ECOMAP project

“Proceedings of the Forum (Smart tourism-industrial archeology”

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Partner in Charge	PP10 Polo Tecnologico Alto Adriatico Andrea Galvani SCPA – Upper Adriatic Technology Park of Pordenone
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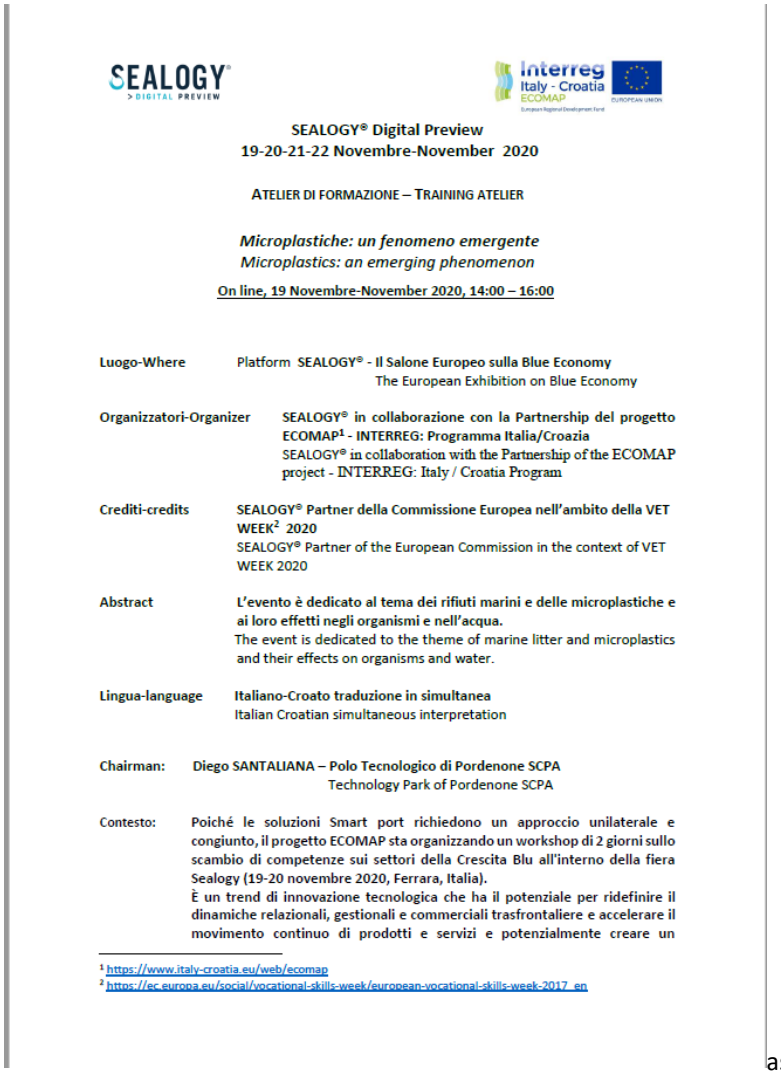
Abstract/Executive Summary

In the framework of the Work Package 5.3, dealing with "Smart Tourism" along the Italian and Croatian Coastal sides, the partnership has organized many Forums and Workshops in the Adriatic areas, that brought many topics around the concept of the smart tourism at the attention of several target groups located in the port cities. The basis of the WP has been the creation of the archeology and industrial archeology tour that introduces tourists to advanced technology management solutions through specific workshops, in which many arguments, methodologies and strategies have been exchanged. The training and information package have offered an innovative tourist offer with diving in natural resource management issues and above all in the solutions adopted for a sustainable and productive future. As to summarized, these have been the Forums organized during the project implementation from 2020 to 2022: SEALOGY Editions, REMTECH Edition, Tipicità and Tipicità in Blu Editions (Digital and Physical ones) and other small scales. All these initiatives have been consistently spread through a unique Marketing Campaign connected with ECOMAP project – called "THE BLUE WAY". Through the RWG meetings, the partners and interested entities have decided to bring up many topics and best practices, some for MOU's objectives and others for good practices' identification, to give an overview on the state of play of the blue growth paradigm, at the widest status of itself, and in particular at local and regional levels. For each Forum, many best practices and topics have been recognized and presented in live at various strategic locations along the Adriatic Coastal sides.

1 FORUM: SEALOGY 2020-2021

SEALOGY is the European Saloon for the Blue Economy, which valorises marine and underwater ecosystem into a sustainable approach, and the ECOMAP project has taken part to this marvellous series of events. This FORUM has been transversal within all the sub-work packages of the WP5.

SEALOGY EDITION NOVEMBER 19-20th, 2020



SEALOGY® Digital Preview
19-20-21-22 Novembre-November 2020

ATELIER DI FORMAZIONE – TRAINING ATELIER

Microplastiche: un fenomeno emergente
Microplastics: an emerging phenomenon

On line, 19 Novembre-November 2020, 14:00 – 16:00

Luogo-Where: Platform SEALOGY® - Il Salone Europeo sulla Blue Economy
The European Exhibition on Blue Economy

Organizzatori-Organizer: SEALOGY® in collaborazione con la Partnership del progetto ECOMAP[1] - INTERREG: Programma Italia/Croazia
SEALOGY® in collaboration with the Partnership of the ECOMAP project - INTERREG: Italy / Croatia Program

Crediti-credits: SEALOGY® Partner della Commissione Europea nell'ambito della VET WEEK[2] 2020
SEALOGY® Partner of the European Commission in the context of VET WEEK 2020

Abstract: L'evento è dedicato al tema dei rifiuti marini e delle microplastiche e ai loro effetti negli organismi e nell'acqua.
The event is dedicated to the theme of marine litter and microplastics and their effects on organisms and water.

Lingua-language: Italiano-Croato traduzione in simultanea
Italian Croatian simultaneous interpretation

Chairman: Diego SANTALIANA – Polo Tecnologico di Pordenone SCPA
Technology Park of Pordenone SCPA

Contesto: Poiché le soluzioni Smart port richiedono un approccio unilaterale e congiunto, il progetto ECOMAP sta organizzando un workshop di 2 giorni sullo scambio di competenze sui settori della Crescita Blu all'interno della fiera Sealogy (19-20 novembre 2020, Ferrara, Italia).
È un trend di innovazione tecnologica che ha il potenziale per ridefinire il dinamiche relazionali, gestionali e commerciali trasfrontaliere e accelerare il movimento continuo di prodotti e servizi e potenzialmente creare un

[1] https://www.italy-croatia.eu/web/ecomap
[2] https://ec.europa.eu/social/vocational-skills-week/european-vocational-skills-week-2017_en

as proof Agenda 19/11/2020

Link to the YouTube channel:
https://www.youtube.com/channel/UCbo5lc5j6J0lFxHXDpO8XSg/videos

PP10 and partners organized SEALOGY Digital edition event on Blue Growth on November 19th and 20th 2020, that impacted intensively the WP5 since all the 4 webinars dealt with specific issues on Blue Growth and Waste Management. The first webinar (19th November 2020 – WP5.2) has been focused on the emerging phenomenon of Micro-plastics, specifically dedicated to the theme of marine litter and micro plastics and their effects on organisms and water. The second webinar (20th November 2020 – WP5.1) dealt mainly with the bottom-up consultation processes for Local Development with the need to activate territorially rooted development processes capable of enhancing the system of endogenous and exogenous resources of different contexts. The third webinar (20th November 2020 – WP5.1) has been dedicated the water footprint and the theme of awareness in water management. Lastly, the fourth webinar (20th November 2020 – WP5.2) has been dedicated to the water management policies in the Port area, bathing waters and marinas. All these sessions have been accompanied by simultaneous translation in Croatian, English and Italian.

The event dedicated to "Micro-plastics: an emerging phenomenon" has brought together Italian and Croatian stakeholders working in different sectors of the blue economy, with aim to establish contacts, share best practices solutions and set up the innovation cluster that would support the development of business ideas and opportunities. This exchange of good practices has helped outlining the topics to be inserted in the Memorandum of the Cluster of Port Cities to be developed; identifying potential stakeholders of the Interreg Italy-Croatia's eligible area to be interviewed and asked to join to /cooperate with the Cluster of Port Cities to be developed. For ensuring strong and well-structured cluster systems, involved targets have to ensure: the coherence of strategic objectives and the strength of coordinated actions.

The event has been dedicated to the theme of marine litter and micro plastics and their effects on organisms and water. All the seven speakers have presented different versions of the same topic explaining their point of view as experts. Firstly, an academic framework has been ensured like an opening step. Francesca Malfatti from the National Institute of Oceanography and Applied Geophysics of Trieste opened up the debate with a specific argument on the existing continuum biosphere-plastisphere scenario into the society and environment. The focus was on the Microbes role, that are master-regulators of every life-related process thus dictating global environmental and human ecosystem functioning. There have discussed how microbes can lend a hand to support our new business as usual scenario to "deplastify" our society and environment. Furthermore, Pero Tutman from the Institute of Oceanography and Fisheries of Split focalized his intervention by giving the overview about microplastic problematics in water and their effects on organisms and in drinking water. Plastics which do not decompose and thus harm the ecosystem, are recognized as among the main contributors to environmental pollution worldwide. As a result of their widespread use there are a great number of sources of primary and secondary microplastics in the environment. Abrasion and fragmentation of larger plastic items and of materials containing synthetic polymers have been considered more relevant

source. Given that (1) very high concentrations of microplastics have already been observed at some sites (especially in sediments and on beaches), (2) plastics are extremely persistent in the environment, (3) microplastics in the environment originate from a multitude of sources (4) the abundance of microplastic is expected to further increase due to fragmentation of the macroplastic present in the environment, and (5) microplastic contamination is found in drinking water, strategies should be developed to address the issue of nano-, micro- and macroplastics in the environment on a broad and global basis in order to avoid exceeding critical environmental threshold concentrations. Tutman claimed also that to perform a comprehensive assessment of possible environmental risks caused by microplastics, a number of data gaps need to be filled and available environmental risk assessment procedures have to be adapted. Microplastics potentially represent a significant global environmental problem whose immediate effects we unfortunately know very little about at the moment.

Further interlocutors have faced up monitoring techniques for the marine litter. Corinne Sabine Corbau from the University of Ferrara shared a specific pilot area within the activities of NET4Mplastic project (Interreg ITA-HR Program), which includes both field (water, sediment and biota samplings, real-time analysis of parameters) and lab (analysis procedure for reducing time consumption, analysis of time of permanent of marine plastic and co-contaminant in sampled biota and analysis of human health risks) activities. It implemented a setting and calibration of the early-warning system and an integrated platform for data analysis and sharing. This project contributed hugely to the main issue by realizing a validate model for marine plastic areas prediction, shared GIS database, formation of operators and technicians and many other outputs as solutions. The monitoring activities have been done with the help of such innovative technologies, like drones.

Moreover, Cristina Panti from the University of Siena presented the second case study related to the AdriCleanFish project, that would analyse the interaction of marine litter with fishing activities and fish species. The study was carried out through the removal of marine litter by fishing vessels, the analysis of collected litter, the analysis of floating marine litter and microplastic ingestion and effects on fish species of commercial interest for human consumption. The areas of interest were located in the Adriatic Sea (Chioggia and Civitanova Marche). The collected material from the sea bottom was characterized to assess weight, volume, number and composition. In addition, the presence of macro-, meso- and microplastics in fish species (European anchovy, hake, European pilchard, sole, horse mackerel and red mullet) was determined. The results show an average concentration of floating microplastics and marine litter on the surface of study area in line with the average values of the Mediterranean. Form marine litter collected by the “fishing for litter” activities from the bottom, the data confirm that plastic materials are the most frequently found (more than 70%). On average, 2 fish out of 10 had ingested from one to five microplastics. The pelagic species (anchovy and pilchard) have the highest percentage of occurrence of ingested microplastics. PCBs and PBDEs were also measured

in the muscle of fish species as well as biomarker responses. The results show negligible effects related to plastic ingestion by fish as well as low levels of contaminant accumulation in fish with microplastics in their gastro-intestinal tract. This session has dealt also on another sub-topic: the waste management and circular economy in the coastal areas.

Massimo Barbin from the Fish District of Rovigo/Chioggia shared the INVESTINFISH project (Interreg ITA-HR Program) as practise for the sustainability of the fisheries sector. The district counts totally almost 2900 fishing agencies in the territory of Rovigo and Venice, with some seafood excellences like the Scardovari IGP mussels, pink oysters, Po's eel and other well-known types. The project would enforce the competiveness between fishery agencies and aquaculture operators and their engagement through the promotion of new investments developing such innovative and strategic plans and functional services. The cooperation area includes on the one hand the territories of Veneto, Puglia and Marche regions and on the other hand the Istrian and Zadar County side. The project would help fishery agencies through time-to-market acceleration, enforcement of the relationships with the sectoral innovators, boasting on R&D investments and competitiveness and the creation of the value network. There has been published an opportunity of innovation for the Fish companies through a public competition, in where virtuous fishery agencies may be selected as first beneficiaries.

Furthermore, Filippo Ugolini from the Pelikan Garbage Group of Ancona presented another interesting point regarding the waste management, in particular the material recovery of macro-plastics deriving from fishing. They have valorised the fisheries' plastic materials recovery during their regular fishing activities in the Adriatic Sea, near to Ancona. The project, that is a prosecution of Clean Sea Life project financed by CE, has the objective of including the micro-plastic produced by the fisheries into the industrial sector. The operational phase (analysis on plastic typologies) started in October 2020 including five different fishing boats. This shows different percentage of plastics distinct of type, mainly polyethylene.

Lastly, relating to the circular economy practices, Enrico Pusceddu from the Upper Adriatic Technology Park presented a new recovery and traceability model for manufactured in fibre reinforced composites (CFR and GFRP) within the innovative RETRACKING project. This project defines and tests a new business circular model for the composed and polymeric materials, that generate normally an enormous waste quantity. The circular model proposes a pilot recycling system connected with an ICT platform (Web protocol for delivering waste to the pilot system) for managing the recycling and transformation process. That conducts to new products traceability and management; therefore, this model has an integrated "code-mark-recycle" process. Tracing the products consequently the market placing is very useful to get big data for enforcing the IoT, Big Data and Analytics interaction and extending the waste/product life cycle through the producer consulting and maintenance assistance.

The event dedicated to the "Bottom-up consultation processes for Local Development" has been dedicated to the topic of bottom-up consultation for Local Development. The ineffectiveness of socio-economic promotion tools based on top-down approaches have gradually focused attention on the need to activate territorially rooted development processes capable of enhancing the system of endogenous and exogenous resources of different contexts. The launch in recent years of negotiated planning and interventions to support local development constitute one of the most significant innovations in the current phase of economic policy and interventions to promote the development and growth of the territories promoted by the EU countries. All the eight speakers have presented different versions of the same topic explaining their point of view as experts.

As first contribution to the second series of interventions, Carlo Ricci from FARNET (The European Fisheries Areas Network) gave exhaustive explanation of the Community-led local development (SLTP) within the European Maritime and Fisheries Fund (EMFF). Specifically summing up the CLLD synergies and priorities, related sectoral challenges of the fishery sector and the number (approximately 7100) of EU proposals submitted within the European Maritime network.

In addition to abovementioned introduction, Angelo Schillacci from the Italian National Flag Network narrowed the thematic at the national level, presenting the network as a sharing platform and engine for local development. This entity offers technical and operational support for facilitating, integrating, monitoring and sustaining all the different components of the local development strategies in the Italian coastal areas through CLLD approach.

Two relators have brought their real examples of existing development agencies pursuing the CLLD approach. First of all, Giancarlo Pegoraro from VeGAL of Venice discussed the genesis and development of a coastal action group (CAG/FLAG) and integration with the policies of the local action group (GAL). Secondly, Angela Nazzaruolo from FLAG CER (Coast of Emilia Romagna) presented generally the construction and sharing of local development strategies in the case of yours. The strategy is based on a participative and inclusive approach on both sides, the FLAG CER sees coastal and maritime Representatives of local Municipalities and sectoral Associations (mainly from trade and tourisms) as the main stakeholders of respective territories.

At the final intervention session, four relators have debated the birth of territorial aggregations from bottom for the development of cross-border EGTC for the development of border territories. The introduction to specific topic has been ensured by Ivan Curzolo from GECT GO.

Additionally, Antonella Valmorbida presented ALDA (EU Association of Local Democracy Agencies), that coordinates and supports the network of 15 Local Democracy Agencies (LDAs) and 3 Operational Partners (OPs) in their activities. It initiated by the Council of Europe in the '90s and represents an experiment of democratic support, with full engagement of local governments and civil society organisations from Europe and the neighboring countries. LDAs

are locally based organisations funded and supported by both local partners, such as authorities and civil society organisations, and international associates with a long-term joint programme, providing financial and political support to fulfil their mandate and to accompany local democracy, civil society empowerment, indeed, partnership building is a crucial aspect for each LDA, as their work is based on the innovative method of multilateral decentralized cooperation. ALDA works throughout the enlarged Europe with the majority of the Local Democracy Agencies located in the Western Balkans. Most of ALDA's and the LDA's work is based on an innovative and successful method of multilateral decentralized cooperation, which involves a multi-stakeholder approach and focuses on partnerships between Local Authorities and Non-Governmental Organizations. These partnerships create synergy and ensure that common goals are reached in a successful way. It focuses on the mutual benefits of the cooperation, on a participative and long-term approach in order to strength the real effectiveness of the impact on both communities. The multilateral approach allows a better sustainability as well as a multicultural input to the initiatives.

Alberto Monachesi, from "Tipicità in Blu" a lab-festival born in 2014, shared the origin and development of a public/private format for the development of blue policies of the Municipality of Ancona. It has a public-private partnership in its nature and includes over 300 entities capable of actively involving companies, local authorities and associations in an informal and large organizing committee, led by the Municipal Administration of Ancona and the Chamber of Commerce of Le Marche region. It is an efficient example of how private and public sector can interact between each other, especially because this lab-festival contains edutainment and professional contents on the subject of blue economy, ranging from research and sustainability, to boat industry and shipbuilding, from fishing and sailing, to food, tourism and culture.

At the last point of this chapter and as contribution to ECOMAP's events, Gabriele Verginelli from HALIÉUS (Ong, International Cooperative development structured by Legacoop – National League of Cooperatives and Mutuals) presented COOPS TO COAST project that established, through a case study in the Provinces of Rize and Artvin, the governance for the management of blue policies in Turkey. This describes the application of the CLLD methodology in a third country (such as Turkey) in the process of accession to the EU. The relator sums up the starting situation in the area: fragmented approach to development, fishery sector detached from the rest of the local economy, absence of bottom-up approach in the elaboration of development policies, poor tourism strategies. The project has introduced in this framework some CLLD principles, organizing to some extent the interests of the civil society actors interested in the coastal development. The project, far from having the objective of actually realizing a FLAG in the area, has tried to promote some sound-knowledge of its principles among the local actors. This initiative resulted very positive attitude from local authorities, from CSOs in terms of participation and further effort shall get for overcoming the top-down approach.

The event dedicated to the "Water foot print: awareness in the management of sea water and its consumption" has dealt with the theme of awareness in water management. The water footprint is an indicator of the total volume of water resources used to produce goods and services consumed by the inhabitants / users of the territory. It includes water, taken from rivers, lakes and aquifers (surface and underground waters), used in the agricultural, industrial and domestic sectors and rainwater used in agriculture. All the four speakers have presented different versions of the same topic explaining their point of view as experts.

Antonietta Rizzo from ENEA, Italian National Agency for New Technologies, Energy and Sustainable economic development, gave a consistent introduction of the water foot print term and concept within the society and into the environmental sphere. The water foot print has specific water volumes to produce good and service and adds a qualitative component to the internal and external water availability. It measures natural resource appropriation by each community. It has three different categories of identification: used freshwater (blue); incorporated rainwater (green) and polluted water (grey). It serves to collect data on resource sustainability, to optimize productive processes, to formulate specific environmental policies, to understand and consolidate the sustainable impact into the community, to guarantee the water security and to promote transparent information on the topic. Through the innovation the water foot print may be improved in any sense.

Relating to development of sustainable skills in the field of vocational education, Elena Gaudio from the Ministry of Education DG OSV Office IV contributed to this thematic session by explaining the new course of study in water management and environmental remediation (G.A.R.A.). It addressed to advanced and professional figures, that thank to this course would manage adequately varied territorial necessities. These new experts would gain knowledge in water usage, particularly aims to contrast hydro-geological pollution and disruption.

Regarding innovative artificial recharge technologies for the sustainable management of water resources, Carmela Vaccaro from the University of Ferrara presented the practice of the WARBO Life + project. It deals with the reduction of the water footprint (grey one) to protect the environment, biodiversity and human health by a good resilience practice and the fight against climate change.

Sonia Abluton, from the LAMORO Development Agency, set up her speech on presenting HealingPlaces (CENTRAL EUROPE Program) project and its pilot action in Acqui Terme territory, such as empowering and creating a strategic model of awareness in the stakeholders of the thermal sector. This project aims at a more sustainable development of spas by protecting the unique resources that constitute their basis. The common challenge is the sustainable management of mineral and thermal waters which on one hand are a basis for the existence of spas and on the other hand are a subject of various threats and pressures related to economic

and urban development, mass tourism and careless sector policies. LAMORO is going to implement a pilot action for the sustainable use of mineral water management in the city of Acqui Terme, a thermal town in the South-East of Piemonte region. The aim of the pilot action is to assess the environmental impact of products and services that use hyperthermal water, in order to sensitize companies and stakeholders to a more conscious and respectful use of the thermal resources from an environmental point of view.

The event "Water management in the port areas, bathing waters and marinas" has been dedicated to the theme of water management in port areas, bathing areas and marinas. All the five speakers have presented different versions of the same topic explaining their point of view as experts.

Roberto Fabbri from HERA spa opened up the debate underlining the Rimini's bathing safeguard plan (PSBO), that is an infrastructure constructed by the Municipality of Rimini, Romagna Acque e Amir and HERA spa for managing better the drainage system and territorial water basins. The main scope is to remove the ban on bathing and to reduce up to 90% the impact of pollution into the water discharged in the sea, ensuring a sustainable hydrological service.

As important contribution to the theme of water management policies, firstly Fabio Vallarola from the Municipality of Ancona has presented ECOMAP actions for the preservation of the protected sea of the Conero. The touristic port of Ancona "Marina Dorica" is constantly haunt of boats. The ECOMAP project would improve the sustainability and the management of this small port through specific drain equipment and informative campaigns towards the users to comprehend correctly signage and information conveyance.

Loredana Pascarella and Giuseppina Merola, from ARPAC Campania region, presented the statistical analysis of data to support the environmental management of bathing water, emphasising the case of the mouth of the Regi Lagni in the Municipality of Castel Volturno (Caserta Province). For many years, the coasts of Caserta have been banned for bathing, due to their poor quality in services for the society. Through this preliminary study, ARPAC in collaboration with the Centre for Ecology and Hydrology of Wallingford, would analyse the microbiological and marine meteorological data from 2010 to 2020, through two different sampling stations, one in Pineta Grance Sud and the other one in Villaggio Coppola situated in Regi Lagni channel. It aims to identify the principal factors that affect the variability on the microbiological water bathing quality, constituting an efficient environmental alerting model adaptable in other sites.

Maja Krzeulj, from the University of Split, talked about water management solutions for reduction microbial environment impact in coastal areas. The quality of the bathing waters in the EU, and their classification, is determined within the monitoring required by Bathing Water Directive. In Italy and Croatia, the quality of the bathing waters is presented mostly with a class

of excellent quality, although in some areas lower quality can be detected. The anomalous rainy episodes, as effect of climate change, induce flood and relevant consequences on river and sewage systems, with an impact at medium/long periods on bathing waters, especially in the areas where the sewerage networks can directly discharge into the sea. During these events, the microbial contamination significantly affects the quality of bathing waters with a negative impact on tourism and related activities. The relator brought the case of WATERCARE project, that aims to improve the quality of the bathing and coastal waters, reducing the microbial contamination, by using innovative tools and new approaches and providing practical solutions to this environmental problem. Main beneficiaries of the project are the public authorities, coastal zone managers and stakeholders (tourists, citizens, tourist operators, etc.). Those would be supported in order to improve the water management in urban areas, to avoid and reduce the level of bacterial contamination deriving by high rainfalls, but also to reduce the number of days when the activities in coastal waters are limited or forbidden due to a high level of bacterial contamination (including WFD and MSFD requirements). The impact of the WATERCARE project will be important for water management solutions developed in order to reduce a microbial contamination, using alert and control actions based on innovative system and offering a guideline to support the governance.

As last contribution, Ester Zazzero from the Municipality of Pescara brought up the case of the AdSWiM project, that would manage used of treated urban waste water for the quality of the Adriatic Sea by investigating on the cross-borders DPs technologies, management strategies and transfer of knowledge. It is built around the Urban wastewater (UWW) and depuration plants (DP) and it aims of assessing whether the treated UWW from DP, respecting established EU values, can be used as controlled points of nutrients supply, in particular phosphorus, with eliminated risks for both the hygienic quality of the bathing water and the ecosystem stability. This goal is obtained through several well-defined activities either at DP level or in marine environment. It gathers together 12 different partners, that would commonly contribute to the reduction of sea water pollutants.

These events contributed intensively to the sub-activities of the ECOMAP WP5 activity, since many experts, public authorities and stakeholders have interacted through the same platform bringing best practices, good opportunities and real actions for managing qualitatively the coastal areas and related environmental resources.

PP10 and PPs cooperated also for the implementation of the NEXT UE - JOINT COMMUNICATION events of the INTERREG ITALY-CROATIA, especially that one related to the Underwater archeology and cultural heritage of the North Adriatic Sea from the Podstrana County (cases and studies).

SEALOGY EDITION NOVEMBER 18-19-20th, 2021

PP10 and partners organized the Phygital Preview Edition of SEALOGY on 28-30 September 2021 - consisting of 3 day-events of ECOMAP special Event in collaboration with Tipicità in Blu in Ancona https://www.tipicitainblu.it/eventi/ecomap-the-blue-way-anteprima-sealogy/ for discussing Starfish Mission with relevant experts and related goals of Ecomap project, and the SEALOGY Edition in November 2021, in which many best practices have been identified, discussion, transferred jointly. In fact, SEALOGY Phygital Edition into the "BLUE ECONOMY CONFERENCE – A NEW APPROACH FOR A SUSTAINABLE BLUE ECONOMY" https://www.sealogy.it/convegni/ of November 2021 (18-19-20/11/2021) consisted of 4 webinars planned between PP10 as co-organizers and SEALOGY organizers. ECOMAP project impacted many topics through this edition, belonging to: "Bottom-up concertation processes for Local Development: presentation of the ECOMAP working groups set up in the Italian regions" on 18/11/2021 – 10:00-12:00 in collaboration with OGS, Life Sciences Cluster FVG, Aries /Chamber of Commerce of FVG and FLAG GAC FVG, Marevivo Association, Bibione Mare, Contract of the wet area of Caorle, VeGAL, University of Ca' Foscari, Venetian Cluster and many more with 4 different working groups in specific field of interests; "Smart Methodologies to fulfil the indications of the EU Green Deal: Ecological Transition in Port Cities" on 18/11/2021 – 15:00-17:00, in collaboration with CURSA, University of Ferrara, Municipality of Ancona, OGS, University of Split, ENEA, Hydrographic Institute of the Navy; "Biodiversity and alien species between the sea and the coastal area: use and maintenance of natural environments" on 19/11/2021 – 10:00-12:00, in collaboration with University of Ca' Foscari, University of Bologna – Department of Biological, Geological and Environmental Sciences, CNR of Crystallography, BIO-RES and the "Water footprint: awareness in the management of water and its consumption" on 19/11/2021 15:00-17:00, in collaboration with the University of Ferrara, ENEA, Consorzio Veneto Colli Marketing Consortium of Euganean Hills and LAMORO Agency and Acqui terme reality.

The Sealogy Edition in 2021 has been structured in 4 thematic sessions:

- Bottom-up processes
- European Green deal
- Biodiversity and alien species
- Water footprint

The microplastic theme has been approached in different sessions of the 2021 sealogy webinar, as one of the principal hazards and challenges dealing with both marine conservation, fisheries, waste management and circular economy.

Innovative integrated system for microplastic detection in the Adriatic Sea has been presented, by University of Ferrara and Hydra solutions, with a contribution by Dr. C. Corbau, E. Olivo and D. Calore. In detail, the project NET4mPLASTIC "New Technologies for macro and Microplastic Detection and Analysis in the Adriatic Basin" pursues as objectives the data collection on distribution and composition of micro and macroplastics in the sea, the development of an international cooperation, the enhancement of consciousness of the problem, through an alert system and an updated database and individuation of microplastics and pollutants in molluscs. Foreseen results are related to the state of the art analysis of environmental and climatological data, description of waste management problems, individuation of the origin of marine microplastics and their characterization, quantifying microplastic presence in water, marine sediment and molluscs, development of a sensor platform for marine drones and boats, provisional model of the potential accumulation areas, on shore and off shore, development of a rapid alert system and GIS database, evaluation of risks for human health, recycling methodologies. The concrete actions will deal with the adaptation of the DeFishGear protocol for data collection on baches, shores and marine surface, also with the use of drones, laboratory analysis with microscopic identification, biological and chemical analysis and a numeric model for simulation.

Dott. Flavio Rizzolio from Ca'Foscari University in Venice presented the research topics, between them the study of environmental pollutants in terms of toxicological impact, the recycling of materials from the fish production chain and new methods of more sustainable food production. For this reason, they are developing biomolecular kits to test the impact of microplastics present in the fish chain on the human health. The technology is based on 3D self-assembly cells in a microfluidic chip integrated with optical microscopy and Real-time PCR technologies. The technology will allow the rapid but reliable and precise determination of microplastic toxicity at the biological and molecular levels. It will be possible to provide private and public companies or regulatory agencies new analytical tools suitable for the biological monitoring of these contaminants on food and drinking water, preventing problems on consumer health.

An interesting and innovative approach was presented by Filippo Ugolini of GARBAGE Group, for the Materic valorization of sea collected plastics. They realized an experimental circular economy project for the reuse of plastic which is accidentally collected during fishing activities. Plastic garbage has been collected by fisherman, characterized and transformed into plastic pellets, with the production of a final new product, an object for use.

The bottom-up consultation processes for Local Development was object of an entire thematic session in Sealogy 2021, in four sub sessions related to the working groups on Blue Innovation in Friuli Venezia Giulia, Veneto, Emilia Romagna and Marche regions.

20 relators have participated, bringing contributions regarding local management activities and networks. Between them, research institutions, such as National Institute of Oceanography and Applied Geophysics OGS, Ca' Foscari University in Venice, University of Ferrara, together with territorial bodies and consortiums. The most significant contributions are here reported.

Since Polo Tecnologico Alto Adriatico has been recently entitled by the Government of Friuli Venezia Giulia to manage and develop the Life Science Cluster of Friuli Venezia Giulia Region (02 July 2021): the Life Science Cluster has the task of creating close links between the industrial and research systems, as well as regional and national institutions in order to develop synergies covering the regional health sector, in this view it facilitated interactions along these topics

The role of the environmental association Marevivo has been introduced by Maria Cristina Pedicchio, with the description of the EU Commission recent ambitious project of the "Starfish Mission 2030" as the "Blue part of the Green Deal". The mission's concept intends to promote scientific and innovative actions as well as citizens' knowledge and awareness in order to implement environmental protection, regeneration processes and sustainable development. The Starfish Mission, after analysing problems and risks that are threatening our seas, rivers and inland waters, indicates the necessary actions to be activated for the "regeneration" of the blue system. The starfish is the symbol of this project, with each of the five arms to indicate a concrete objective to be reached: regenerating marine and freshwater ecosystems, decarbonising our ocean, seas and waters, revamping governance, zero pollution and filling the knowledge and emotional gap.

Bibione Mare SPA contributes to the Maritime Spatial Planning (MSP) strategy at the European level with the specific purpose of achieving environmental sustainably methods and cross-borders macro-strategies on how to address these challenges in a better long-term management. The public and private partnerships play an important role within the territories, especially those cross-borders and transnationals, such in case of social and economic concertation between interests and specific necessities. Marinas, big and small ports, touristic ports are facing various challenges into their area of competences, for instance those connected with the climate change, sea-levels raising, temperature raising, biodiversity degradation, and many other. In this sense, they are discussing on these thematic in order to take concrete measures commonly with public bodies and other private actors in this field.

Paolo Valeri from VeGAL of Venice discussed the genesis and development of a coastal action group (CAG/FLAG) and integration with the policies of the local action group (GAL). FLAG involves 13 partners, in six municipalities of the venetian marine compartment. Cultural, touristic, environmental, productive sector are addressed. Three thematic areas are individuated: development and innovation of supply chains and local production systems; natural resources valorisation and management; economic and social diversification linked to changes in the

fisheries sector. For the Cluster of companies related to Cultural and Environmental Heritage of the Venetian Cluster Sergio Calò describes Vision (Cultural and Environmental Heritage has an economic value that is fundamental for the development of our Country, it must be preserved, valorised, promoted and developed) and Mission (coordination and support to multidisciplinary public-private partnerships, enterprises, professionals, associations, public and private bodies, research institutes and all subjects interested in carrying out and promoting innovation projects, technological transfer and actions for the development of the Italian and international productive supply chain for the conservation, the restoration and the valorisation of the Cultural and Environmental Heritage in Italy and abroad).

Consorzio Futura Ricerche (CFR) of Ferrara, as presented by Elena Marrocchino, is a private non-profit organization, with public and private participation, aimed at the promotion, development and enhancement of human, scientific, technological and economic resources. The University of Ferrara is one of the CFR consortium members. CFR essentially operates in the field of multidisciplinary research, technology transfer and training, independently or through an active collaboration with universities, research centers, public bodies, industrial companies, in Italy and abroad, as well as acting as a link between know-how generators and industrial organizations and working realities.

Ferrara Plain Reclamation Consortium exercises functions of public interest as regards the drainage of internal waters, irrigation and soil protection; it also contributes to the protection and enhancement of natural assets. It operates in a peculiar situation, as almost half of the territory is below the average sea level (44%) and the areas at lower altitudes are still in conditions of subsidence (about 4 mm per 'year): for the removal and conveyance of inland waters it is therefore necessary their lifting with drainage systems, with considerable expenditure in electricity. Without this activity parts of the Ferrara area would risk flooding within a few hours in the event of exceptional rainfall.

Alberto Monachesi, from “Tipicità in Blu” a lab-festival born in 2014, shared the origin and development of a public/private format for the development of blue policies of the Municipality of Ancona. It has a public-private partnership in its nature and includes over 300 entities capable of actively involving companies, local authorities and associations in an informal and large organizing committee, led by the Municipal Administration of Ancona and the Chamber of Commerce of Le Marche region. It is an efficient example of how private and public sector can interact between each other, especially because this lab-festival contains edutainment and professional contents on the subject of blue economy, ranging from research and sustainability, to boat industry and shipbuilding, from fishing and sailing, to food, tourism and culture.

One of the thematic sessions of Sealogy 2021 was about water footprint, with five relators, both from research and from territorial realities, most significant contributes are here reported.

ENEA - National Agency for New Technologies, Energy and Sustainable Economic Development, with Chiara Telloli, presented an overview on water footprint meaning and description, then reporting an isotopic Analysis method for the evaluation of water age, based on isotopic hydrology (tritium), being radioactive decay, a chronometer of the time elapsed since the formation of the water body. High tritium values may indicate contamination from landfill leachate.

Mattia Bregolin from Veneto Terme Colli Marketing Consortium highlighted that the Euganean Hills Thermal Basin "the Land of Health" is the hugest and largest thermal and SPA area of the entire Europe, located at south-east of Padua and constituted by a hilly complex morphologically very articulate and flat parts. The Municipalities part of this prominent area, which is extended of 92,42 km2, are: Abano terme, Montegrotto terme, Galzignano terme, Battaglia terme and Teolo, with a population of 49.092 inhabitants. In this context, the natural mineral waters and thermal resources are the keys of the regional and local development of the thermal tourism and further related activities. Given the enormous usage of this natural resource in the field and non-infinite disposal of that, the public and private authorities are considering sustainable plans and strategies: thermal realities respect the territory and the environment having at their disposal geothermal heating systems that make them eco-sustainable, the thermal mud product, after its use, is regenerated and reused. Within the European project called "Healing Places – Enhancing environmental management capacities for sustainable use of the natural heritage of Central European SPA towns and regions as the driver for local and regional development" funded by the INTERREG CENTRAL EUROPE Programme, in which the Euganean Hills Thermal Basin is an associate together with the Homogeneuos Hydromineral Basin of the Euganean Hills, Terme Colli Euganei Marketing and the Upper Adriatic Technology park of Pordenone (project partner) is taking relevant measure to create a common, innovative and web-based tool for the assessment of threats and pressures on mineral and hot water deposits. This action is aiming to a more sustainable development of SPAs by protecting the unique resources that constitute their basis. The pilot action's focus is throughout the adaptation of this sector with the ICT, in order to ensure a more efficient evaluation of data, updated information between technicians, operators, hotel managers, decision makers and general public. Most importantly, the public and private have created partnerships between each other, in order to ensure concrete alignments, common vision and efficient methodologies to manage these natural resources, avoiding waste and their depletion.

Lamoro Development Agency with Sonia Abluton described how the Municipality of Aqui Terme is contributing to the aim of the above mentioned "Healing places" project, in the "The city of water" Spa's district, testing the environmental impacts of "thermal water" product into the different project thermal areas. The focus is indeed around the importance of natural mineral waters and their healing power in health care, wellness, and tourism sectors. In fact, there is a common challenge that the project is taking into account: the sustainable management of

mineral and thermal water by protecting the unique resources that constitute the basis of SPAs of Central Europe. In particular, the Acqui terme is in strength collaboration with private and public entities in the SPA sectors.

Water management in the coastal and port areas is a thematic which has been transversally touched through all the Sealogy 2021 event.

Fabio Vallarola from Municipality of Ancona, Green Economy Environment Presidium, spoke about Ecomap actions related to the reduction of waste pollution in the Ancona Port; Bibione Mare established a pilot implant for the collecting of shower water and its recycling for ornamental plants irrigation in the beach areas, together with a pilot project for the treatment of oiled water derived from the marina, in order to collect and recycle the oily fraction and confer treated deoiled water to sewage.

Many scientific and technical contributions have been added to the topic, in support to water management. OGS, National Institute of Oceanography and Applied Geophysics contributed to the knowledge of marine bottoms through an analysis of land and marine geophysical data in coastal areas, presenting two case studies of the application of geophysical surveys to coastal areas. The first, shows the results of the integration of a seismic and electrical resistivity surveys carried out on the beach of Bibione, on the Northern Adriatic coast. The second case study involves the analysis of data acquired at sea in the Eastern Adriatic, close to the city of Split. Geophysical measurements, thanks to their extensive and at the same time detailed, high-resolution images are a valuable tool for environmental purposes.

University of Split, Department of Maritime Studies, with Marin Ordulj, spoke about the impact of precipitation on the bathing water quality in the urban areas, which is assessed through monitoring of the fecal indicator bacteria, regulated in the EU by the Bathing Water Directive. In Italy and Croatia, the quality of the bathing waters is mostly of excellent quality, but the anomalous rainy episodes, as an effect of climate change, induce overflooding of small rivers and urban sewage systems, especially in the areas where the combined sewage system is applied and is directly discharged into the sea. During these events, microbial contamination significantly affects the quality of bathing waters which can have a negative impact on tourism and related tourism activities. WATERCARE project aims to improve the quality of the bathing and coastal waters, reducing microbial contamination, by using innovative tools and new approaches and providing practical solutions to this environmental problem. The impact of precipitation on coastal bathing water quality in the area of Split and Kaštela (Adriatic Sea), the urban areas with combined sewage systems, was assessed. The quality of bathing waters in the Kaštela area was significantly worse than in the Split area, mainly caused by the condition of the sewage system in these areas and not by the precipitation effect.

Anna Saroni from University of Ferrara reported about research on gaseous emission from marine bottoms. Study and characterization of underwater emissions is more significant in port areas and in low bottom seas, due to their explosive character.

Hydrographic Institute of the Navy, with Roberta Ivaldi, followed research on acoustic data for local geometry/angular of in sonification, roughness of the seafloor (related to the sonar frequency) and seabed physical properties (rocks vs sediments), with the definition of a MAD Multiparametric and Automatic Detection tool for Smart seabed mapping. The enhanced use of high resolution of acoustic data with MBES, satellite images and orthophotos permitted to optimize seafloor morphology, seabed nature, water column target and MAD permitted to expand the seabed classification to a 3D mapping. The development of this tool was able to reach the Rapid Environmental Assessment, the ability for rapidly assessing and analysing the environmental information, delivering products in the shortest timeframe, for a rapid and unambiguous response.

The Life project REDUNE of University of Venice has been reported as an example of management of coastal areas. Project REDUNE restores dune habitats which are highly fragmented and threatened by summer beach tourism.

Federica Nasi from National Institute of Oceanography and Applied Geophysics - OGS, Italy, underlined the importance of ecological monitoring in port areas, which are often neglected in ecological traditional monitoring programs. Within the ECOMAP project, in two Croatian marinas, i.e. Strožanac and Špinut located near Split, the foraminifera community was investigated. Benthic macrofauna communities and foraminifera assemblages were analysed to assess the quality status of marinas and to point out the importance of using bioindicators like (foraminifera and macrofaunal invertebrates) also in small marinas for the ecological status assessment of marina coastline. The study confirmed the importance of the renewal time of marine water (confinement) for the dilution and dispersion rates of contaminants. Further, these results indicate that including the macrofaunal community features and foraminifera assemblages in monitoring plans could help local ports and marinas design site-specific environmental interventions to mitigate anthropogenic disturbances.

University of Bologna - Ravenna Campus – Department of Biological, Geological and Environmental Sciences (BiGeA) with Federica Costantini touched the argument of alien species in the port areas. An integrated standardized approach has been used, based on photo analysis, morphological identification and molecular analysis (barcoding and metabarcoding), inside the project “Global ARMS program”, Marine Biodiversity Observation Network for genetic monitoring of hard bottom communities, MBON.

Institute of Crystallography National Research Council – CNR applies an innovative technique based on algae-based biosensors for the environmental monitoring. Algae and their sub-

components can be integrated into both optical and electrochemical transduction, allowing analysis in complex matrices with different turbidity and analytes concentrations, with no requirement for sample pre-treatment. Examples of biosensors designed exploiting the green photosynthetic alga Chlamydomonas reinhardtii, in combination with advanced sustainable materials (e.g. paper) and nanomaterials (e.g. carbon black), for the detection of diverse target analytes (e.g. photosynthetic herbicides and pathogens) are presented and described. The biosensor was designated for the detection of atrazine.

2 FORUM: REMTECH EXPO

RemTech Expo is the only permanent international event specializing in the protection and sustainable development of the territory, remediation of contaminated sites, coasts and ports, hydrogeological instability, climate change, seismic risk, urban regeneration and sustainable chemical industry. RemTech Expo is a special brand of Ferrara Fiere Congressi, and the ECOMAP project has taken part to this marvellous series of events. This FORUM has been transversal within all the sub-work packages of the WP5.

The project ECOMAP has organized 1-day (September 22nd, 2020) workshop on exchange of good practices for Smart Port cities through the Remtech 2020 digital edition. The Remtech EXPO 2020 digital edition was held online from September 21 to September 25. The program of the appointments is always focused on: normative evolution, characterization, analysis, risks, technologies, research, innovations, monitoring, territories, works, industries, sustainability.

There have been discussed 4 sub-topics: 1) protection and sustainable development of the territory; 2) climate changes; 3) remediation of contaminated sites and 4) coasts. Those are aligned with WP5 activity, specifically they are given contribution to the 5.1, 5.2, 5.3 and 5.4 sub-activities. The interventions to this workshop generated further participation and have conducted to a relevant contamination of ambitious practices for Smart Port cities.

Link to the YouTube channel:

https://www.youtube.com/watch?v=8RQWV6bl1-4&list=PLM8N8E7wyGrA44j8GqWTWzvYflXCv8cwE&index=4&t=7s

At the beginning of this online session held in September 2020, the project Coordinator of the Technology Park of Upper Adriatic, Diego Santaliana, gave a short introduction of the ECOMAP's main scope, objectives and specific outputs.

The strategic project pillars are the environment and the underwater cultural heritage valorisation, in which there is a capillary objective that is improving the environmental water

conditions and coastal management towards a better quality, by using advanced technologies and an innovative and sustainable approach. It lasts until June 2022, with a unique scope of contributing to an efficient plan for the ports (Italian and Croatian ones) through new innovative methodologies, investments on small infrastructures, technology instruments and training of involved groups of interests. The project would directly intercept the attention of: local, regional and national authorities; local and regional development agencies; environmental and innovation agencies and association; educational and training organisms, Universities and Research institutes and lastly but not least the general public.

RemTech EXPO Digital edition on Blue Growth on September 22nd 2020, has given important impacts to the WP5 since its resonance is international and it covers many topics on remediations, coasts, floods and climate. The event has been focalized on three main topics, which are extremely major for the project and the WP5. There have been discussed many case studies (performed in Venice and Trieste) on the protection and the sustainable development of the territories (contribution to the WP5.3 and WP5.4), on climate change issues (contribution to the WP5.4) introducing an interesting case of the bio invasion of alien species (introduced by ballast waters in the Adriatic Sea) and high-resolution climate modelling of the Adriatic Sea. Furthermore, there have been discussed some remediations/potential solutions of contaminated sites (contribution to the WP5.2) to combat marine pollution from oil, toxic and dangerous substances.

In regards of WP5.3 contribution to the Smart Tourism set of actions, a specific module of this FORUM has been addressed to “Protection and Sustainable Development of the territory”, in which many best practices have been presented and disseminated:

Sergio Calò from Venetian Cluster introduced the specific topic sharing some suggestions and information about the sub marine cultural heritage of the Gulf of Venice. The relator brought some examples of existing modalities, specific information of historical wrecks and generally of the cultural underwater findings (in Laguna del Mort and Venetian Brigantino into the Lido of Jesolo and many others), that can be easily reproduced virtually. Converting the underwater heritage by giving a virtual nature, so a new life (creative industry with immersive small museums) is extremely relevant nowadays. That can be replicate everywhere and ensure some turistic alternatives with new content to be discover.

Antonio Giacomin, from Fluido reality working on extensive and immersive realities (such as virtual environments) in collaboration with Trieste Contemporanea, brought up four cases of virtual environments for the enhancement of the territory. At the beginning of virtual reality, that has become officially available in the 90s, there were such modes that now are already evolving into new ones (virtual tours with single and multi-users). In Trieste area (2016, Freeway Trieste – Sistema ARGO, like an industrial Innovation Hub), one virtual tour (one of the first ones)

with video content has been created to the general public disposal. This one may re-create, through a reserve area where people can enter in, parts of Port of Trieste. The second case study called "Germi di forma" showed by the interlocutor was a virtual tour with photo and video content available in Carà Museum (Muggia, Trieste). The third case study presented is an Immersive Museum through AR (Augmented reality) APPs (connected with the physical environment) in MIRA Morandini (San Giorgio in Nogaro, Udine). The last case study presented was BOTH WAYS – ESOF 2020 (real-physical-virtual space), that is a multi-user social VR virtual tour available in Trieste, Belgrade, Budapest, Cluj-Napoca and Rijeka.

Moreover, in this report contributions to other sub-work packages (WP5.1 and WP5.2) would be reported: in the context of "Remediation of contaminated sites" some topics have been presented by relevant speakers: Miroslav Gacic from the National Institute of Oceanography and Experimental Geophysics (OGS) debated together with all the participants the HAZADR project, that contributes to strength the common reaction capacity to combat marine pollution from oil, toxic and dangerous substances in the Adriatic Sea. The first HF radar monitoring of surface currents dated from the late 1990's in the area of Ancona within the national project PRISMA2. At that time, this was one of the first use of HF radar for coastal studies in Europe. During the 2000's within the six-year research of the water exchange between the Venice Lagoon and the open sea, important HF radar surface circulation mapping and research was done in front of the Malamocco inlet. HAZADR project (2014) aims: to upgrade the knowledge framework on the estimated environmental and socio-economic risks in the most vulnerable Adriatic areas due to natural and human-induced factors; to support decision-making process in preventing, reacting and overcoming emergencies (also for the benefit of countries not directly involved in the project but treated by oil spillage contamination in case of shipwrecks or collisions). HF radar measurements are located along the Northwest Istrian coast and Split area (Croatia) and the two partners in oceanographic studies and data were National Institute of Oceanography and Applied Geophysics, Trieste and Institute of Oceanography and Fisheries, Split (Croatia). From the 2016, continuous radar monitoring of surface currents has been taking place in the Gulf of Trieste within the collaboration between the Marine Biological Station, Piran (Slovenia) and National Institute of Oceanography and Applied Geophysics, Trieste. On the other hand, to give an insight on "coasts field" Graziano Paulon from the Reclamation Consortia of the east side of Veneto region, gave the last speech talking about the signed Contract of the Laguna of Caorle, "Contratto di Area Umida del Sistema della Laguna di Caorle". With this contract the parts want to concretize, through also WETNET project (Mediterranean INTERREG), such consequences in the related territories: an initial participative process within the territories boasted by some institutional preliminary meetings, the signing of a "Document of intents" in 2019, thematic roundtables in 2019. It has conducted to a formal engagement of 31 associated partners: such as Local entities, other Reclamation Authorities, Agricultural, Touristic, Enviromental, Fisheries, Sportive Trade Associations, local Association and Professional Fisheries Companies.

3 FORUM: TIPICITA'

Tipicità is a territorial initiative of Marche Region dedicated to the promotion of typicalities of the territories along the Adriatic Sea, and especially in the framework of sustainability and 0km products valorisation. This initiative takes place in Fermo (Marche). On the other side Tipicità in Blu, another territorial initiative promoted by the Municipality of Ancona and Chamber of Commerce of Marche Region, hosts in the city of Ancona a Festival dedicated to the Blue Economy and Blue Growth. The days of the blue economy, from 18 to 20 May, explore the blue perspective in all its many facets. Focus on boating and shipbuilding, safety of the fishing industry, coastal territorial development, sustainability, smart port cities, together with prestigious international guests and experts, in comparison with the experiences of other Italian and foreign territories. The ECOMAP project has taken part to this marvellous series of events. This FORUM has been transversal within all the sub-work packages of the WP5.

On 1-2 June 2021 an event was organized by Tipicità Marche, in collaboration with project partnership, and dedicated to exploring the territorial peculiarities and resources around the themes of nautical, leisure and sustainable activities in the field of the Blue Growth. The ECOMAP project was presented in this context together and synergically with other stakeholders, projects and best practices, such as the FRAMESPORT project leaded by the Euromediterraneo Institute in Monfalcone (GO), TRIESTE YES – Yachting Exhibition Show initiative and Blue Innovation Hub of UNIDO ITPO FVG. Link to the YouTube channel: https://www.youtube.com/watch?v=_qC3bumK3cQ&ab_channel=Tipicit%C3%A0Marche

PP10 co-organized the Phygital Preview Edition of SEALOGY on 28-29-30/09/2021 at the Tipicità in Blu Edition https://www.tipicitainblu.it/eventi/ecomap-the-blue-way-anteprima-sealogy/ in collaboration with the Municipality of Ancona, so promoting the project through communication materials thanks to also Tipicità organizers. The Sealogy preview event in 2021 hosted a series of contributions dealing with blue economy, sustainability and management of seas, coastal and port areas. Port areas are approached in a new sustainable point of view (WP5.2). Ancona Marina Dorica has the Blue Flag from already 11 years, together with ISO 14000 certification for environmental quality. In Ecomap significant initiatives are addressed to boaters, for better waste management, with informative panels and dissemination actions. Also, a portable pump will be put in use so to facilitate sewage collection and disposal from touristic boats, and an „ocean kit “, a special sponge capable of adsorbing oil spills is distributed among users.

Trieste port president describes an innovative and competitive idea of port, based not only on logistic but also on different activities and enterprises linked directly and indirectly with the sea. The CO2 footprint in the Trieste port has been analysed in the past years, for its reduction the electrification of the docks has been foreseen, so that boats and vessels can turn off the engines when docked. Also, innovative ideas on the possibility of establishing of energy hubs and data management hubs in port areas are proposed.

Pollution from plastics and microplastics (WP5.2) is a key argument touched during this event. Finally normative updates permit to professional fisherman to collect plastic from the sea and dispose of it in a regular way, together with urban waste, instead of being considered a special waste. Innovative projects and ideas are also presented, such as the production of socks from the recycle of the old fishing nets.

Overall projects and collaborations are developed in order to enhance local and transnational networks in the Blue Growth (WP5.1), involving innovation hubs, local administrations and productive sector which is sensitive to environmental issues. Sealogy event will contribute to the network's establishment, strengthening and dissemination. The FLAG role is crucial in the identification of collaborations and individuation of financing opportunities, linking sea related territories and activities, such as fishing and aquaculture, with the inland.

Different projects are funded under EU financing tools, such as the Emilia Romagna Life ART-ER Blu Bio Med, Mediterranean Innovation Alliance for sustainable blue Economy, based on innovation and technologic transfer, bioeconomy and blue sustainable economy. Past projects have been funded in Life, Horizon and Interreg Med cohesion initiatives.

Fishing cooperatives play a fundamental role in the maintenance of active port areas, together with the sustainable use of marine resources. Also, now fisherman are allowed to collect and properly dispose of waste collected during fishing activities, thus having an active role in pollution reduction and overall sensibilization.

At last, but not less important, the „Starfish Mission" has been presented and explained. Starfish mission is one of the 5 strategic missions proposed in the context of the preliminary phase of the Horizon Europe 2021-2027 research and development framework program, together with: fight against cancer, climate change, green cities and healthy soil and food. The starfish mission aims to restore aquatic ecosystems, both marine and inland water, by 2030 and is inserted in the ocean science decade for the sustainable development of the United Nations. The five points of the star symbolize the mission goals: ecosystem regeneration, zero pollution by 2030, decarbonization of marine and inland waters, renovation of water and oceans policies. The mission is an innovative operative tool for the green deal in the Horizon scenario, being the blue part of the green deal.

The goal zero pollution of the Starfish mission is related also to the identification, quantification and providing solutions towards new pollutants. Microplastics are a recent issue, and in the recent past many research has been done, bringing to consciousness of the people behaviour role and to dedicated policies. Another emerging issue in water pollution is the presence of pharmaceutical substances, recent studies in the PharmaSea project have detected different target molecules in edible mussels, therefore highlighting a huge environmental and sanitary problem.

Link to the YouTube channel:

https://www.youtube.com/watch?v=dng2_w1glHg&list=PLfkmmW8lUiCaNXluSBUj8vvEfgsMh07Dg&index=4&t=3134s&ab_channel=Tipicit%C3%A0inBlu

Furthermore, on 20th May 2022 at the Tipicità in blu in Ancona (Mole Vanvitelliana) the "ECOMAP Day" has been organized between project partners, relevant speakers and sectoral experts on Blue growth. The main modules were about the advanced education and training for blue growth and digital technologies for environmental and cultural heritage valorisation: both have brought best practices along the Adriatic Sea. In the first case, the Municipality of Monfalcone partner of the FRAMESPORT project, through a cross-fertilized process, had a presentation of the pilot action that is implementing in the small Port of Monfalcone dealing with the blue growth approach, particularly dedicated to the field of the valorisation of ancient professions such as the shipwrights. In this respect, a cross-border training course for shipwrights has been presented for exchanging knowledge and competences in the field of arts, ancient marine professions as to emphasis the need to enforce professions and personals around the "blue" sector. This training course is based on an ICT platform and composed by a database for Adriatic ancient and modern ships. Moreover, OGS - ICAP Department presented the Advanced Master for Sustainable Blue Growth & Blue skills promoted in the Mediterranean and Adriatic Seas. In the second case, many relevant cases dealing with techs for cultural and environmental heritage have been presented by University of Udine and Cluster of Cultural and Creative FVG. At the same day, also a dedicated workshop has been organised by the Municipality of Ancona, that gave contribution to the WP5 through different perspectives/topics, that brought many points under discussion: circular economy, smart waste management, sensitization campaigns for waste management within the citizenship and governance in the reduction of waste at regional and local scales.

Link to the YouTube

https://www.youtube.com/watch?v=9FNGNfCOXLk&ab_channel=PoloTecnologicoAltoAdriatico

Conclusions

These FORUMS have been organized with the specific aim of promoting, exchanging and transferring knowledge and competences existing along the cross-border Adriatic Coastal sides to enrich coastal plans, elaborate new strategic and sustainable methodologies in the field of the Blue Growth. These ones have gathered many experts, researchers, professors, operators, manager within blue sectors that have started discussing about challenges and opportunities, that joined the ECOMAP Cluster of Adriatic Innovation Blue Hubs in the involved regions, shared presentations through ECOMAP platform and took part to the project after-life perspectives commonly faced altogether.

At this series of events, many interviews have been made and these were used for elaborating various documentaries with branding key “THE BLUE WAY” explaining at different levels these topics:

- Bottom-up processes

- European Green deal (dealing with also smart tourism)

- Biodiversity and alien species

- Water footprint