



Planning in A liquiD world with tropicalL stakeS



“LOCAL COMMUNITIES AND THE USE OF THE MARINE ENVIRONMENT”
Workshop Report

PADDLE Deliverable:

D.4.3 Workshop MSP & community knowledge

February 2018



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Introduction

The PADDLE project – Planning in a Liquid World with Tropical Stakes is funded through the European Union Research and Innovation programme Horizon2020 as a Marie Skłodowska – Curie Actions (MSCA) – Research and Innovation Staff Exchange (RISE) project, under Grant Agreement no 734271. It is a four-year project, spanning from June 2017 to June 2021, involving 18 partners from 8 European (France, Germany, Netherlands, Portugal and Spain) and non-European countries (Brazil, Cape Verde and Senegal).

The main objective of the PADDLE project is to create the first North-South interdisciplinary consortium on Maritime Spatial Planning (MSP) in the tropics, highlighting opportunities and limits of tropical MSP and producing toolboxes for a broad range of stakeholders. Interdisciplinary and collaborative by essence, PADDLE gathers researchers in social sciences, biology and physical sciences to provide knowledge for 3 study zones (Senegal, Cape Verde, and Brazil) on (i) key ecosystem dynamics for MSP, (ii) policy and governance dynamics, (iii) challenges and solutions for tropical Atlantic and (iv) key processes of tropical socio-ecosystems to develop a network of tropical tools. The project’s deliverables involve the realisation of 383 secondments (months of mobility) for the people involved in the project and the organization of two workshops: “MSP & Community knowledge” and “Comparing MSP in EU and South Atlantic”.

Work package 4 of the project, WP4 Challenges and Solutions for Tropical Atlantic MSP, seeks to understand the involvement and equilibrium of tropical stakeholders, their views on – and potential involvement in – the development of the maritime economy and in the emergence of conflicts. In order to harmonize information gathering and communication, this WP is also dedicated to mapping such concerns and focusing on exchanges concerning innovation in stakeholder interactions. In order to contribute to achieve WP4 objectives and to ensure local stakeholders involvement and training, a workshop on MSP was developed in the city of Mindelo (São Vicente Island, Cape Verde).

Purpose

The purpose of this document is to report the results of the Workshop “Local communities and the use of the marine environment”, held in Mindelo (São Vicente Island, Cape Verde), between 5th and 7th February 2018. The workshop is framed under WP4 “Challenges and Solutions for Tropical Atlantic MSP”, accomplishing the project deliverable D.4.3 Workshop MSP & community knowledge.



Workshop objectives and structure

MSP is deeply interconnected with, and dependant on, the mapping of marine environments and maritime uses. Mapping these uses and activities plays an important role by providing a general picture of the spatial distribution of uses, but still needs some improvement in order to fully represent the three dimensions of maritime uses (sea surface, water column and seabed) and their temporal evolution. Conflicts between uses and interests are common both on land and on the sea. Despite the existence of conflict matrices identifying both the real conflicts and the needs for compatible sea uses, any successful conflict-solving strategy must involve both the stakeholders who are engaged in the conflict and the stakeholders who facilitate success and failure.

The workshop “Local communities and the use of the marine environment” feeds in both PADDLE general objectives and WP4 objectives and needs. The first objective was the exchange of experiences among PADDLE team members and local stakeholders. To accomplish this, several experienced and multidisciplinary speakers were invited to participate in the workshop and contribute with a communication of their field of expertise related to the marine environment, maritime uses and management and MSP. The second objective of the workshop was to contribute to capacity building of local stakeholders and local communities. For this intent, besides the communications, case studies were presented to illustrate real examples and a training exercise was proposed and developed by the participants during the workshop. This exercise also contributed to demonstrate the important role of local communities in the construction of policies for the use of the marine environment. Also, inscriptions in the workshop were free of charge, in order to encourage participation, and PowerPoint presentations were made available on the UNESCO platform (<http://classroom.oceanteacher.org/course/view.php?id=322>) to be accessible to a wider range of public. The objective of contributing to the dissemination of the PADDLE project was ensured by a presentation of the project at the beginning of the workshop, focusing on its objectives and general structure. Finally, the workshop had the objective of contributing to the needs of WP4. To accomplish this, participants were asked during the workshop to validate information on WP4 case studies and to contribute with their technical opinion on specific questions and issues.

The workshop was developed during three days, organized with oral communications during the mornings and the development of the “hands-on” exercise during the afternoons. In the mornings, communications were grouped in panels with different themes: (i) the PADDLE project framework, including general approaches to MSP, (ii) challenges in Africa, focusing on different aspects of the use of the marine environment in Africa, especially in Cape Verde, and (iii) tools, addressing namely geographical information systems (GIS) and the blue growth. In the afternoons, the training exercise was developed with the Seasketch, a web-based solution that joins powerful tools for enabling and improving participatory MSP processes. The exercise was prepared in a sequential set of works along the three days of the workshop and was developed by participants distributed in several working groups lead by one member of the PADDLE team.



Workshop detailed agenda

5 th February 2018 – PADDLE Project Framework		
08:30	Inscriptions and welcome to the participants	
09:00	Opening session	
09:30	PADDLE project presentation	Helena Calado – Uni. Azores
10:00	International Framework of PADDLE Project Works	Helena Calado – Uni. Azores
10:30	Concepts and Practices in the Use of the Marine Environment, examples around the world	Alejandro Iglesias – IOC-UNESCO
11:15	Presentation of the National Institute of Territory Management in space representation	Fátima Fernandes – INGT Administrator
12:00	Discussion session	
12:30	Lunch	
13:30-17:30	Seasketch presentation Case studies	Will McClintock

6 th February 2018 – Challenges in Africa		
9:00	Welcome to the participants	
9:30	Perspectives of international actors in the use of the marine space: an evolutionary vision	José Guerreiro – F.C. Uni- Lisbon
10:15	Articulated strategies of local development - Case study of the São Pedro fishing community	Iolanda Cruz – INDP
10:45	Management of Marine Protected Areas in Cape Verde	Silvana Monteiro – DNA
11:15	The potential of aquaculture in Cape Verde	Marcia Costa – INDP
12:00	Discussion session	
12:30	Lunch	
13:30-17:30	Seasketch – continuation of the case studies	Will McClintock



7th February 2018 – Tools

9:00	Welcome to the participants	
9:30	GIS tools	Françoise Gourmelon – CNRS Matthieu Le Tixerant – Terra Maris
10:15	Nature conservation	Ana Costa – Uni- Azores
11:00	Blue growth, international aspects	Fernando Lopes – Uni- Azores
11:30	Blue growth in Cape Verde	Carlos Évora Rocha – DNEM
12:00	Discussion session	
12:30	Lunch	
13:30	Seasketch – results	Will McClintock
15:30	Closing remarks	

Biographical notes

In this section, a brief biographical note of each speaker is presented.

Alejandro Iglesias

Alejandro Iglesias-Campos has an MSc in Physical Geography from the University of Seville, Spain He is programme specialist at the Marine Policy and Regional Coordination Section of the Intergovernmental Oceanographic Commission of UNESCO. Alejandro is in charge of the Integrated Coastal Area Management, Marine Spatial Planning and Sustainable Blue Growth Programme. His current work focuses on integrated coastal area management, transboundary marine spatial planning, transboundary waters assessments, coastal risks and impact assessments, coastal and marine ecosystem capital accounting and shared environmental information systems.

Ana C. Costa

Ana C. Costa is Professor in the Faculty of Sciences and Technology of the University of the Azores, and a Researcher in the Research Centre in Biodiversity and Genetic Resources. She is graduated by Faculty of Sciences of Lisbon University – Degree in Faunistic Resources and Environment (1988). She developed her academic career at University of the Azores since 1990 and got her PhD in Marine Sciences – Marine Ecology from this University in 2004. Her main interest is in marine and freshwater biodiversity: aquatic invertebrate biology and ecology and, to a lesser extent, invertebrate taxonomy. Nonetheless, she has been involved in Coastal Zone Management Planning for small islands in the Azores, Marine Spatial Planning and Conservation in Marine Protected Areas. She teaches several courses at the University of the Azores, namely Invertebrate Zoology, Biological Oceanography, Coastal Biology, Ecotoxicology, Marine Environment, and Aquatic Ecosystems.



Carlos Évora Rocha

Carlos Évora Rocha holds an MSc in Economic Engineering from the Institute of Food Industry Technology of Odessa. During his career, he was regional delegate and director of the SCAPA (Society for Commercialization of Artisanal Fishery Products), director of the Office of Studies and Planning of the Secretary of State for Fisheries, general-director of fisheries, general-secretary of the Ministry of Tourism, Transport and Sea, president of the management committee of the Cape Verdean National Institute of Fisheries Development and Advisor to the Minister for Environment, Agriculture and Fisheries.

Fátima Fernandes

Maria de Fátima Fernandes Fortes is a cartography engineer with a degree in geography and territory management and a master degree in Geographic Information Systems. She is also a professor at the University Jean Piaget, teaching Photogrammetry/Photointerpretation and Geomatics. She has always worked in cartography and photogrammetric planning and is currently employed by the Cape Verdean National Institute of Land Management as the executive manager in the technical field of cartography, photogrammetry, geodesy, cadastre and GIS.

Fernando Lopes

Fernando Lopes is an economist with experience in policymaking, both as an elected Member of Parliament and Member of the Government of the Azores (Portugal). His current activities include teaching both at an undergraduate and postgraduate level and supervising research in environmental valuation and outdoor recreation economics. Ongoing research is focused on marine ecosystem valuation and social and cultural services assessment. He is particularly interested in the assessment of marine protected areas in areas of national jurisdiction and beyond national jurisdiction and the conflicts between users in multi-use MPAs. His main scientific interests are Environmental Valuation, Outdoor Recreation Economics and Marine Wildlife Tourism.

Françoise Gourmelon

Françoise Gourmelon is director of research at CNRS (France), specialized in geographic information sciences including Geographic Information System (GIS) and Spatial Data Infrastructure (SDI). After studying the interactions between nature and human activities through spatial-temporal dimensions in the coastal zone, her research is currently devoted to the contribution of geographical information to public policies.

Helena Calado

Helena Calado holds a Degree in Geography and Regional Planning from New University of Lisbon in Portugal and a PhD in Land Use Planning and Management from University of the Azores in Portugal. She is currently a researcher at the MARE- Marine and Environmental Sciences Centre and Full Professor at the Biology Department of the University of the Azores where she teaches Geography, Spatial Planning, Legislation and Environmental Management. With over 15 years of experiences in land use planning and environmental impact assessments, she is currently focusing her research on coastal zone management plans, coastal hazards and mitigation measures, climate change impacts and implications, marine protected areas, and maritime spatial planning for small islands, particularly for the Azores.



Iolanda Cruz

Iolanda Cruz is graduated in Social Sciences from the Federal University of Paraná – Curitiba and she holds a Master in Social Sciences from the University of Cape Verde, under the theme of Local Development. Since 2006, she works at the Cape Verdean National Institute of Fisheries Development (INDP). Her main interests are local development dynamics, focusing on fishing communities, participatory approach, conflicts management and interpersonal relationships.

José Guerreiro

José Guerreiro is a Biologist, PhD in Ecology, Professor of the Faculty of Sciences of the University of Lisbon. He teaches and develops research in Environmental and Marine Governance. He also teaches at the Agostinho Neto University of Angola and Eduardo Mondlane University de Mozambique. He participated and coordinated several EU funded Research and Development projects in Mozambique, Tanzania, Kenya and South Africa. He held the following public positions: Secretary of State for the Environment, Director General for Environment, President of the Institute for Environmental Promotion, Dean of the Biologists Bar. He has been a member of the National Council for Environment and Sustainable Development since 2001 and is a member of the Consultative Council of the Institute of Nature Conservation and Forests of Portugal.

Márcia Costa

Márcia Costa is a fishing engineer from the UFRPE (Brazil). She has a master degree in biological oceanography and a PhD in aquaculture, both from the FURG (Brazil). She has worked, in Brazil, in fish farming, in community projects of the Municipality of Caruaru, PE. Since 1993, she has been working at the Cape Verdean National Institute of Fisheries Development (INDP). With more than 15 years of experience in the field of fishing biology, specifically in the reproductive biology of marine animals, she has studied more than five species. She has also supervised monographs on fish parasites and on fish breeding areas in the Cape Verde archipelago. She teaches at the University of Cape Verde since 1989 (former ISECMAR).

Marie Bonnin

Marie Bonnin is the Director of research in the French National Research Institute for sustainable development (IRD) and the principal investigator (PI) of the PADDLE H2020-RISE Project, she works in an interdisciplinary perspective on several problematics linked to oceans protection. She is specialized in environmental law, with a specific focus on the marine environment. She worked since 2009 on the Canaries Current System, studying the elaboration and development of marine environmental law. Since 2014, she has edited the 2 first handbooks on the marine environmental law in West Africa: Mauritania and Senegal and co-edited a book on marine protected areas in West Africa. By using maps as an innovative way of sharing knowledge about legal rules, her work contributes to increasing the readability of law by all stakeholders.

Matthieu Le Tixerant

Matthieu Le Tixerant, Doctor in geography, is the creator and actual director of Terra Maris. Since 2006, Terra Maris is a consulting company providing services in Geomatics applied to Integrated Coastal Zone Management and Marine Spatial Planning. Terra Maris is localised in Brest (France) next to the IUEM (Marine Institute of the University of Brest). More information: www.terramaris.fr.



Osvaldina Silva

Osvaldina Silva is the President of National Institute for Fisheries Research and Development (INDP) in Cape Verde, since April 2015. She graduated in Economics from the Faculty of Science Economics, Federal University of Rio de Janeiro, Brazil, in 1999 and finished her Master in Economics of Marine Resources and the Environment in the faculty of Economics and Marine Sciences, University of Brest in France in 2006. Later in 2013, she obtained a PhD degree in economics from the University of Brest in France. From 2010 to 2014, Osvaldina Silva has been Director of the Department of Studies and Projects of the INDP and has worked on the FAO and GTZ projects in Cape Verde in the Fisheries sector for two years before being a member of the INDP.

Silvana Monteiro

Silvana Monteiro is a biologist, graduated from the São Judas University (São Paulo, Brazil), and an expert in biotechnology from the Federal University of Lavras (Minas Gerais, Brazil). Currently, she is Director of the Natural Park of Monte Verde, São Vicente Island, and of the Reserve of Santa Luzia Island, both in Cape Verde, where she is responsible for implementing spatial and management plans for these protected areas. During 12 years, she has worked in protected areas, she focused her efforts in collecting data on terrestrial and marine biodiversity, endemic plants, spatial planning (ArcGIS software), the design of protected areas and elaboration of spatial and management plans. She has been a consultant in these areas for several institutions, such as WWF, PRCM, among others. She has worked with protected areas in several Cape Verdean Islands, namely in São Nicolau, Fogo, Santo Antão, São Vicente and Maio, and was the founder of the Vitó Project, for the conservation of the marine turtles, currently implemented in Fogo, Brava and Santo Antão Islands.

Will McClintock

Will McClintock received a PhD in Ecology, Evolution and Marine Biology from the University of California Santa Barbara (UCSB). He continues as a researcher at the UCSB Marine Science Institute and Senior Fellow at the National Center for Ecological Analysis and Synthesis. He directs the SeaSketch project (www.seasketch.org) which involved the development and use of web-based tools for stakeholder engagement in marine spatial planning (MSP). Over the last 13 years, Will has been directly involved in MSP initiatives in 13 countries including the US, Canada, New Zealand, Ecuador, Barbuda, Montserrat, Curaçao, and Indonesia. He is also a member of the Marine Protected Areas Federal Advisory Committee to the US federal government.

Workshop results

The Workshop “Local communities and the use of the marine environment” was held at the Cape Verdean National Institute for Fisheries Development.



Figure 1. Workshop opening session.

Targeted workshop audience

Considering that main target audience of the workshop was Cape Verdean stakeholders and technicians, the workshop official language was Portuguese. However, to ensure the maximum participation of other African participants and to enable the participation of non-Portuguese speakers, both as lecturers and as PADDLE team members, a translating service (Portuguese-English and English-Portuguese) was provided during the whole workshop.

A total of 55 participants attended the workshop: 23 PADDLE team members (including workshop organizers and other members in secondment) and 32 external participants. External participants were mainly coming from Cape Verde (Figures 2 and 3), but Mozambique and Angola were also represented with three and two participants respectively.

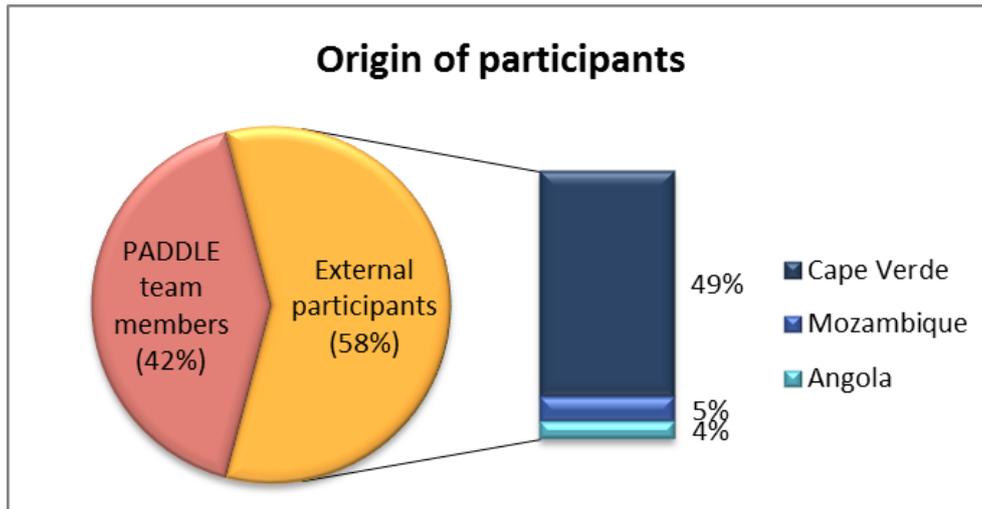


Figure 2. Percentage of the origin of participants and percentage of the country of origin of external participants.



Figure 3. Participants during the workshop.

Oral communications

A total of 13 oral communications, including the presentation of Seasketch, were presented during the workshop (Figure 4). After each panel, a discussion session was foreseen to allow participants to contribute and present questions to speakers (Figure 5). In order to be accessible to those who could not attend the workshop, presentations have been made available at the OceanTeacher Global Academy online platform, a project aiming at building equitable capacity related to ocean research, observations and services in all IOC (Intergovernmental Oceanographic Commission) Member States. In order to ensure data protection, speakers were asked to sign a consent form authorizing the

dissemination of their presentations. One speaker did not allow the dissemination and, thus, 12 presentations might be accessed at <http://classroom.oceanteacher.org/course/view.php?id=322>.



Figure 4. Oral communications.



Figure 5. Discussion panels.



Figure 7. Working groups developing the exercise.

The exercise, developed with Seasketch, was organized in two main working sessions (guided by a beforehand presentation, explaining the contents and giving instructions for the exercise) and a third devoted to the presentation of final results and an open debate, one to be conducted in each day. Considering the limited time available to develop a public participation exercise in a three days’



workshop, this exercise used real base data and local knowledge but was designed to produce fictitious results.

During the first working session, Seasketch was firstly presented to participants, focusing on its usefulness, as a tool for MSP and public participation, its main characteristics and its functioning (Figure 8).



Figure 8. Will McClintock communication introducing the Seasketch.

The first working session aimed at gathering information on maritime uses in the selected case study, the Cape Verdean Windward Islands (Santo Antão, São Vicente and Santa Luzia) (Figure 9). The initial data provided for the exercise included maritime spatial data gathered from Cape Verdean national and international agencies, namely from the Open Access Spatial Data Infrastructure of Cape Verde. The spatial data was uploaded into the Seasketch and was organized in several thematic folders.

The dynamic for this session consisted of questionnaires to be answered by each participant, identifying the location and the characteristics of main maritime activities they usually develop in the case study area, especially diving, fishing and boating (Figure 10A and 10B). All this information was later compiled and processed by the organizers to create heatmaps, which informed participants' decision making during the second working session of the exercise.

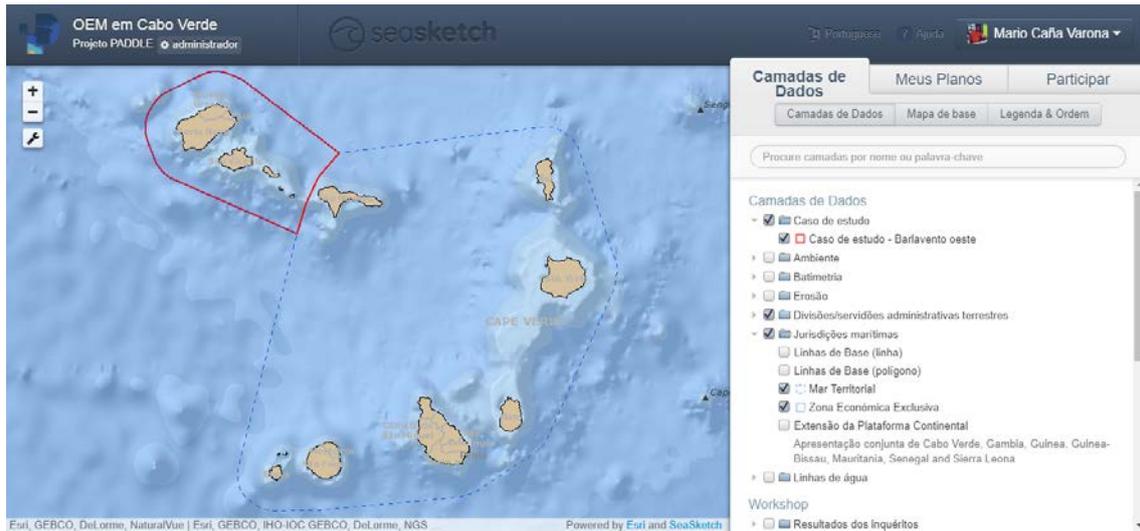


Figure 9. Case study area (red outline) for the practical exercise: Cape Verdean Windward Isles.

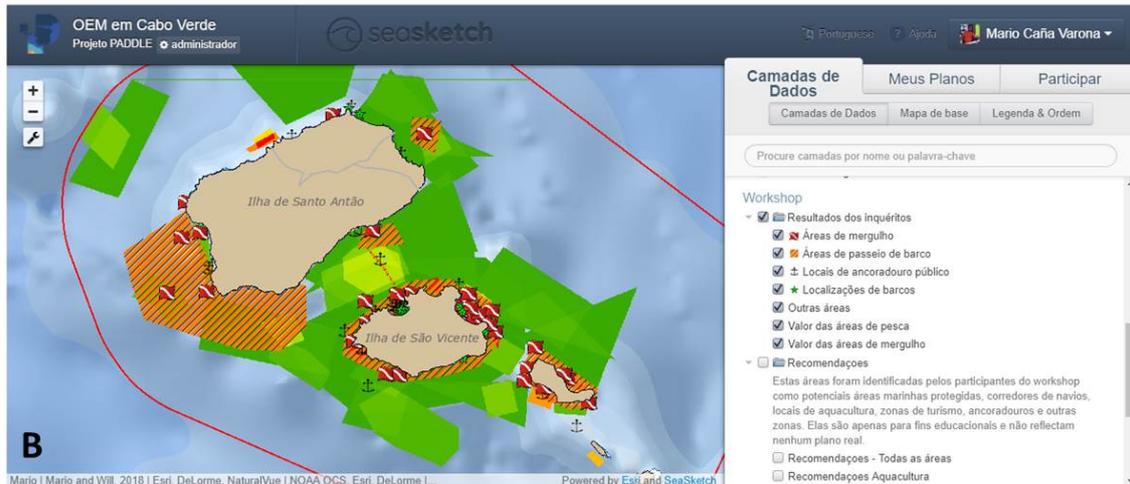
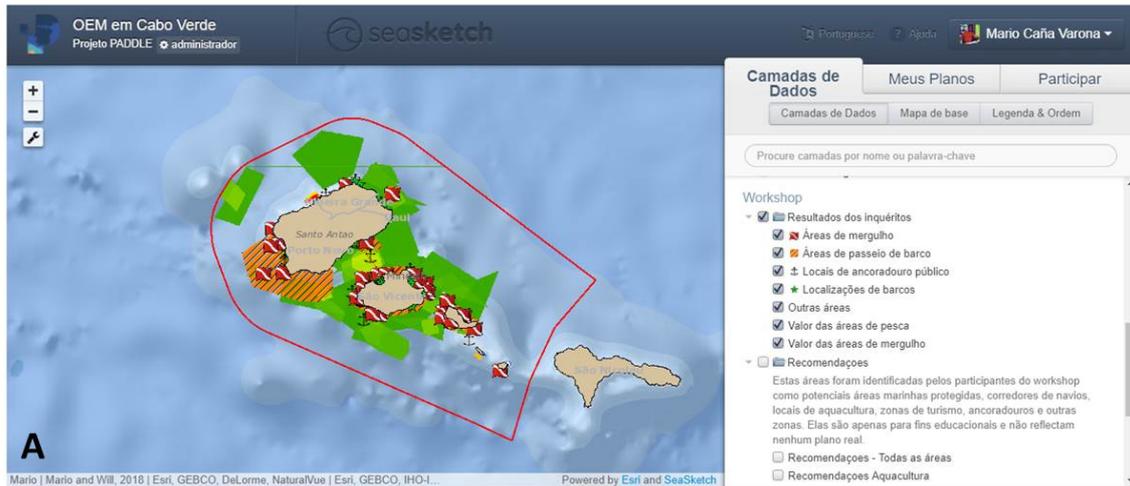


Figure 10. Results of the first working session of the practical exercise: distribution of main maritime activities identified by participants in the case study area. A: general view; B: detailed view (Disclaimer: the results were identified for educational purposes only and do not reflect any real plans).

The second working session started with the presentation of previous results and heatmaps of maritime activities. Based on these and other available data, during the second working session, each group proposed zonings in the case study area accomplishing three objectives: to increase environmental protection, to increase transportation safety and to increase economic opportunity. Groups were also requested to detail their arguments and criteria for designing proposed zonings. During the development of the exercise, the Seasketch Forum was used by groups to share their zoning proposals, to comment other groups' zonings and to exchange feedback. In the end, groups were requested to present one final zoning, together with the criteria supporting the decisions. These final recommendations incorporated, if it was the case, comments and feedback from the other groups. Each group made a brief presentation of results (Table 1), with room for discussion among all participants. This dynamic allowed participants to know the potential of the Seasketch for public participation processes.

Table 1. Main recommendations and arguments of each group, developed during the second working session of the Seasketch exercise (Disclaimer: the results were identified for educational purposes only and do not reflect any real plans).

Group 1	Group 2
<p>To create a Marine Protected Area (MPA), a tourism zone, a shipping route and a cruise terminal;</p> <p>Low conflict zone with fishing areas, diving spots and anchorages; an excellent spot for infrastructures;</p> <p>Lack of data and need to do more surveys.</p>	<p>This proposal answers the government recommendations, because:</p> <p>The areas drawn, although possessing some biodiversity, are not representative lowering the impact of the activities on the ocean ecosystem;</p> <p>Planning maritime traffic will be better organized increasing the transportation safety;</p> <p>The proposal allows increasing business opportunities in Mindelo bay.</p>
Group 3	Group 4
<p>We intend to keep navigation routes between islands of Santo Antão and S. Vicente, to keep socio-economic connection;</p> <p>We intend to develop zones for tourism, namely aquatic sports, keeping local artisanal fishing and developing an area (in a nearby seamount) for industrial fishing;</p> <p>The creation of a coastal MPA will help on biodiversity and landscape conservation;</p> <p>There is a need to improve data on local biodiversity and bathymetry.</p>	<p>There is a need for more protected areas, namely on the islets where endangered species reproduce;</p> <p>Different levels of protection were given according to biological characteristics and risk of human intervention;</p> <p>Need for more supervision to enforce existing regulation;</p> <p>According to the goals of the strategic plan on the maritime economy, there should be an investment in the tourism sector (e.g. diving, windsurf), aquaculture and, in mid-term, the built of a deep-water port, the reason for the proposal of an area of port expansion;</p> <p>The proposal relies on 3 pillars: (a) better knowledge of marine environment; (b) MSP; (c) maritime surveillance.</p>

Table 1 (cont.). Main recommendations and arguments of each group, developed during the second working session of the Seasketch exercise (Disclaimer: the results were identified for educational purposes only and do not reflect any real plans).

Group 5	Group 6
<p>Excellent location for the cruise terminal and for shipping lane;</p> <p>MPA of Santa Luzia with moderated use and full protection zone for the 2 islets, although with a corridor between both islets for boating and recreation (moderating use zone);</p> <p>Lack of information on marine biodiversity.</p>	<p>The area was chosen because it is a nursery area for turtles, involving the beach area;</p> <p>This fact implies that industrial fishing should not be allowed;</p> <p>The national legislation actually prevents industrial fishing up to 3 nautical miles, thus excluding the protection zone;</p> <p>Only artisanal fishing should be kept there, in order to improve local economy; for that reason, local fishing communities of São Pedro should be consulted prior to zone establishment;</p> <p>The new MPA would also help to protect oceanic ecosystems.</p>
Group 7	
<p>Limit the restrictions of the area because it has a potential for several uses;</p> <p>To compensate, a new sanctuary zone could be created (proposed by a different group) with a high level of protection;</p> <p>To increase economic development, a new aquaculture area could be created, because it has a low potential conflict, but an environmental impact assessment and an economic viability study would be needed;</p> <p>To increase transportation safety, a navigation corridor should be considered; although we accept group 1 suggestion, we believe this corridor should be increased in order to ensure connection with the remaining islands of the archipelago;</p> <p>Commercial boats should not be allowed to anchor, except in the Mindelo Port;</p> <p>More information on boats anchoring in the area is needed.</p>	

Zoning proposals of all groups were processed and prepared by the organizers to be presented on the third day of the workshop. Final results, built upon all groups' contributions (Figure 11), included areas for aquaculture, MPAs, shipping lanes, touristic zones, mooring and anchoring zones and other zones. It is worth referring once more that these areas were identified by participants as potential areas and they were identified for educational purposes only and do not reflect any real plans. Finally, a debate was open to exchange opinions and impressions among participants about the practical exercise developed and its results, as well as the suitability of participatory tools in the context of MSP.

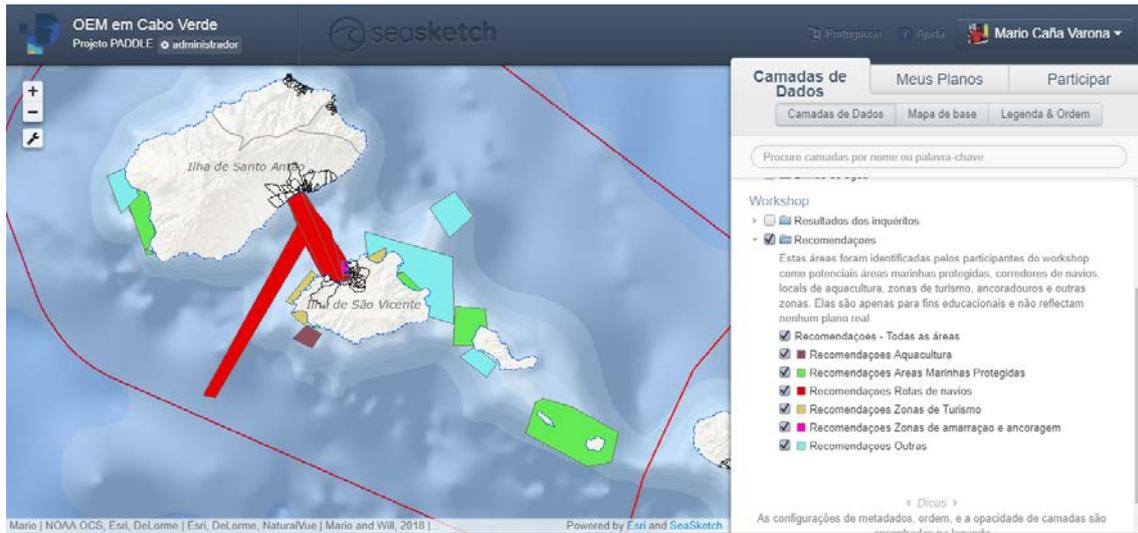


Figure 11. Final recommendations resulting from the second working session of the workshop (Disclaimer: these areas were identified by participants as potential areas, identified for educational purposes only and do not reflect any real plans).

Final considerations

The workshop was developed mainly as predicted, counting on a good number and active participants. The objectives of the workshop were accomplished, as accordingly to an informal survey participants were very satisfied with the workshop and its results. Oral communications contributed share knowledge and build capacities on a variety of topics and issues related to the use of the marine environment and specifically to Maritime Spatial Planning. Panel discussions encouraged the debate about the challenges that tropical countries face in the management and planning of the seas and allowed participants to raise questions and issues and even bring potential solutions for a better management and planning. And the practical exercise allowed participants to be more aware of the importance of public participation as well as the available solutions to better perform MSP processes.

Acknowledgements

The PADDLE team would like to thank all for their participation, contributions and engagement that enriched the workshop. Organizers are deeply grateful to Will McClintock, who developed the Seasketch exercise and allowed a richer ‘hands-on experience’. A thank you, also, to all speakers who contributed with their knowledge and expertise. Organizers of the workshop are also grateful to all INDP collaborators, who supported the organization and assisted all requests before and during the workshop and a special thank you note to Dr Jorge Nascimento.



Figure 12. Photo of the group with participants, speakers and organizers.