etc.)

TOP 10 takers

Category	Value
Local public authority	73
General public	69
Higher education and research organisations	67
National public authority	58
Regional public authority	58
Small and medium enterprise (SME)	31
Interest groups, including NGOs	30
European authority	26
Education/training center and school	26

"Local public authorities" were identified as the largest solution taker (73. Below, one can find 3 examples of "local public authorities" being identified as solution takers.

Example 58
Problem explanation: Intensive industrialisation has caused severe pollution to the Mar Piccolo basin: both the marine waters and the seabed are contaminated by heavy metals, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs).
Solution: The main objective of the Life4MarPiccolo project was the ecological restoration of Mar Piccolo in Taranto through the recovery of a contaminated portion of the seabed and seawater.
Taker: Local public authority, European authority

Example 59
Problem explanation: Despite the legislative requirements (e.g., Habitat Directive, MSFD, Barcelona Convention EcAp) most cetaceans and sea turtle species are still in a poor or unknown conservation status in the EU waters and in the Mediterranean basin.
Solution: The Life CONCPTU MARIS aim to improve the conservation status of Mediterranean cetaceans and pelagic sea turtles, by contributing to fill the information gaps especially in offshore areas. This will be achieved by setting an internationally agreed multidisciplinary approach for the surveillance of species and the assessment of maritime traffic and marine litter impact, fostering an international and multisectoral collaboration for the identification of suitable mechanism to meet the species conservation needs.

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Taker: <u>Local public authority</u>, Regional public authority, National public authority

---

Example 60
Problem explanation: Negative impacts of fishing activities including unsustainable fishing practices in marine protected areas.
Solution: The main objective of the [BALTFIMPA](#) project is to assist, on a regional level, to HELCOM Contracting States (Denmark, Estonia, the European Union, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden) to comply with their obligations to fulfil conservation objectives of marine protected areas in the Baltic Sea.
Taker: <u>Local public authority,</u> Regional public authority, Programme bodies, Fisheries of the Baltic Sea

---

The second most identified category of takers was "general public" – 69 times. Below, one can find 3 examples of "general public" being a taker of the solution.

Example 61
Problem explanation: Data on ocean biodiversity is often inaccessible to the end user.
Solution: To develop new tools and methodologies using artificial intelligence to automatically compile inaccessible data.
Taker: <u>General public</u>, European authority

Example 62
Problem explanation: To focus attention on the state of the environment, highlighting areas of greatest natural value and those at risk of degradation is required to support the knowledge of national terrestrial ecosystems. To that end, it is useful to have a habitats classification. That is, a comprehensive system covering terrestrial ecosystems to produce technical support to landscape interpretation.
Solution: ISPRA is involved in a national project that produces a map of terrestrial habitats, a useful product to territory knowledge. All the data in the Nature Map System is available to stakeholders on web pages and a geoportal specifically dedicated to the project and can be easily requested. In connexion to Nature Directives (Habitat and Birds directive), ISPRA supports regional governments providing protocols for monitoring habitats as required by the Habitat and Birds directive.
Taker: Local public authority, Regional public authority, National public authority, Higher education and research organisations, <u>General public</u>, European authority

---

Example 63
Problem explanation: Microplastics are ubiquitous and pose a growing environmental problem.
Solution: Develop bio-based and biodegradable polymers with the same properties as the widespread water-soluble polyacrylic acid.
Taker: <u>General public</u>

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

C4N - Resource collection methodology | **34**

Finally, the third most selected category of givers was "Regional public authorities" (58 times). Below, one can find 3 examples of such.

Example 64
Problem explanation: The Apulian and Western Greece coastlines are facing a significant erosion impact due to both natural and man-induced causes.
Solution: To establish decision support tools for the protection of coastal areas and reduce the consequences of coastal erosion due to natural causes, such as stormy winds, high waves and strong currents, and human induced causes (i.e., urban expansion, touristic development, and infrastructures).
Taker: Local public authority, <u>Regional public authority</u>, General public, Education/training centre and school

---

Example 65
Problem explanation: Negative impact of the economic activities to aquaculture ecology and biodiversity of fish habitats.
Solution: Promote the adoption of common management models for supporting sustainable fisheries and the development of alternative spatial management measures.
Taker: <u>Regional public authority</u>, National public authority

---

Example 66
Problem explanation: Marine pollution in coastal areas.
Solution: Reducing and preventing marine pollution by focusing on testing new educational tools for raising the awareness of tourists in the coastal areas and for supporting strategies for monitoring marine litter in a participative approach that takes into account the fishers community.
Taker: Local public authority, <u>Regional public authority</u>, National public authority, Higher education and research organisations, General public, Education/training centre and school

---

4.4. WHERE

To understand better the reach of the 157 actions submitted, we analysed the geographical location given. All inputs provided one or more locations. We identified 387 different ones of which 155 were unique. Among them, solutions from , 21 macro-regions were included, e.g., The Mediterranean Sea, Northern Europe, Pacific Islands, etc. (see table below); 83 to countries across the world; and 51 to specific locations, such as country regions, provinces, municipalities, national parks, and cities.

Relation of reported macro-regions for the submitted actions and the frequency they were mentioned are provided in the table below.

| Macro-regions	Frequency
Europe	22
Mediterranean Sea	20
Baltic Sea	8
North Atlantic	7
World	7
English Channel	3
Atlantic Sea	2
Black Sea	2
North Sea	2
Aegean Sea	1
British Isles	1
Central Europe	1
North Europe	1
North-West Mediterranean	1
Northern Europe	1
Northern Hemisphere	1
Pacific Islands	1
South Asia	1
Sub-Saharan Africa	1
The Arctic	1
Western Balkans	1

Not surprisingly, Europe is the predominant area reported both in terms of macro-regions and countries (see figure below). The Americas are also well represented. In Africa, submissions covered the Mediterranean countries, the Gulf of Guinea, and the eastern coast. In Asia, areas close to Europe and the Southeast are the only ones quoted, and in Oceania only Australia is mentioned by name.
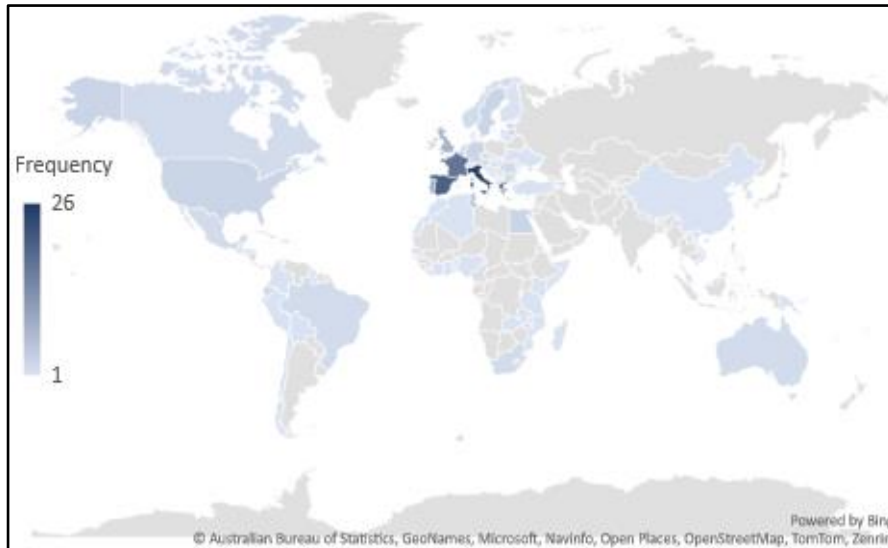
Below, one can find three examples of the problems and solutions for Europe, the Mediterranean, and the Baltic Sea.

Example 67
Problem explanation: Sustainable management of natural resources refers to the responsible and balanced use of natural resources, such as water, forests, minerals, and biodiversity; in a way that ensures their availability for current and future generations while minimising negative environmental impacts.
Solution: One brief measure suggested as a solution to various environmental problems is "Regenerative Agriculture," which focuses on sustainable farming practices that restore soil health, enhance biodiversity, and reduce the environmental impact of agriculture.
Geographical location: Europe.

Example 68
Problem explanation: Chemical pollutants are reaching and accumulating in the Mediterranean Sea.
Solution: Monitor pollutants, deploy remediation technologies, engage local communities.
Geographical location: Mediterranean Sea.

Example 69
Problem explanation: Environmental and spatial planning challenges in the Baltic Sea Region. The increasing demands on exploiting these areas are creating potential conflicts with other interest, such as preservation of natural resources and ecosystem services.

**Solution**: To develop a holistic and inclusive approach in the planning process, through involving stakeholders of different interests and together create sustainable marine and coastal zone plans.
Geographical location: Baltic Sea Region areas (Åland, Latvia, Sweden, and Estonia)

Most entries focused on countries in Europe and the Mediterranean Basin, therefore we looked at them in detail. Of the 40 nations covered, 27 were mentioned at least once. The most frequently reported was Italy, followed closely by Spain, France, and Greece. The United Kingdom, Scandinavia, the Baltic Republics, Central and Eastern Europe, the Balkans, the Middle East, and North Africa are also well represented.
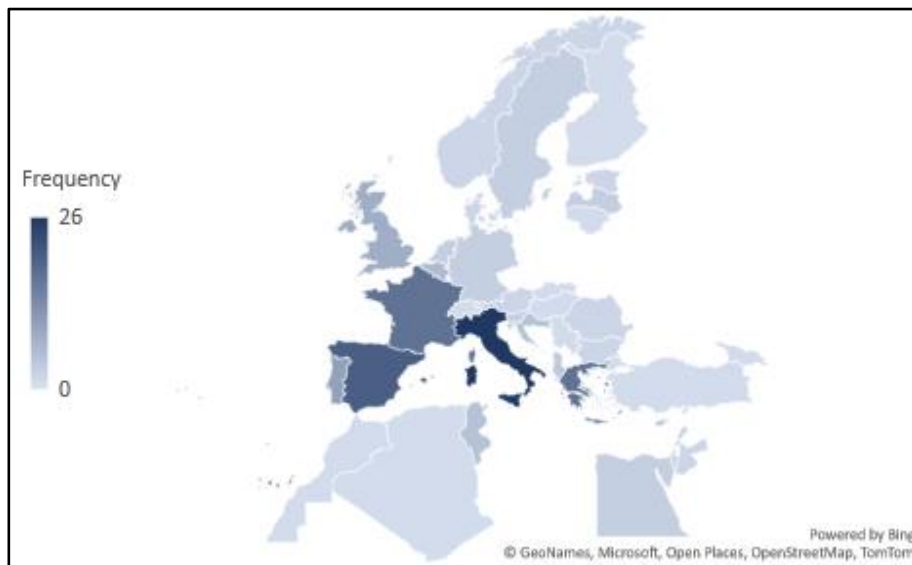
Below, one can find 3 examples that cover Italy, Spain, and France.

Example 70
Problem explanation: The loss of marine biodiversity in protected areas(N2K).
Solution: The SenHAR awareness campaign will allow to act quickly, know the consequences, create awareness, and generate a feeling of transnational belonging.
Geographical location: Italy and Malta

Example 71
Problem explanation: The impact of the release of carbon stored in permafrost due to global warming is not well characterised.

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Solution: Research into the vulnerability of soil organic matter to climate change in permafrost.
Geographical location: <u>Spain</u>

Example 72
Problem explanation: Marine pollution in the Adriatic Sea.
Solution: The [RE.CO.RD project](#) aims at reducing the environmental impact of economic activities related to the touristic exploitation of coastal areas that bring marine pollution as a direct result: the active participation of the population and the introduction of new technologies will lead to a new circle of plastic materials recycling.
Geographical location: <u>Greece</u> - Italy

Regarding regions, municipalities, towns, and rural locations, most belong to southern European countries, such as Spain, Greece, Albania, Italy, and Portugal. Of the 51 locations identified, 12 were mentioned more than once and are shown in the table below.

| Regions	Frequency
Catalonia, Spain	7
Crete, Greece	4
Shëngjin, Albania	4
Vlorë, Albania	4
Azores, Portugal	3
Durrës, Albania	3
Sarandë, Albania	3
Alentejo, Portugal	2
Canary Islands, Spain	2
French Guiana, France	2
Madeira, Portugal	2
Sicily, Italy	2

4.5. WHEN

To better understand the solutions put forward by participants, in the submission form we asked to detail the length of the project that was presented. Of the 157 entries, 153 contained such information. The periods of time stretched from as little as 1 year to as much as 86 years, with an average of almost 5 years (4.95). Most projects lasted between 4 and 5 years (median length):

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Duration of projects (years)
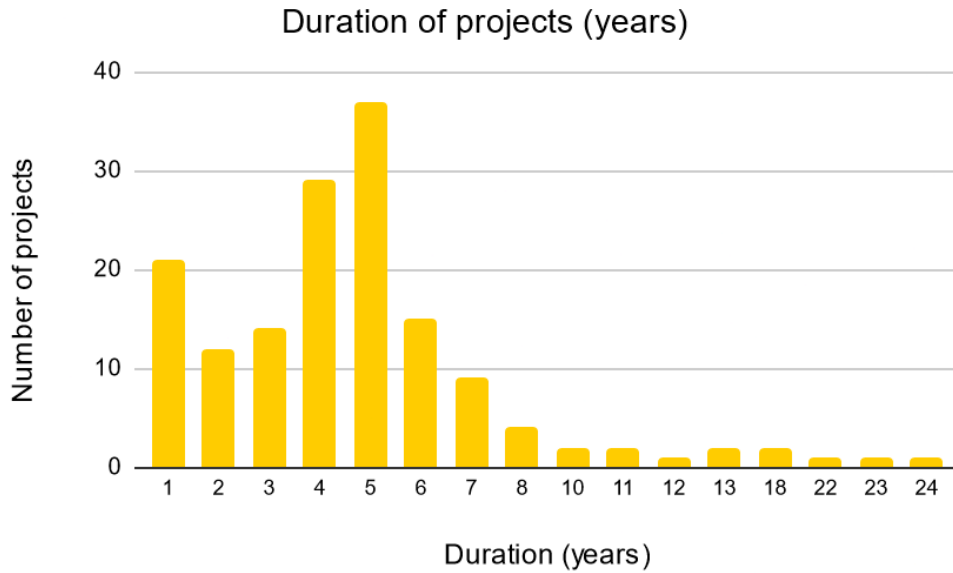
Regarding the time distribution of the projects, the ones considered were those that were launched after the year 1999 (156 out of 157 entries). As can be seen in the figure below, most entries submitted corresponded to projects executed between 2015 and 2023. Many of them stretch into the future as far as 2030, indicating an extended longevity. Overall, recent projects are strongly represented in the data. This may indicate that novel initiatives and societal challenges attract more attention and are known to the respondents. Perhaps these projects are more useful to the participants in this survey or are valued more because they improve previous practices.
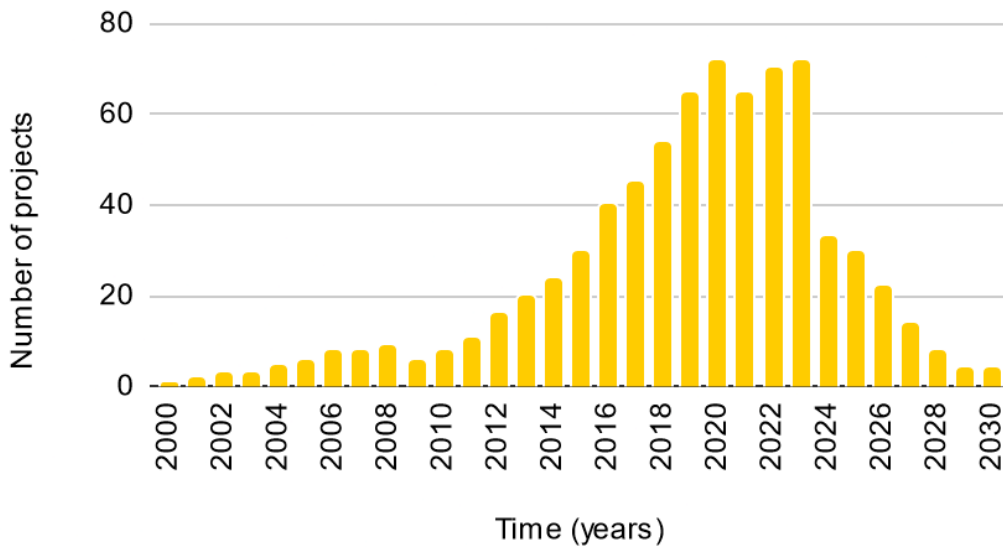
Timeframe of projects

4.6. HOW

It is important to understand not only the problem and the solution, but also how the solution has been implemented. This information will enable users of the Adaptive Resource Recipient to evaluate what needs to be done/prepared in order to implement a solution. Moreover, explanations on how a solution has been implemented will show whether it could be transferred, for example, to other territories or contexts (e.g., solutions related to citizen science cannot be implemented, if the general public is not actively participating in it).

Example 73
Problem: EU Mission: Restore our Ocean and Waters aims to protect and restore the health of oceans and waters by 2030 and its implementation.
Solution: The PREP4BLUE project consortium will connect initiatives across disciplines, mobilise policymakers, stakeholders and citizens, and leverage public and private investments.
How the solution was implemented: By delivering tools, guidelines, methodologies, and recommendations tested through pilots, which interconnect, leverage, and optimise actions among the projects contributing to the EU Mission.

Example 74
Problem: The sustainability objectives of the European Union require consensus across stakeholders in the fishing industry.
Solution: Evaluate the impact of the European Union sustainability objectives on local communities.
How the solution was implemented: Examine the social and economic impact of proposed management measures. This was achieved by interviews and direct consultation with fishermen.

Example 75
Problem explanation: Phytoplankton's ability to access micronutrients is essential for many marine food webs. The influence of ocean acidification on this process requires investigation.
Solution: Study a diatom's ability to uptake iron upon acidification conditions.
How the solution was implemented: Validate the hypothesis that ocean acidification negatively affects the growth of marine phytoplankton by interfering with their carbonate uptake mechanism.
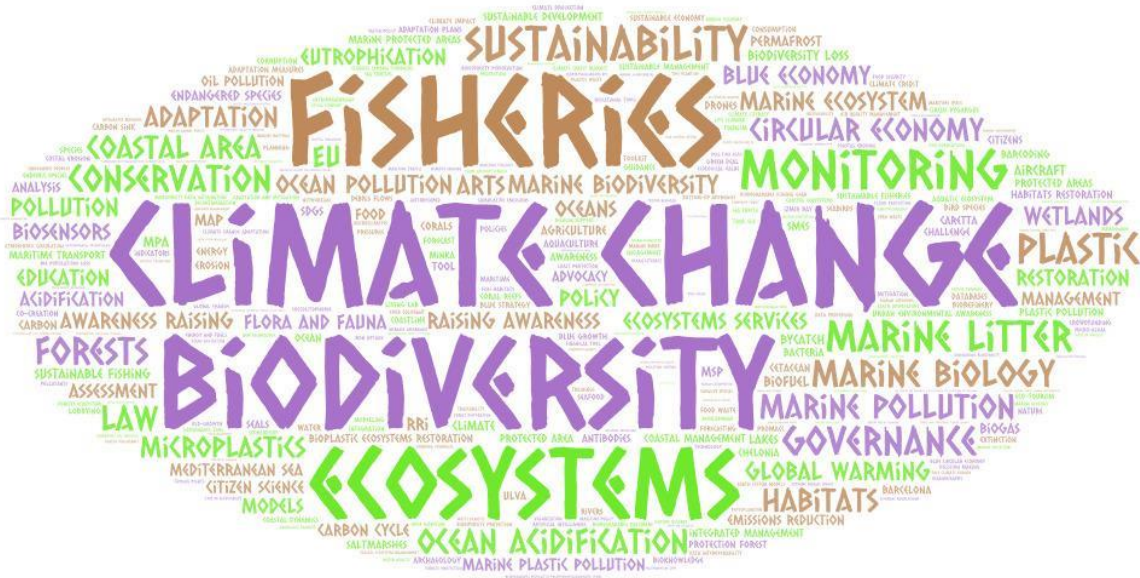
4.7. KEYWORDS

In this section participants were asked to introduce keywords related to the solution addressed. The 158 entries analysed, contained 540 keywords, almost 3.5 terms per submission. Some entries lacked keywords and others had as many as 7 of them. Out of these, 335 unique keywords were identified. Regarding frequency of use, 67 keywords were mentioned two or more times and 268 only once. Frequency can be appreciated graphically in the word cloud figure below (font size correlates with the number of mentions):

The 5 most common keywords were climate change, biodiversity, fisheries, ecosystems, and monitoring. See below a table with the 10 most used terms:

Keyword	Number of mentions
climate change	32
biodiversity	22
fisheries	10
ecosystems	9
monitoring	9
sustainability	8
marine litter	7
ocean acidification	7
marine biology	6
marine pollution	6

The fact that "climate change" was the most used keyword highlights the importance of the topic, which permeates through many of the initiative's participants chose to submit. "Biodiversity" was the second most recorded keyword, indicating the relevance of organisms both as health indicators of ecosystems and for biotechnology applications. Many keywords related to the seas and oceans, i.e. fisheries, marine economy, and blue economy, were also mentioned; these underscore a bias towards marine projects in the submissions received.

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Below, one can find three examples of solutions that correspond to the TOP3 keywords – "climate change", "biodiversity" and "fisheries".

Example 76

Problem explanation: Infrastructure is increasingly being exposed to climate risks, experiencing inefficiencies due to manual/paper-based practices, and falling short in terms of environmental sustainability. The better management of existing public assets, as well as new infrastructure investments, is therefore critical for promoting green, resilient, inclusive, and digital development.

Solution: PIM-PAM.net provides a suite of online tools, resources, and a peer-learning platform to help policymakers drive change. The platform helps governments transition towards green, resilient, inclusive, and digital public investment and asset management practices.

Keywords: public asset investment climate change.

Example 77

Problem explanation: Biodiversity is at risk because the public use of Protected Areas is not appropriately managed.

Solution: The final goal is to improve regional public policies and to create the right regional contexts to maximize links between Protected Areas, and health and well-being!

Keywords: Sustainable management, climate change, biodiversity.

Example 78

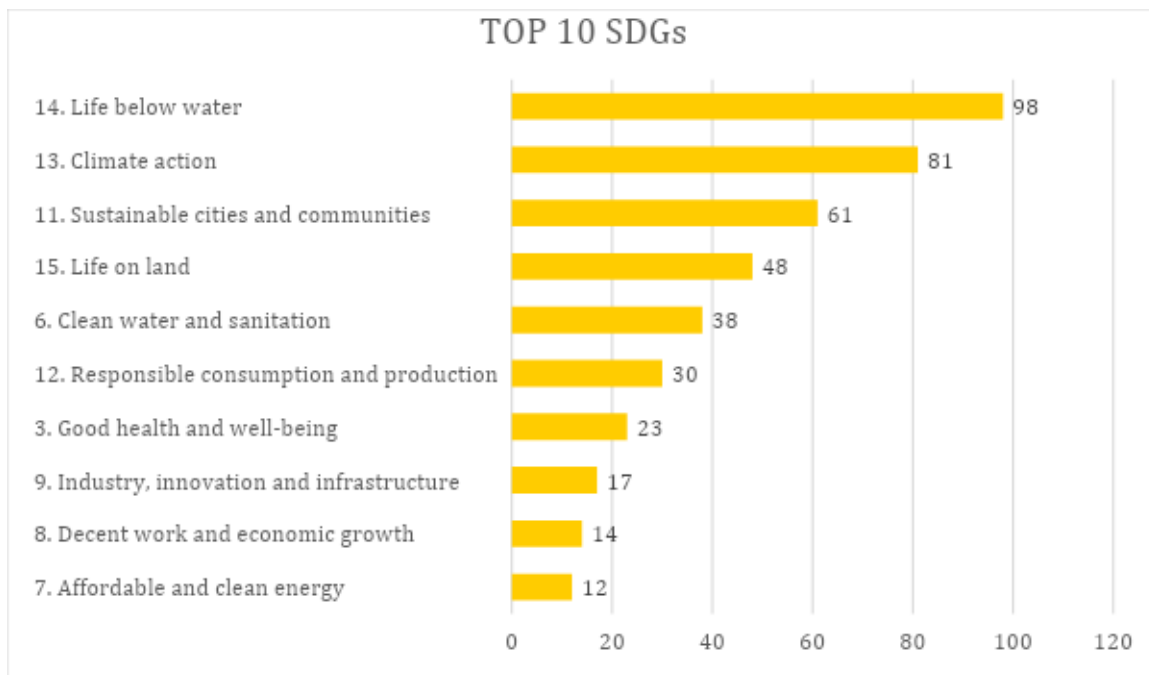**Problem explanation:** Reducing bycatch is a goal of the European Union.

Solution: Validate a technology applied to vessels to reduce bycatch.

Keywords: Food security, sustainable fisheries, water research

---

4.8. UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (SDG)

It is important to highlight that all SDGs were addressed in the first resource collection phase. As in many other sections of the form, the SDGs section also allowed for free-text answers. The most addressed SGD was 14 (Life below water), followed by 13 (Climate Action), and 15 (Life on land).

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

TOP 10 SDGs

SDG	Count
14. Life below water	98
13. Climate action	81
11. Sustainable cities and communities	61
15. Life on land	48
6. Clean water and sanitation	38
12. Responsible consumption and production	30
3. Good health and well-being	23
9. Industry, innovation and infrastructure	17
8. Decent work and economic growth	14
7. Affordable and clean energy	12

The most frequently chosen SDG was 14 (Life below water). It was chosen by 98 respondents. Below, one can find 3 examples on the inputs provided by respondents that are related to the SDG 14.

Example 79
Problem explanation: Historical information on the pH and redox values is lacking.
Solution: Developing an isotope stable technique to evaluate ancient records of the state of the oceans.
SDGs addressed: 13. Climate action, 14. Life below water

Example 80
Problem explanation: The current monitoring methodology in Lake Peipsi (Estonia) is not sufficient and optimal to maintain a good level of pelagic populations and thus also general biodiversity.
Solution: Import the current methodology with preliminary know-how and will adapt the solutions to the shallow and more diverse lake conditions.
SDGs addressed: 14. Life below water

Example 81
Problem explanation: Polypropylene (PP) nets (socks) used for mussel (*Mytilus galloprovincialis*) farming are considered a major sea-based source of plastic marine litter in the Mediterranean Sea.

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

C4N - Resource collection methodology | **45**

Solution: The main objective of the <u>LIFE MUSCLES project</u> is to reduce the environmental impact of PP socks used for mussel farming, by developing and promoting a more sustainable production value chain.
SDGs addressed: <u>14. Life below water.</u>

The second most commonly chosen SDG is SDG 13 (Climate action), which was chosen by 81 respondents. Below, one can find 3 examples.

Example 82
Problem explanation: Numerous urbanised coastal areas are exposed to risks induced by extreme marine events, increase in mean water level, and an intensification of extreme meteorological events.
Solution: Improve knowledge and tools to better understand the impact of current and future storms on the shores, with the aim of supporting coastal risks management by public administrations.
SDGs addressed: 13. Climate action

Example 83
Problem explanation: In many places nature in coastal zones is under pressure due to cultivation, agriculture, containment, eutrophication, and other disturbances which, over hundreds of years, have restricted the coastal landscape and caused major habitat loss.
Solution: <u>COASTal LIFE</u> project aims to re-establish the original coastal habitats in parts of 4 Natura 2000 sites, to expand protected habitats, and to create larger ecological corridors and natural areas.
SDGs addressed: <u>13. Climate action</u>, 14. Life below water, 15. Life on land

Example 84
Problem explanation: Little is known about the effect of global warming on microclimates such as those on forests' ground floor.
Solution: Studying the microclimatic buffering of macroclimate warming in forests.
SDGs addressed: <u>13. Climate action.</u>

The TOP3 SDG corresponds to 11 (Sustainable cities and communities). This was chosen by 61 respondents. Below, one can find 3 examples.

Example 85
Problem explanation: The general public lacks knowledge on the benefits of seas and oceans on their health.
Solution: Sustain an Ocean Literate society in Europe, campaigns of engagement with the public on marine education, developing best practices on sustainability.
SDGs addressed: <u>11. Sustainable cities and communities</u>, 14. Life below water.

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

Example 86
Problem explanation: Ecosystem Services loss.
Solution: An array of solutions available in good practices manuals
SDGs addressed: 3. Good health and well-being, 11. Sustainable cities and communities, 12. Responsible consumption and production, 13. Climate action, 15. Life on land.

Example 87
Problem explanation: Marine litter and its accumulation around major polluted deltas, fishing ports, and small shelters.
Solution: Clarify rate of solid waste discharges from rivers, identify degree of the pressures from different sources, raise awareness of the public, convince households to separate litter, teach the benefits of organic waste to improve new generations responsible for saving their environment and future.
SDGs addressed: 3. Good health and well-being, 11. Sustainable cities and communities, 12. Responsible consumption and production, 13. Climate action, 15. Life on land.

5. Concluding remarks

In this report, there were   157 inputs analysed, submitted by users. Two thirds of these (100 inputs) were inserted by NIB Slovenia. This partner searched for published EU projects (https://keep.eu/, https://cordis.europa.eu/, and https://webgate.ec.europa.eu/) using keywords related to marine ecosystems (e.g., global warming, ocean acidification, marine biodiversity, sustainable fishing, plastic pollution, climate change, light pollution, eutrophication, sustainable development, emission reduction, noise reduction, and endangered species). Thus, these topics are overrepresented in the data. As more users employ the template and the NIB team diversifies the choice of keywords, marine topics are likely to be less preponderant.

In this report, 87 inputs were also presented, as examples to illustrate the different sections. These make for an interesting read as they reflect the many efforts that EU initiatives are trying a cornucopia of approaches to solve relevant challenges.

The information provided in this deliverable will be used to communicate project results to stakeholders.

This is the final deliverable of the 1st data collection phase (data collected during 2023).

All analysed data will be presented on the Mission's website and the testing phase will commence in Autumn 2024.

6. Annex

All data received in the period between June 2023 and December 2023.

D4.1.2._Community4
Nature data collection

A project labelled by the UfM

Union for the Mediterranean
Union pour la Méditerranée
الاتحاد من أجل المتوسط

C4N - Resource collection methodology | **48**