TECHERA

"A new technology era in the Adriatic Sea – Big data sharing and analytics for a circular sea economy"

D3.2.4 Project ideas for programming period 21-27

Final Version 15/06/2023

Deliverable Number D.3.2.4

Project Acronym	TECHERA
Project ID Number	10417714
Project Title	A new technology era in the Adriatic Sea – Big data sharing and analytics for a circular sea economy
Priority Axis	Blue innovation
Specific objective	1.1 - Enhance the framework conditions for innovation in the relevant sectors of the blue economy within the cooperation area
Work Package Number	3
Work Package Title	Clustering thematic activities
Activity Number	3.2
Activity Title	Contributions to the next programming period
Partner in Charge	PP4-OGS and PP6-Zadar County
Partners involved	All Partners
Status	Final
Distribution	Public

Partnership:

Summary

Introduction

This deliverable contains project ideas developed by TECHERA partners based on previous projects outcomes and discussions generated in the cluster and represent suggestions for the next programming period 21-27. These ideas represent synthesis of the main areas of intervention that the partnership identified, linking needs of the program area in the blue economy sector with possible solutions. In particular, the projects are developed considering (but not limiting to) the importance of innovation and research and the relevance of smart specialization to improve efficiency and sustainability of blue economy sectors.

Several project ideas regard specifically the sector of fisheries (ideas 4 and 6), one idea integrates the sectors of fisheries and aquaculture (idea 3) and one idea provides integrated solutions for fisheries, aquaculture and offshore wind farms (idea 10). Two project ideas implement solutions especially related to post-processing and marketing of fisheries and aquaculture products (ideas 2 and 9) whereas two project ideas regard the coastal planning and protection (projects 5 and 8). One project is specifically devoted to tourism and facilitation of scuba diver visits (project 7) and finally one project is completely devoted to improve the employment in blue sectors (project 1).

All projects ideas are strongly data-driven requiring or supporting monitoring (in particular ideas 5, 6, 7, 8 and 9), or providing - on the basis of mostly available data- planning instruments (project ideas 3 and 10). Some projects have the potential for including climatic effects and changes (ideas 3, 8 and 10) into their assessment as a way to increase the resilience of the blue sectors to the future developments foreseen in the area.

All projects tackle the aspect of the cross-border nature of the intervention foreseen. In fact, all ideas recognize the need for integrated visions across countries in the Adriatic Sea to provide sustainable solutions to blue sector issue.

The project ideas are organized in structured templates with details on the specific target group of each and with some suggestions for the partnership.

Project Idea 01 - Filling the gap of growing unemployment and strengthening the sustainability of the Blue Economy sector (GoBLUE)

(PP7 - Ministry of Agriculture, Directorate of Fisheries)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	The Blue Economy represents approximately 5.5 million jobs (with related activities), with a turnover of approximately €660 billion. Europe's coasts and seas have the potential to provide growth and job creation in the coming years, and highly qualified and skilled professionals are needed to advance Blue Growth. Blue Economy sectors have difficulty finding employees with the right skills, and most sectors expect these difficulties to continue. The question arises, why are young people not directed to this essential and promising, fast-growing sector? The main reasons that affect the difficulty in finding suitable personnel are: • the skills gap between educational offers and labor market needs, especially in terms of technological development and innovation. • lack of communication and cooperation between education sector and industry. • lack of attractiveness and awareness of career opportunities in the Blue Economy, and lack of a culture of oceanic literacy.
Objectives *(maximum 1000 characters - spaces included – for describing what are the objectives of the project. This can be written also in bullet points)*	In order to achieve the goals of the project, it is necessary to direct the activities towards the basic market problems, which include: • reducing the skills gap between education supply and labor market needs • improving communication and cooperation between education and industry • improving attractiveness and awareness of career opportunities in the Blue Economy • improving the perception of "Blue occupations", starting with oceanic literacy, which is the basis of it all.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	The starting point of the project is to determine the detailed situation of Croatia and Italy regarding the possibility of educating young people who in the future could qualify for business opportunities in the sectors of the Blue Economy, in terms of covering a key sample of young people, and creating a specific career orientational methodology. The creation of a methodology of access to young people is crucial for the applicability of organizing a key meeting at the Blue Careers International Fair, where all stakeholders would be present in one place for 3 days. After determining the analysis of the situation and critical points of youth employment in the sectors of the Blue Economy sectors, the project would be oriented towards activities that would include: • surveying institutions (schools, universities) about the possibilities of education and training of young people in the area covered by the Blue Careers sector • surveying pupils and students about the expectations and preferences of work in the sectors of the Blue Economy • interviews and data collection through focus groups of institutions that operate in the field of youth career development, and of students themselves, which would include a clear insight into the alignment of market needs with a focus on the supply and demand for personnel in the Blue Economy sectors • development of a methodology for the organization of thematic workshops, which would include access to young people in a specific and attractive way • organization of thematic workshops to bring Blue careers closer to young people in the area of the Adriatic basin (Italy - Croatia) • Processing of data and experiences from the workshops - an activity that is essential in order to fill in the gaps in access and organization of thematic workshops • development of the methodology for the organization of the International fair of Blue Careers as a final methodology that can support meetings between employers and young people in one place. • the organization of the final meeting of the International character of the Blue careers fair lasting 3 days, which would provide young people with a clear insight into the needs and attractiveness of the Blue Economy sectors themselves, and provide possible first contacts for employment. • Recommendations for improving the organization of international fairs of Blue careers

Geographical scope *(Describe the area of work; local, regional, basin etc.... Maximum 250 characters - spaces included)*	The pilots of the project would certainly be oriented towards the Adriatic basin, Croatia, Italy, the results of which would ultimately be disseminated by organizing an International fair of Blue Economy - employers and young people, which would also include wider geographical areas.
Cross-border elements *(identify the main elements of crossborder in the project. Consider to highlight advantages for the project of crossborder action, or advantages for the results to be crossborder....Maximum 1000 characters -spaces included)*	The basic elements of cross-border cooperation are defined through the partnership of all valid institutions in the Blue Careers development sector in the area of Italy and Croatia, where through a joint effort the realization of the elements and goals of the project specified in the project description will be achieved. The advantage of cross-border cooperation is manifested in strengthening and harmonizing trends among young people, but also educational institutions and the needs of employers, which has as its ultimate goal the organization of the International Blue Careers Fair, which includes several EU member states.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	The expected output indicators of the project are: • Study of the analysis of the state of supply and demand of the Blue Economy sector through the output indicators of surveys and focus groups • Analysis of funding opportunities for mentors in the Blue Growth sector as well as professional practices • Raising awareness of the importance of employing young people in the Blue Careers sector as a necessity for the sustainability of the Blue Economy, through their education and orientation to this sector from an early age, which will be carried out through thematic workshops in Italy and Croatia and promotional campaigns via Internet channels and social networks Hiring influencers for filming promotional videos • 2 methodologies: The methodology of the organization of thematic workshops between two countries (Croatia - Italy), and the methodology of the organization of the international organization of the Blue career fair, add the social network methodology? • Offers for employment of young people in Blue career sectors through the meeting of all education and market stakeholders at the international Blue career fair • 1 recommendation for improving the organization of international fairs of Blue careers

Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	The target groups are: • final grades of primary schools in the first semester, • final high school classes in the first semester • students at universities • Schools and universities • scientific research, regional and national government organizations as well as non-profit organizations aimed at defining and identifying market needs in the Blue career sectors • Business entities in the area of activity of the Blue Economy
Partnership *(Maximum 1000 characters - spaces included)*	Partnership is necessary for this project, and it would include partners from Italy and Croatia. The partnership must be composed of a group of institutions that can provide quality, quantitative and credible data, have the capacity to identify market needs through a clear insight into the situation "first-hand" and their own experience. Partners must be able to create a synergy that is oriented towards increasing awareness of the attractiveness of the Blue Economy sector, as well as having the capacity to attract and organize international events. These are primarily primary, secondary schools and universities, national and regional government institutions and/or non-profit organizations with clear goals of supporting the growth of the Blue Economy sector, and scientific research organizations/institutions.

Project Idea 02 - Business models and institutional agreements for the horizontal and vertical coordination of fish value chains

(LP- University of Bologna, Dept. of Economics)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	Adriatic fish value chains are in general strongly fragmented. There is few coordination both at horizontal and at vertical level. Fishers are generally independent agents that must deal within an opaque markets, characterized by a large number of small buyers and a few purchase leaders. Furthermore, important differences can be found for specific fishery sectors (e.g. small pelagics, white fish, clams), which make even more difficult to define specific patterns and models. However, a few organizational best practices do exist, including Producers Organizations (for horizontal coordination for both production and sale) and model for vertical coordination (including written and non-written contracts, short supply chains, vertical integration).
Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	The objective of the project is to recognize best practice experiences, for horizontal and vertical coordination, describing them and making them known to the fishery community. Best practices should be found both in the Adriatic area and in other basins in order to collect a wider set of examples and experiences. Best practices should be studied in details, decomposing every single experience in its building blocks (e.g. contractual patterns, management structures, fishery rules, risk and rent allocation, tools for value adding, labelling, institutional setting), in order to prepare teaching modules.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	The project should include the following steps: 1) Best practice recognition. This would include a survey of information available at EU level and interviews with key agents. Best practices can include business models of single enterprises (e.g. cooperatives), value chain coordination patterns (e.g. contracts), and institutional frameworks which are auspicious for the positive management of fishery resources, the creation of value added and the fair allocation of profits. 2) Analysis of best practices in a structural way, to define the fundamental building blocks of every best practice that are relevant for sustainability, efficiency, vale adding and fair allocation of profits 3) Experience exchange and training modules for Adriatic stakeholders. 4) Elaboration of proposals for successful business models and coordination patterns considering the specificity of Adriatic fisheries. 5) Policy recommendations to establish a successful institutional setting.

Geographical scope *(Describe the area of work; local, regional, basin etc…. Maximum 250 characters - spaces included)*	The area of interest includes all the GSA 17. However, best practices can be taken from other sea basins.
Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	Italian and Croatian best practices will be used to exchange information across the two countries. Italian stakeholders will travel to Croatia and vice versa in order to verify management organization and tools for horizontal and vertical coordination. Every best practice will be evaluated and proposals will be tailored on the base of different environmental, economic, and institutional settings.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	The main outputs will include: - High number of stakeholders formed through visits to best practice realities and training modules. - Elaboration of proposals for successful business models and coordination patterns - Policy recommendations to establish a successful institutional setting.
Synergy with and capitalization of other projects *(Briefly list the links with other previous or ongoing projects. This can be just listing the names of the project or also specifying the synergy/capitalization element. Maximum 500 characters - spaces included)*	Synergies will be essential to capitalize the results of previous projects that considered aspects related to participatory management of fishery resources, creation of value added, evaluation of business models and coordination patterns (e.g. Prizefish)

Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	The target groups of the projects will include all the stakeholders involved in the fish value chain, that is fishers (and their organizations such as cooperatives and Producers' Organizations), wholesalers, processors and retailers. Policy makers will also be considered providing them recommendations to establish favorable institutional settings for efficient and sustainable value chains.
Potential partners *(Maximum 250 characters - spaces included)*	Potential partners will include research centers and universities dealing with resource management, value chain management and business model creation. Successful stakeholders, in particular Producers Organizations and other agents of the value chain (e.g. processors, wholesalers) will be important in order to provide their own experience.

Project Idea 03 - Planning and implementing multifunctionality in fisheries and aquaculture

(PP01 – Agenzia Marche Agricoltura e Pesca)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	Starting from the shift of rural development from an emphasis on food production to a diversity of new forms of natural resources observed in recent years, the adaptation of fisheries within a post productive setting by new forms of multifunctional activities is recognized as an opportunity for the blue economy of coastal communities. Recent transitions have been, in fact, observed also in many coastal areas and the fisheries looked at new activities related to tourism, recreation and nature conservation to face the multiple challenges the sector must face with. Within this context, the small-scale fisheries (SSF) sector is characterized by pluriactivity due to its intrinsic resilience seen as "adaptability and transformability" (Walker et. al, 2004). SSF, in fact, for its nature applies a variety of livelihood strategies involving flexibility within fisheries, geographical mobility and diversification. The diversification of products and services is also an opportunity for the aquaculture. In addition to the changes in cultivated species, other changes in aquaculture practices have been increasingly promoted to improve the environmental performance, productivity and profitability of aquaculture production, resulting in positive effects on mitigation and adaptation to climate change, even whenever climate change is not explicitly included among main drivers. Multi-functionality in the context of the fisheries and aquaculture can respond to the declining profitability and falling employment in the fishery sector and the possibility of diversification is relevant for many types of areas, offering fishermen and aquaculture operators, their families, and other members of the fisheries community a possibility to create additional sources of employment and income, while also providing services that help fisheries areas remain viable places to live, fish and do business. Looking at the Adriatic and Ionian area, the project intends to address several challenges: - the full implementation of complementary activities in fisheries varies significantly due to the national regulatory framework and interpretation. It is the case of the fisheries-related tourism that it that, within a multifunctionality approach, is considerably relevant for the SSF sector as integrative activities. - the estimation of the multifunctionality socio-economic feasibility: fishers and aquaculture operators are not fully aware of the cost- benefit ratio. - a comprehensive governance where sectoral policies and financial instruments are effectively integrated. In this context, the project will promote adaptation strategies fishermen and aquaculture to unlock the full potential of multifunctionality. .

Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	Given the acclaimed potential of the multifunctionality in fisheries and aquaculture sectors, the project intends to contribute to the setting-up of the framework conditions for its operationalization by a set of strategic and operational actions jointly carried out by a well-balanced partnership of public administrations, universities and research centers, fisheries, and aquaculture associations from the Adriatic and Ionian area. Despite its relevance and the growing interest, the full potential of multifunctionality in fisheries still need to be unlocked, further efforts should be made to depict the state of play, identify gaps and obstacles hindering its development as well as the potential avenues for fisheries and aquaculture to suit new activities and the governance instruments and methodologies for supporting diversification. The project will also contribute to definition of climate change adaptation strategies in the Adriatic and Ionian area.
Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	The project activities will cover the following 4 declensions of multifunctionality: 1. Diversification within the fisheries/aquaculture sectors 2. Diversification of activities within the fish value chain 3. Pluri-activity 4. Broader diversification of the fisheries area into sectors not directly related to fisheries and aquaculture The project workplan will include: - A framework analysis to depict the state of play of multifunctionality in the fisheries and aquaculture sectors at EU and project area level that will serve to plan and set the scene for the pilot actions - A work package focused on “planning” - under a common participatory approach - the pilot actions for multifunctionality implementation in the project pilot area. - The operationalization of “multifunctionality” in the project pilot areas in the form of pilot actions/case studies addressing the previous mentioned “declensions of multifunctionality” and their feasibility into practices. The work package will include learning and raising awareness activities towards different target groups: fisheries and aquaculture enterprises, policy makers, researchers, civil society and end users. Moreover, project milestones and case studies will be elaborated into a joint strategy of transnational value.

Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	Despite their socio-economic relevance, the fisheries and aquaculture sectors of the Adriatic and Ionian region are affected by common problems such as declining in profitability, falling employment, depletion of fishing resources and biodiversity because of unsustainable fishing activities and local policies not coordinated at interregional level, lack of specialized workers, increased fuel costs. Moreover, given the transboundary nature of the sea resources, good management of fisheries and aquaculture is a common transnational challenge that requires a coordinated approach. Merging resources, expertise, and knowledge, and sharing best practices from different partners in the project area is a strength to: - the full implementation of complementary activities in fisheries varies significantly due to the national regulatory framework and interpretation. It is the case of the fisheries-related tourism that it that, within a multifunctionality approach, is considerably relevant for the SSF sector as integrative activities. - the estimation of the multifunctionality socio-economic feasibility: fishers and aquaculture operators are not fully aware of the cost- benefit ratio. - a comprehensive governance where sectoral policies and financial instruments are effectively integrated
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters -spaces included)*	The project will deliver a Joint strategy for multifunctionality implementation in fisheries and aquaculture. It is expected to: - Improve the innovation attitude of the small-scale fisheries and aquaculture operators - Improve the awareness of multifunctionality environmental, social, and economic benefits for a sustainable blue economy - Valorize the sustainability of small-scale fisheries - Create new competences and tools supporting income diversification by means of joint training schemes - Increase the fisheries and aquaculture competitiveness - Contribute to a comprehensive and supporting governance - Integrate different funding opportunities

Synergy with and capitalization of other projects *(Briefly list the links with other previous or ongoing projects. This can be just listing the names of the project or also specifying the synergy/capitalization element. Maximum 500 characters - spaces included)*	- Capitalization of the ARIEL project (INTERREG ADRION 2014/2024) interactive approach to innovation and its pilot action on fishing tourism implementation - Capitalization of TOURISMED project (INTERREG MED) toolkits for fishing tourism effective implementation - Capitalization of Adri.SmArtFish project (INTERREG Italy-Croatia 2014/2020) approach to SSF sustainability valorization and innovation - Synergies with the FISHING MED project (ENCI MED Programme 2007/2012) in terms of classification on multifunctionality and international best practices in fisheries
Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	- Fisheries and aquaculture enterprises and associations - Regional, local and national administration - Research and academia - NGOs - Civil society
Links with EUSAIR objectives *(Maximum 1000 characters - spaces included)*	The project is fully coherent with EUSAIR Strategy vision of a Joint multi-level solutions for common challenges towards a stronger Adriatic and Ionian region as well as with the EUSAIR priorities/flagships. Namely: Pillar 1: Blue growth, Flagship "Promoting sustainability, diversification and competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions, including the promotion of initiatives on marketing standards and healthy nutritional habits" Pillar 4: Sustainable Tourism, Flagship "training and skills in the field of tourism businesses (vocational and entrepreneurial skills)", "development of sustainable and thematic cultural routes/connecting cultural routes in eusair"
Potential partners *(Maximum 250 characters - spaces included)*	The project partnership is under formalization: - AMAP – Agency for innovation in fisheries and aquaculture sectors of Marche (IT) - n. 4 University (IT, MEN, GRE) - n.1 research center (HR) - n.1 Local and regional Administration (IT, HR, MEN, BH, GRE)

Project Idea 04 - Development of fish selection tools, fishing processes and on-board mechanisation to step into the sustainability of Adriatic small pelagic fishery (AdriSteps)

(LP – University Bologna, Department of Biological, Geological and environmental sciences)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	Within several previous Interreg Projects the high potential of innovation in Adriatic small pelagic fishery has been demonstrated. The finalisation of a complete change of technology during the small pelagic fishing operations is just a step forward. Up to now, fishermen used simple brailers to transfer fish on deck while, the innovative use of aquaculture pumps at sea has been piloted on Croatian purse seine vessels. Despite still needing further testing, this can lead to an increased quality of fish, whose manipulation will be reduced to a higher safety of fishermen and to the higher welfare of undersized, but alive fish. Research Institutes are currently working on an innovative, improved size selector for small pelagics as an integration of the pumping method, which was not possible with the current processing methods. Preliminary results from the coupling of pumps and size selector support significant survival potential for the undersized fish returned to the sea.
Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	AdriSteps aims at implementing the diversification and adaptation of auxiliary fishery equipment on specific vessels reaching a double goal with one solution. On one hand, the high-quality of fish will be guaranteed during the manipulation of the catch, through an efficient selection system. On the other hand, the mitigation of overexploitation of small pelagic fish stocks will be addressed through the further possibility of separating juvenile and non-target individuals still at sea. AdriSteps will: 1. Design the development service and prepare the technical documentation of the selector improvement for anchovy and other small pelagic species. 2. Develop dedicated protocols for the use and implementation of fishery selecting systems on board and for the survival evaluation tests. 3. Plan and accomplish the dissemination of knowledge and research results for further technical investigation.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	To reach the main aims of AdriSteps, all the partners will be involved in the following tasks: 1) Preparation of the experimental design The mapping of fishery sites where purse seine fleets are already operating will be performed and target operators will be selected for the preliminary implementation of the selector, based on the availability of previous data series. 2) Field experimentation The fishing system will be tested in the target area across different time periods and operative conditions. The new data collection will be followed by a database integration with previous data series, followed by the modelling of the variability of the population structure of anchovy catches. Furthermore, the statistical estimation of efficiency of the selector in the separation of juvenile/non-target fish from the primary catch will be carried out. To evaluate the survival rate of the individuals caught, data will be recorded in terms of number of individuals and duration of survival and compared considering both the traditional fishing method and the one using the proposed experimental system. A system consisting of circular tanks, equipped with a proper water quality and temperature control will be set up on the ground, near the landing site. 3) Finalisation, dissemination, and actual tool provision With a refined and well-defined state-of-art on the effectiveness of the auxiliary equipment tested, the fishing and selecting system will be proposed for adoption to a wider range of operators through a dissemination targeting the improvements in fish quality, work safety, economy, and velocity of the process, fish welfare and reduction of discards. 4) Promoting ecological awareness and consumer appraisal The effects of the innovative fishing system will be estimated following the ecosystemic approach and the level of mitigation of environmental impact will be assessed through data provision together with the associated economic and social impact (stock recovery tools, increase of work opportunities, higher eco-social revenues). This key-aspect will be at the basis of the possible proposal of a certification scheme (i.e., eco-label) for the innovative fishing system developed in AdriSteps. Moreover, some dissemination and educational activities addressed to young people and large public will be carried out, to sensitise people about the importance of the responsible use of fishing resources.

Geographical scope *(Describe the area of work; local, regional, basin etc…. Maximum 250 characters - spaces included)*	The project has a transnational dimension, it will cover the Adriatic and Ionian Countries where small pelagic fishery is relevant, but its scope can be extended to the whole Mediterranean Sea.
Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	Reaching fishing communities in new areas will help to disseminate the aims of the Project and establish new collaborations for the successful transfer of the technology developed. Also, new testing activities could be carried out to verify the replicability of the methodology on other possible traditional gears through the distribution of both fish pumping system and fish selector. The replicability and exploitation of project results will directly involve stakeholders and partners through meetings and exchanging programs. Exchanges with additional stakeholders should also be considered in the up-scaling of the Project, to encourage the sharing of the know-how and to boost the adoption of high-selective fishing systems. Hopefully, in the next future, a dense and fruitful network of communities and stakeholders across and beyond the Mediterranean Sea could be established to face challenges and sustainability goals for the responsible use of marine resources.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	**Output#1 Definition of the pilot design** Operators will be selected for the implementation of equipment for catch handling based on the availability of previous data series. Definition of onboard process changes during the harvesting operations, integrating the selecting tool which can maximise the target catches and minimise accessory ones. **Output#2 Piloting selective model sets** Adoption of the state-of-art auxiliary equipment to support fish selective process on board while also targeting fish quality, work safety, boat economy, and velocity of the process, fish welfare and reduction of non-live discards. **Output#3 Protocols for wide-scale monitoring** Protocols for a wide-scale monitoring will be shared for collecting representative data on the performance of the fish selection tool, involving fishermen and observers. The data collected will provide precious information to be employed in the management of purse seine fishery and to refine the selector's efficacy in minimising overfishing.

Synergy with and capitalization of other projects *(Briefly list the links with other previous or ongoing projects. This can be just listing the names of the project or also specifying the synergy/capitalization element. Maximum 500 characters - spaces included)*	INTERREG IT-HR projects: - TECHERA - ITACA - PRIZEFISH - INVESTINFISH - INNOVAMARE - RESISTANCE
Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	- SMEs (Fisheries and aquaculture enterprises and associations - Regional, local and national administration - Chambers of commerce and business support organisations - Research and academia - Education and training organisations as well as social partners and labour-market institutions - Civil society
Links with EUSAIR objectives *(Maximum 1000 characters - spaces included)*	AdriSteps outcomes will contribute to EUSAIR Pillar 1–Blue GROWTH in relation to its FLAGSHIPS 2021-2027 F1 and F2, as defined by the 12th Extraordinary EUSAIR Governing Board meeting on 10 June 2020: F1 - Fostering quadruple helix ties in the fields of marine technologies and blue bio-technologies for advancing innovation, business development and business adaptation in blue bio-economy, that covers the Pillar 1–Blue GROWTH priority 1 - Blue technologies. F2 - Promoting Sustainability, Diversification and Competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions, including the promotion of initiatives on marketing standards and healthy nutritional habits, following Pillar 1–Blue GROWTH priorities 2a - Fisheries and 2b - Aquaculture.
Potential partners *(Maximum 250 characters - spaces included)*	Partners from fishery and aquaculture sectors will be the core team, relying on synergies with experts in economy, engineering, fishery biology, who joined EU and International projects related to blue transition.

Project Idea 05 - Monitoring the Adriatic sea for a multi-scope assessment of the environmental status (ADRISCOPE)

(LP – University Bologna, Department of electronic energy and information engineering)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	Adriatic continental shelf bounded between Croatia and Italy is one of the seas with highest biodiversity and presence of many species and habitats. It is characterized by the presence of several peculiar benthic habitats and submarine rock outcrops located in patchy features hosting hotspots of biodiversity and of endemism, especially of fish species. For the assessment of biodiversity and for tracking the antropic and environmental change impacts the spatial extent of the sea presents a significant challenge. Methods of monitoring biodiversity based on trawling surveys are costly, time-consuming and they are capable to target just a subset of the marine species. There is still a consistent room for improvement by capitalizing outputs and lessons learned in previous ITA-HR projects to implement monitoring systems capable to achieve a stronger knowledge with respect to conventional sampling methods which are invasive or unapplicable in relevant hotspots such as natural and artificial reefs.
Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	ADRISCOPE will pursuit four main objectives: 1) the implementation of a novel ghost-nets inspection system which will be capable of guiding the net recovery at the bottom of the sea to be performed by specialized divers; 2) Drone acquisitions will be used to generate digital twins of natural and artificial reefs for virtual reality applications. Scientists will thus have a complete overview of these habitats and the general public will benefit from an increased awareness about the importance of marine protection measures; 3) contribute to the characterization of human activities' impact on biodiversity, with focus on areas close to harbors and aquaculture plants will be assessed with the acquired data. This will allow also the detection of alien species, and it will help policy makers in the definition of protection measures; 4) data will be gathered in open platforms with purposely-created plug-ins. This will ease the sharing of the information among all the interested stakeholders.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	The Adriatic Sea productivity is affected by human activities as fishing (over-exploitation of several commercially relevant fish stocks), aquaculture, tourism, hydrocarbons extraction. The need for a better understanding of the Adriatic waters is therefore a priority because surrounded by heavy industrialized and touristic coasts. ADRISCOPE tackles the challenge of improving the knowledge of the status of the Adriatic sea to increase the efficacy of policies concerning the protection of biodiversity, with the ultimate goal of preserving sea habitats from threats generated by human activities and by alien fauna in the basin. In particular, one of the principal threats to the sea habitats related to human activities are abandoned nets and fishing gears. They are called ghost nets because they appear almost invisible underwater, catching and killing marine life without human involvement. Thus, it is important to define protocols to scout for ghost gear, recover it and plan future removal by divers. ADRISCOPE will demonstrate how this task can be facilitated by the usage of underwater drones. Marine transport is also a threat for sea habitats. In fact, ballast water is a known vector for the global proliferation of pathogens and may also serve as a vector for the global movement of antibiotic resistance genes. Unfortunately, there is no inspection methodology currently available to perform a rapid detection of invasive species in ports or harbors. The aim of ADRISCOPE is to use the underwater drones as a submersible laboratory capable of rapidly performing flow cytometer and metabarcoding analysis from water samples. The implementation of novel monitoring methodologies such as those put in place by ADRISCOPE may provide valuable spatial and abundance information which is far superior to traditional standardised trawl data, less costly and with no impact on the environment. The anticipated superiority of the collected information stems from the possibility to combine multiple independent approaches, such as eDNA and acoustic-optical techniques for the identification and cross-validation of tracking presence of a high number of taxa. The risk of getting entangled in data collection and data constraints will be minimized by taking benefit from the experience gained in previous project and by putting emphasis just on the information which is essential for the better management and sustainable use of the Adriatic sea.

Geographical scope *(Describe the area of work; local, regional, basin etc.... Maximum 250 characters - spaces included)*	The Area of work is Adriatic continental shelf bounded between Croatia and Italy which is characterized by the presence of several peculiar benthic habitats and submarine rock outcrops hosting hotspots of biodiversity and of endemism.
Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	The cross-border approach is necessary to monitor the huge variety of habitats in the Adriatic with a common, open and reusable approach and to enlarge the research base available with shared data interpretation and fruition tools. This will ultimately result in a far better understanding of Adriatic biodiversity, and how marine biota respond to global environmental change as well as visualize the influence of human activities.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	1) Monitoring tool based on acoustical and optical sensors installed on underwater drones to detect ghost nets 2) Digital Twinning and Augmented Reality Visualization for natural and artificial reefs 3) Biodiversity characterization tool based on flow cytometry and metabarcoding to be installed on underwater drones 4) Plug-in tools to gather the data acquired with the implemented monitoring tools on available open data platforms.
Synergy with and capitalization of other projects *(Briefly list the links with other previous or ongoing projects. This can be just listing the names of the project or also specifying the synergy/capitalization element. Maximum 500 characters - spaces included)*	The Ita-HR 2014-20 Programme financed 8 projects dedicated to protection of biodiversity, creating a cross-border observing system and strengthening the monitoring and assessment capabilities. ADRISCOPE will benefit from lessons learned in these projects: the developed monitoring tools will be installed on the SUSHI DROP drone, the AR tool will be based on the one developed in the ADRIREEF project, and the FAIRSEA integrated platform will be exploited as open repository for the collected data.

Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	The project will target the **general public** to raise interest in biodiversity preservation. Moreover, all the principal organizations active on the Adriatic Sea and dedicated to environmental themes and sustainable use of Natural resources will be targeted: **Local, regional and national public authorities** **Protected areas/ natural heritage management bodies** **Regional and local development agencies** **Associations** **NGOs** **Education and training organizations as well as universities and research institutes**
Links with EUSAIR objectives *(Maximum 1000 characters - spaces included)*	The ADRISCOPE project will provide tangible and concrete contributions in the four thematic areas of the EUSAIR strategy. More specifically, in ADRISCOPE the new monitoring tools to be implemented will allow to define strategies to support the recovery of a fully productive and biodiverse tropic web. Analogously, the monitoring of the autochthonous diversity will result in a better environmental quality, to be achieved through the adoption of common tools and solutions which put at the connection different Adriatic Regions.
Potential partners *(Maximum 250 characters - spaces included)*	University of Bologna, Department of electronic energy and information engineering Scientific Institutions such as IZOR, OGS, CNR. Local Authorities and Agencies such as Split Dalmatia County, Zara County, AMAP Fisheries associations such as FLAG Costa dei Trabocchi Environmental Associations as SUNCE, WWF Port authorities such as the Port of Ravenna

Project idea 06 - A step towards a more sustainable fishery management on fishing board: Case landing obligation (CATCH (&) LAND)

(PP06 – Zadar County)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	The current situation in Croatia is that fishing sector is regulated by Regulation (EU) no. 1380/2013 of the European Parliament and Council of December 11, 2013 on common fisheries policy where minimum reference size of the fish is prescribed. Now days Croatian above mentioned Regulation is under exemption for landing fish below the minimum reference size. That exemption exceeds by the end of 2024. Until the end of 2024, it is necessary to ensure the acceptance and separate disposal of catches of that species below the reference minimum value on vessels from other catches, as well as to ensure adequate acceptance and disposal on land.
Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	Objectives are related to: - introduction of innovation techniques and technologies and improved models of trade and processing of fish (logistics, data transmission to land and other trade channels, value added products on board from discard and bycatch, new processing and preservation possibility on board as well as in landing facilities development) - introduction of innovation techniques and technologies and improved models of fish waste treatment (products, processing systems, logistics)

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	Project idea is to create innovative logistic techniques and equipment on fishing board to support obligation to land discard and by-catch, which is the basis for adapting to the common fisheries policy. Today, discard and bycatch is thrown into the sea especially on trawlers, and in the incoming period, it is necessary to establish frameworks for landing and disposal of such fish. The disposal goes from the category of handling on the ship, separation, to storage on the ship, unloading of healthy raw materials or product. Discard can be evaluated and part can be used as additional sales of new fish category or serve as a valuable by-product for circular economy of raw materials. The Adriatic fishery sector shall become a more sustainable, well managed and efficient sector with focus on quality education and knowledge transfer to widest possible range of experts, cooperatives, fisherman associations, processing industry and others involved in the first stages of the fish resources from resources in the sea until first hand processing. Project idea should determinate and analyse bycatch and discard data on different type of fishing boats fleets in Adriatic, explore best practices and handling solution in logistic conservation of discard or bycatch on fishing boat and to support fishing boats with pilot structures and solution of preservation of bycatch or discard upon landing. **Project would include these activities:** - Evaluation and quantification of discard and bycatches in fishing boats - Analyse of fish supposed to be discarded - Data collection and species categorization - Stakeholders' training - Awareness-raising actions - Evaluation of best practices solutions for discard & bycatch landing - Development of pilot equipment on board and landing places for catch handling - Placing and upgrading an structure for discard & bycatches handling - Joint analysis of equipment needs for handling a fish and prepare it to landing obligation according to regulations - Educational activities - Awareness-raising campaign

Geographical scope *(Describe the area of work; local, regional, basin etc…. Maximum 250 characters - spaces included)*	Area of the work would be Adriatic basin.
Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	Analysis jointly developed Pilot actions developed jointly and implemented in projects Participations in joint training schemes Public events across borders jointly organized Jointly developed solutions
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	The expected output indicators of the project are: - Joint analysis for discard and bycatch source definition on regional level - One recommendation of legal framework - Two joint training schemes (Italy and Croatia) - Joint analysis of equipment needs for handling a fish and prepare it to landing obligation according to regulations
Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	The target groups are: - General public - Local, regional and national public authorities - SMEs - Producers organizations - Fishermen
Potential partners *(Maximum 250 characters - spaces included)*	Partners: Zadar County (Croatia) Regia Marche (Italy) Istria chamber of craftsman (Croatia) Trawler boat- company Max 4 CRO +4 IT Partners

Project idea 07 - 4th Dimension Immersive Visual Experience (4DIVE)

(PP03 – Municipality of Ravenna)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	In the Adriatic sea there is a large number of marine ecosystems available for blue economy purposes, the attractiveness of those (eg. artificial or natural reefs) is very relevant in order to promote blue economy and their environmental value is very significant for the marine health and social wellbeing. To promote the value of this sites, increase the BE in coastal cities and territories, support the scientific and public communities that are interested in marine safeguard, the 4dive project will promote a web based app that will give to divers and general public the opportunity to navigate underwater sites and to plan the most safety diving itineraries on them.
Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	The goal of the project is to develop a server-based app to plan recreational scuba diving itineraries using 3D reconstructed underwater sites. The Web portal hosting the app will promote safety behaviors in scuba diving experiences and the natural and artificial reefs and heritages along the Croatian and Italian coast of the Adriatic Sea. The main objectives of the web app developed by 4divers project are to increase: - safety of scuba divers (both professional and recreational ones), developing a 3D world where to test diving itineraries and experiences; - valorization and promotion of the Adriatic diving sites, boosting blue economy and scaling up the results obtained by the ADRIREEF project.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	In the last year the technological progresses allowed the development of software able to create automatic images process based on photogrammetric principles and to generate of complex realistic 3D models. First applications were recorded in archaeological sites difficult to reach, to rebuild their original image accurately. Nowadays, underwater photogrammetry is also used for scientific, industrial purposes, as well as for leisure. Recreational scuba divers are often equipped with high quality cameras systems and they have relevant photographic skills that could be applied to scan underwater natural or artificial reefs/sites. Conversely, the data processing steps for processing the imagery dataset to 3D models optimized for virtual reality applications require skilled technicians and great computing capacities. The use of the underwater 3D models is not fully explored yet and great opportunities for communication and reality simulation are still unexplored. The 4Dive project will develop a server-based app to plan professional/recreational scuba diving itineraries using 3D reconstructed underwater sites. An ad-hoc algorithm for calculating the scuba diver decompression time will be developed and applied within 3D environments, this giving the possibility to the users to design ad-hoc scuba diving paths and to calculate the decompression time in realtime. The depth limit and the allowed gas breathing mixtures will be defined accordingly with the user's scuba diving certifications. The 3D environment will be generated from underwater photogrammetric surveys (performed by the group of divers set by the project) to reconstruct the most attractive and relevant sites along the Croatian and Italian coasts. The webportal hosting the server-based app will promote the recreational scuba diving sector in both countries. The web portal will be implemented over time with new scuba diving sites. The tool will be suitable for desk pc and VR headsets.

Geographical scope *(Describe the area of work; local, regional, basin etc…. Maximum 250 characters - spaces included)*	The project will focus on Adriatic Sea sites but it can be scaled up at global level.
Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	The projects has a clear cross border interest, collecting different underwater sites with similar or different features, equally interesting for the scientific community and the leisure-sport/touristic development.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	a) 3D reconstruction of at least 4 diving sites from the selected areas (2IT/2HR); b) web app for testing recreational/professional scuba diving itineraries; c) 3D methodology and photogrammetry guidelines for scuba diving sites reconstruction; d) at least 2 educational workshops for professional and research divers to increase safety on diving experiences.
Synergy with and capitalization of other projects *(Briefly list the links with other previous or ongoing projects. This can be just listing the names of the project or also specifying the synergy/capitalization element. Maximum 500 characters - spaces included)*	The project proposal gathers the experiences built within the **Adrireef** and **Sushi drop** projects. The Adrireef's pilot activity performed at the Natura 2000 diving site Paguro wreck has been particularly relevant such it developed: · the underwater photogrammetric scanning of the site; · the public engagement of scuba diver volunteers during training sessions and practical underwater scanning exercise at site; · the processing of large imagery dataset to generate a 3D model of the complex structure of the site · the production of a Virtual Reality app for Oculus quest headsets based on the optimised photogrammetric model of the wreck The experience of the **Sushi Drop** Interreg project is also relevant considering the development of the underwater drone Blucy to map underwater sites with echosounder and images for

	photogrammetry processing (actually tested on underwater site in the TECHERA capitalization project).
Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	- scuba diving community; - public institutions in charge of touristic promotion and environmental protection; - tourism operators; - general public.
Links with EUSAIR objectives *(Maximum 1000 characters - spaces included)*	The web portal will host the most attractive 3D sites representing both the Italian and the Croatian sites to promote transboundary touristic experiences and cultural exchanges. It will contributes in Pillar 1 – Blue growth, boosting blue technologies in the region, and pillar 4 – sustainable tourism, diversifying the tourism offer in the area.
Potential partners *(Maximum 250 characters - spaces included)*	The partnership could potentially gathers research institutes; public institutions and scuba diving entities · University of Bologna, (electrical and information department Guglielmo Marconi) could be engaged considering the potential role of the underwater drone Blucy, that could be further developed by implementing its technology with instruments useful for photogrammetry; · Research institutes and test partners (e.g. hyperbaric centre); · PA or development institutes engaged to set the promotional activities and the engagement of the citizenship.

Project idea 08 - Increase knowledge about marine weather climate and coastal dynamics to set up efficient and effective coastal protection measures (INCREASE ACTION)

(PP03- Municipality of Ravenna)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	The Adriatic coastal areas are very wide and relevant for the social and economic development of the territory but they are affected by various hazards and severely impacted by the effect of climate change, suffering nowadays coastal erosion, coastal flooding and salt-water intrusion. These vulnerabilities constitute a serious problem for the activities based on the coast (tourist-recreational, agricultural, port activities, ...), for the coastal urban communities and also for the biodiversity characterizing the Adriatic coasts. It is a priority to increase climate change and natural hazards knowledge in order to mitigate and adapt to such events. To implement adaptation and mitigation measures is necessary to provide the public institutions with a deeper knowledge of the territory and CC events, and to develop local and specific marine weather climate database necessary to elaborate Adaptation/Mitigation (A/M) policies scenarios. Local authorities generally lacks the specific or local databases, and the IN-ACTION project will design activities to test and install monitoring systems; integrate and develop the dataset with available elaboration platforms; set up numerical provisional models; create multi-actor scenarios to develop M/A policies; raise awareness on economic and social operators and citizens on the M/A policies.

Objectives *(maximum 1000 characters - spaces included – for describing what are the objectives of the project. This can be written also in bullet points)*	The main objectives of the projects are: · improve the knowledge of the marine weather climate and of coastal dynamics of the investigated areas; · monitor the efficiency and effectiveness of coastal protection measures implemented and to be implemented; · draw hydraulic risk maps including different coastal flooding scenarios as a function of wave height and direction; · evaluate the economic and environmental impacts of adverse marine weather events; · set up guidelines to increase the efficiency of the shoreline protection infrastructures; · improving communication and cooperation between research institutions and PA involved in the management and safaguard of coastal areas.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	Coastal flooding events generate losses causing the damage of beach infrastructures; the disruption of economic activities in coastal towns; impacting negatively on the coastal ecosystem and on agricolture. It is therefore very important to increase the knowledge about the marine weather climate and the natural coastal hazards. The project will promote the creation of specific databases on sea and coastal conditions in the main Adriatic cities affected by coastal erosion, places where the available CC scenarios and sea data does not completely fit with the environmental conditions, e.g. greatly influenced by artificial manufactures. The PP will select pilot areas where to test different and innovative monitoring tools to collect data about wave characteristics (wavelength and height, direction, frequency, period) sea stream and wind characteristics (intensity and direction), or other relevant environemntal data. Those will be used to reconstruct the marine weather climate of the area and to calibrate the numerical models that are used in the design of the shoreline protection infrastructures (artificial or NBS), or testing their efficiency and to integrate and implement existing scenarios platform (es. platform developed by the Fairsea project). The numerical models are useful to: · evaluate the effects produced by storm surges; · evaluate the efficiency of the coastal protection measures on the coastal currents generated by wave motion; · develop risk scenarios along the coast as a function of the height and direction of the wave motion; · elaborate flood impact and damage maps for the selected coastal areas. The project aims, on the basis of the developed scenarios and the assessment of the efficiency of the coastal protection infrastructures, to prioritize the best protection measures according to the probability of the events and the entity of the possible expected damages and to provide recommendations, best practice and guidelines for the management of vulnerable coastal areas.

Geographical scope *(Describe the area of work; local, regional, basin etc…. Maximum 250 characters - spaces included)*	The geographical scope of the project would be the Adriatic basin and the Adriatic cities.
Cross-border elements *(identify the main elements of crossborder in the project. Consider to highlight advantages for the project of crossborder action, or advantages for the results to be crossborder….Maximum 1000 characters -spaces included)*	The cross-border elements lyes on the cooperation between coastal cities in sharing test methodologies/monitoring results and by animating a CC scenarios platform that could be useful to design adaptation and mitigation measures in the Adriatic areas.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	The expected outputs of the project are: · study of the the marine weather climate and of coastal dynamics of the investigated area; · raise awareness of the climate change effects and natural hazards; · analise the efficiency and effectiveness of coastal protection measures; · design hydraulic risk maps including different coastal flooding scenarios; · analise the economic and environmental impacts of adverse marine weather events; · design best practices and guidelines to increase the efficiency of the shoreline protection measures; · improve communication and cooperation between university and administrations envolved in the management of the coastal areas.

Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	The target groups are: · public authorities involved in coastal areas planning and management; · universities and scientific research institutes; · business entities in the area of activity of the Blue Economy; · citizens and general public.
Partnership *(Maximum 1000 characters - spaces included)*	The partnership will gather PA, research institutes and port authorities, i.e. the institutions in charge of coast safeguard and marine services, and the civil society concerning dissemination activities and awareness campaign. The proposal could be made to coastal Municipalities such as - Trieste/Ravenna/Ancona; - Rijeka/Split/Dubrovnik. or to Port authorities. Research institutions that performs CC scenarios (eg. Fairsea project's platform).

Project idea 09 - Image acquisition and analysis for fish species identification and size measurement using artificial intelligence (SMUAI FISH)

(PP02- Adriatic Ionian Euroregion)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	The incidence of the Blue Economy on the total economy can be interpreted as a valid indicator of how much an area is able to exploit its natural resource and, consequently, how much it can represent an opportunity for greater development. The presence of the sea in an area represents an extraordinary driver of development, as numerous productive sectors can flourish and develop around it, involving both traditional areas linked to the primary economy and sectors related to industry and services, including those with a high innovative content. The Adriatic sea faces several common territorial challenges related to the protection and preservation of nature and biodiversity. There is a lack of monitoring and control over fishing activities and the commercialization of seafood products, resulting in the capture and sale of undersized fish species. Moreover, the absence of standardized measurements in the seafood industry also leads to unfair pricing practices. The project is relevant to the Programme area because it aims to meet these challenges by developing an automatic fish species and size recognition system using artificial intelligence.
Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	• to implement innovative tools and techniques for the automatic recognition of fish species and sizes in wholesale fish markets and landing places in the Adriatic Sea • to involve stakeholders and create a sustainable network of stakeholders dedicated to the conservation of biodiversity in the Adriatic Sea region • to promote the sustainability and long-term success of the fishing industry by adopting joint solutions for standardised measurement through a technological solution • to improve the description of exploited resources in the Adriatic Sea region through the implementation of a pilot action for the acquisition of images and the use of an advanced recognition and measurement system.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	The project tackles the identified common challenges and opportunities by developing an innovative approach to fish species and size recognition in the seafood industry, including the use of unsupervised techniques of deep convolutional networks for size estimation. The use of these innovative tools and techniques will enable continuous and extensive monitoring of the characteristics of fishing products, providing stakeholders with accurate and reliable data for decision-making. Moreover, the use of artificial intelligence-based image acquisition and analysis tools will provide standardized measurements of seafood products, contributing to fair pricing and a common market between Italy and Croatia. This innovative approach is expected to improve the transparency and efficiency of the seafood market, promote sustainability and long-term success in the seafood industry, and contribute to the protection and preservation of nature and biodiversity in the Adriatic sea. The project activities will include: - supervised analysis using machine learning techniques to accurately recognize different fish species and sizes. - Installation and start-up of pilot cases, with automatic data acquisition and analysis of species and sizes. - organisation of public events with communication campaigns, workshops, meetings and consultations to engage stakeholders and promote collaboration on biodiversity conservation. - adoption of joint solutions for standardized measurement, directly involving stakeholders in the seafood industry (e.g. fishermen, fish producer organizations, wholesalers, etc.); - pilot actions will be conducted both onboard fishing vessels, where the system will be tested and on-board observers will collect baseline data, and in wholesale auction rooms, wholesale fish-markets or other landing places in generally having the catches packaged into boxes for commercial sale. - Elaboration of a strategic plan through which to promote future actions related to the use of the technology used in the project to prevent the overexploitation of fish stocks and preserve marine biodiversity in Adriatic area.

Geographical scope *(Describe the area of work; local, regional, basin etc…. Maximum 250 characters - spaces included)*	The project outputs delivered in this work packages will benefit the Adriatic basin.
Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	The Adriatic basin is a transnational area that requires joint efforts from different countries to tackle the common challenges related to the protection and preservation of nature and biodiversity. Moreover, the seafood industry is highly integrated, and the adoption of standardized measurements in one country alone is not sufficient to promote fair pricing and a common market.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	The expected output indicators of the project are: - Images acquisition for recognition of fish products species and size - laboratory test to validate standardized measurements in the Adriatic Sea - public events and communications; - solutions for standardized measurement that include agreements with operators, training and support; - report on the technology used, a training manual and a monitoring and evaluation report.
Synergy with and capitalization of other projects *(Briefly list the links with other previous or ongoing projects. This can be just listing the names of the project or also specifying the synergy/capitalization element. Maximum 500 characters - spaces included)*	- Synergies with the project "BLUEMED: Capitalizing the knowledge gained through Marine and Maritime research to foster innovative Blue Growth" to promote the use of innovative technologies, such as artificial intelligence, for sustainable fisheries management in the Adriatic Sea; - Synergies with Techera project: the data generated from this analysis can be shared among stakeholders in the circular sea economy of Interreg TECHERA project to enable better decision-making and resource management.

Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	- SME: Fishery associations, cooperatives and seafood traders in Italy and Croatia will benefit from the project outputs; - Fishermen; - General public: Consumers; - Higher education and research organisations: Researchers and scientists: - Local, Regional and National public Authorities; - Territorial marine resource agencies.
Links with EUSAIR objectives *(Maximum 1000 characters - spaces included)*	The project contributes to EUSAIR's objective of promoting blue growth, which refers to the sustainable development of marine and maritime sectors. The project's use of innovative tools and techniques for automatic recognition of fish species and sizes using artificial intelligence helps to increase the efficiency and sustainability of the seafood industry in the region, promoting economic growth while minimizing the negative impact on the environment.
Potential partners *(Maximum 250 characters - spaces included)*	Potential partner will include: - Maritime Institutes; - SME with ICT skills and competence in the fishing sector - Universities and/or Research Centers; - Territorial Network such as Adriatic Ionian Euroregion; - Local, Regional, National Authorities
Eventual additional note *(Maximum 500 characters - spaces included)*	The project idea was generated by some stakeholders of the blue economy stakeholders that actively contribute to the Techera Co-design workshop held in Ferrara on 18th November 2022. The project idea will be submitted under the first call of the new Interreg Italy Croatia Programme.

Project idea 10 - Blue Synergies and integrated solutions for Sustainable Development of blue sectors: Ocean Wind Farms, Aquaculture and Fisheries (BEYOND)

(PP04- OGS)

Background *(maximum 1000 characters - spaces included – for describing background information on the need to be satisfied, the issue, the situation and gaps)*	In the Adriatic, the blue sector faces some important challenges that could be studied together to find integrated and synergic solutions. Such challenges are i) the decline of fish stocks due to overfishing, ii) the increasing demand for high quality seafood and iii) the current global energy crisis with the need to find alternatives to non-renewable energy sources. The Adriatic is one of the areas with the highest trawling effort, and while local demand for seafood is increasing, local Adriatic productions are classified as overfished, so management measures are in place to reduce exploitation. At the same time, seafood farming is an important sector in the area, ranging from mussels to tuna farming: improving low trophic level farming can help meet the increasing demand for seafood. Even though both Italy and Croatia have made significant improvements in terms of renewable energy sources utilization in recent years, fossil fuels are still largely dominating the energy sector with around 79% of primary energy in Italy and around 71% in Croatia dependent on these sources. Both countries have significant share of hydropower in electric energy production mix (around 17% in Italy in 2021, and 46 in Croatia), but other sources, irrespective of the natural potential, are utilized quite differently, solar energy being the most important renewable energy source in Italy for electric energy production accounting for 9,94% in 2022. while in Croatia it amounts to only 0,54% with onshore wind energy well above it at 14,15 % (7,31% in Italy). Uptake of renewables is growing in both countries, but additional security of energy market is required especially since wind and solar present intermittent energy sources. Even hydropower is known to exhibit this characteristic, albeit on an annual basis. It is of essential importance, therefore, to identify other potential sources of renewable energy and introduce them to energy systems in Adriatic regions, but also to invest in new energy storage systems such as green hydrogen in order to counter the intermittent nature of particular renewable energy systems but also to pave the way for safer and cleaner sea transportation models. At the same time, countries around the Adriatic need to reduce the use of fossil fuels to meet energy needs in a sustainable way, and offshore wind farms (OWF) can provide a valuable solution.

Objectives *(maximum 1000 characters - spaces included – for describing what are the main, general objectives of the project. This can be written also in bullet points)*	The project will introduce cross-border actions to support the establishment of partnerships and joint approaches, with the aim of strengthening research-based solutions that can work synergistically in three different sectors: Fisheries, Aquaculture and Offshore Wind Farms. In addition, the project will improve technology transfer capacity and processes in the blue economy, with a focus on developing synergistic technologies. BEYOND will be developing common OWF design models not focused on maximization of electric energy production but maximization of sum of outputs of all concerned blue economy sectors on one side, and overall health of marine ecosystem on the other one and thus acceptable to all stakeholders. Four such systems will be modelled in locations most suitable not only for synergetic development of blue economy sectors, but also for offshore green hydrogen production and inclusion in current and future European green hydrogen valleys. This will pave the way for new opportunities for SMEs and for new high-quality and long-term jobs, including researchers and experts.

Description of the project idea *(maximum 2500 characters - spaces included – for describing the project idea)*	The project addresses a range of approaches that work synergistically to develop new OWF areas, new fisheries restricted areas (FRA), and additional agricultural areas to provide energy and seafood in a sustainable manner and to be useful for restoring natural populations. Quantitative, data-rich scientific tools will be used to identify and test synergistic approaches. The project will begin by understanding the current regulatory and policy barriers to potential synergistic energy and aquaculture solutions and their interactions with fisheries. A second action involves identifying potential areas for (a) placement of OWFs based on existing data and analysis of wind potential and ocean depths/conditions, (b) placement of fish farms for both herbivores and carnivores species, (c) protection of commercial species, and (d) optimal fishing grounds for the major fisheries in the area. A third measure requires coordination with spatial plans, sea lanes, and ports for the four areas mentioned above, also taking into account the cost of shipping and transporting all products involved (energy, fuel, feed, fish, seafood, etc.) to achieve environmental-economic spatial optimization. A fourth action is to find additional solutions that can be implemented in overlapping suboptimal areas or to increase the efficiency of synergistic actions tested using ecosystem models, including testing possible synergies with marine aquaculture. A fifth action relates to raising awareness of the possibility of developing offshore wind farms and creating underlying fisheries protected areas, training experts and researchers in the blue economy, and creating transboundary hubs. Knowledge transfer and awareness campaign, digitalization of results. An ecosystem-based scientific approach will be developed during the analyses to be carried out in the different actions. The ecosystem model will be a dynamic marine spatial planning tool, to be trained with large sets of data and enabling testing the different synergistic actions. The project will result in a workplan for most sustainable solutions combining OWF, fishing and marine aquaculture in the Adriatic Sea.
Geographical scope *(Describe the area of work; local, regional, basin etc.... Maximum 250 characters - spaces included)*	The approach is focused on the Adriatic and Ionian area but can in case be enlarged to other areas of the Mediterranean Sea

Cross-border elements *(identify the main crossborder elements of the project. Consider to highlight advantages for the project of being a crossborder action, or advantages for the results to be crossborder. Maximum 1000 characters -spaces included)*	Considering that - seafood markets have transnational flows in the area, - the most important wild marine exploited resources have movements that goes beyond administrative borders - energy market has a series of exchanges especially among bordering countries the project essence is necessarily transboundary with crossborder identification of best synergistic approaches and implementation of case studies that are common in countries bordering the Adriatic Sea.
Expected outputs *(identify the main outputs expected from the project. Maximum 1000 characters - spaces included)*	Maps of optimal grounds for OWF, fish farming and fisheries restricted areas; Dynamic tool for quantitative integrated evaluation of different uses of the sea, as a basis for Marine Spatial Planning; Assessment of efficiency of synergistic actions by having implemented specific cases studies and field experiments; Proposal guidelines for synergistic actions for optimization of OWF, fish farming and fisheries in Adriatic and EU waters.
Synergy with and capitalization of other projects *(Briefly list the links with other previous or ongoing projects. This can be just listing the names of the project or also specifying the synergy/capitalization element. Maximum 500 characters - spaces included)*	- Capitalization of the FAIRSEA project (INTERREG Italy-Croatia, 2019-2021) in particular by using the FAIRSEA integrated platform, a webGIS database (from oceanography to bioeconomy and food web and fisheries) of the Adriatic-Ionian region. The ecosystem models embedded will be used to test synergistic approaches including scenarios of OWF+aquaculture farms+fisheries; - Synergies with the WWF-MED-PO project on small scale fisheries for setting international best practices using spatial co-management; - Synergies with the project NECCTON (EU project, 2023-2026) on the development of quantitative ecosystem-based tools for management of fisheries.

Target groups *(identify the most relevant groups that will benefit from the project. Maximum 500 characters -spaces included)*	Enterprises and agencies involved in developing energy plants Fisheries and aquaculture enterprises and associations Regional, local and national administration International organizations involved in energy, environment and fisheries Research and academia NGOs Civil society
Links with EUSAIR objectives *(Maximum 1000 characters - spaces included)*	The project is fully coherent with EUSAIR Strategy vision of a Joint multi-level solutions for common challenges towards a stronger Adriatic and Ionian region as well as with the EUSAIR priorities/flagships. Namely: Pillar 1: Blue growth, Flagship "Promoting sustainability, diversification and competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions, including the promotion of initiatives on marketing standards and healthy nutritional habits"
Potential partners *(Maximum 250 characters - spaces included)*	Irena-Istra energy agency OGS Scientific institutions with strong skills and experience on oceanographic data analysis and modelling Private and public Agencies involved in the sector of energy SMEs devoted to develop OWF and fish farms Environmental agencies