



LIFE BaHAR for N2K (LIFE12 NAT/MT/000845)

ACTION E4: Information and knowledge transfer activities for specific stakeholders

Summary of stakeholder participation during the seminars and conference

February 2018



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Il-proġett LIFE BaHAR for N2K (LIFE12 NAT/MT/000845) huwa kofinanzjat (50%) mill-fond LIFE+ tal-Unjoni Ewropea.



Background

LIFE BaHAR for N2K (LIFE12 NAT/MT/000845) aims to extend existing marine Sites of Community Importance (SCIs) and identify new SCIs for inclusion within the Natura 2000 network.

The project will collect existing and new data related to certain marine habitats. Marine based surveys using research vessels equipped with Multibeam Echosounder, Side Scan Sonar and Remotely Operated Vehicles (ROVs) will allow surveying of benthic habitats. The surveys will take place between the Maltese coast and up to the Fisheries Management Zone (FMZ) boundary (25 nautical miles from the coast) reaching depths of 1000 m below sea level. Following the surveys and interpretation of the data collected, sites that are considered a priority will be proposed for designation as marine SCIs to form part of the Natura 2000 network of protected areas.

An important aspect of the project is to achieve active participation by stakeholders by providing a platform for discussion throughout the whole project. This is important for the future management of the designated Natura 2000 sites. Furthermore, the project will also identify conservation objectives for each of the proposed SCIs. These conservation objectives will be developed together with key stakeholders. These objectives are the first concrete steps towards the future management of such protected areas.

The four objectives of the project are listed as follows in the Grant Agreement:

1. Inventory and designation

The project aims to collect existing information on marine benthic habitats in Maltese waters, to carry out scientific surveys in areas where knowledge gaps are identified, and to analyse the data collected during these surveys in order to map the distribution of three habitat types listed in Annex I of the HD: sandbanks, reefs and marine caves. Marine surveys will be carried out using research vessels equipped with a Multibeam Echosounder and/or Side Scan Sonar and Remotely Operated Vehicles (ROVs), as well as by the use of Scuba diving. Benthic habitats will be surveyed from the Maltese coastline to the 25 nautical mile boundary of the Maltese Fisheries Management Zone (FMZ), and down to depths of 1000 m below sea level.

2. Increase participation and coordination of stakeholders

Active participation of all stakeholders throughout the duration of the project will be encouraged, and the project relies on the collaboration work of the project beneficiaries: the Environment & Resources Authority (ERA), the University of Malta's Department of Biology (UoM-DoB), the Department for Fisheries and Aquaculture (MESDC-DFA), and the International Non-Governmental Organisation Fundación Oceana (based in Spain).

3. Conservation objectives for marine Natura 2000 sites

Active stakeholder participation in the LIFE BaHAR for N2K project will be used to support the establishment of conservation objectives for proposed SCIs and the protected habitats therein. The ultimate aim is to provide a platform that will guide the management of Natura 2000 sites following the completion of the project.

4. Increase awareness

Through ongoing outreach and stakeholder involvement activities, the project aims to enhance stakeholder understanding of conservation and management of marine resources, and of the Natura 2000 network in general.

Action E4 - Information and knowledge transfer activities for specific stakeholders

This action specifically targets the achievement of objective 2, namely to **increase participation and coordination of stakeholders**; it deals with information and knowledge exchange between key stakeholders through the organisation of 4 stakeholder seminars and a 4-day conference on Mediterranean Marine Protected Areas (MPAs).

The meetings for stakeholders would be used as a platform to discuss project objectives, and provide a forum for information exchange and consultation.

The 4-day conference would have the aim of sharing experiences between different actors of marine protected areas. During the conference, the project aims, partners and results achieved would be introduced. Foreign speakers would be invited to share their experience about the different stages of designation, management and monitoring of marine protected areas found in the Mediterranean basin.

A comprehensive list of key stakeholders was developed at the start of the project and updated following the first stakeholder seminar in 2014, and again in 2017.

Some of the stakeholders were important in relation to the data collection aspect, while the involvement of others was important in view of potential impacts on the targeted habitats and hence in relation to the eventual management of the designated sites. A number of environmental NGOs, including those involved in the management of Natura 2000 sites, were also included. The list of relevant stakeholders identified through the project is included in Annex 1.

This report provides a summary of stakeholder participation in said seminars and conference.

Stakeholder Seminars

Aim and rationale

The aim of the seminars was for key stakeholders to discuss the project, share experiences, provide input during the data collection stages of the project, and discuss the designation and conservation processes.

The seminars were to be held before strategic actions related to data collection (A1), data analysis (A2), surveys (A3), identification of pSCI (A5) and setting of conservation objectives (A7) are carried out. This would allow active participation of key stakeholders during all project actions.

The exchange of knowledge between different local stakeholders would provide an interdisciplinary edge to the project for wider acceptance of the project's main aim, and to ensure a more effective and efficient implementation of the project itself.

Implementation and Participation

Four stakeholder seminars were held, as per table 1 below.

Seminar	Date & relevant strategic action	Aims/Topics	Participating Stakeholders ¹
1	8 th May 2014 <i>Start of action A1</i>	Introduction of the project aims & actions Collection of existing data	<ul style="list-style-type: none">• Calypso Sub Aqua Club• Friends of the Earth Malta• <i>Koperattiva Nazzjonali tas-Sajd</i>• Malta Tourism Authority• Sharklab-Malta
2	30 th November 2015 <i>Start of 2nd A2 analysis; prior to second set of surveys</i>	Update stakeholders on the marine surveys that were carried out in 2015 Provide an opportunity for stakeholders to provide their views and suggestions for the 2016 surveys.	<ul style="list-style-type: none">• Atlam Diving Club• Birdlife Malta• <i>Federazzjoni Sajjieda Dilettanti Malta</i>• Professional Diving Schools Association• Transport Malta (Ports and Yachting Directorate)• Department of Geography, University of Malta
3	4 th July 2017 <i>Start of action A5</i>	Inform stakeholders on the outcomes of the project surveys (completed in 2016) Provide information on how these results will be used in the identification of new potential Sites of Community Importance	<ul style="list-style-type: none">• BirdLife Malta• Civil Protection Department• Federation of Underwater Activities Malta (FUAM)• <i>Federazzjoni Sajjieda Dilettanti Malta</i>• GAIA Foundation• Nature Trust• Sharklab-Malta• Transport Malta (Ports and Yachting Directorate)
4	21 st November 2017 <i>Start of action A7</i>	Inform stakeholders on project outcomes after the final data analysis and the next steps	<ul style="list-style-type: none">• BirdLife Malta• Civil Protection Department• <i>Federazzjoni Sajjieda Dilettanti Malta</i>• Fishing Trawlers Owners Association

¹ Excluding project partners

		Open discussion on potential future conservation measures	<ul style="list-style-type: none"> • <i>Għaqda Koperattiva tas-Sajd</i> • Marsaxlokk Artisanal Fishers • Nature Trust Foundation For Environmental Education Malta • Police Department • Sharklab-Malta • Transport Malta (Ports and Yachting Directorate) • Wild Birds Regulation Unit
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Table 1 – Summary of stakeholder seminars held

A summary of stakeholder participation/contributions during seminars is provided below.

First Seminar

During the seminar, stakeholders were asked to provide MSDEC-DFA with any relevant data for implementation of action A1 (Desktop data collection) as well as to indicate any other stakeholders which might be interested in the project. The participants provided a number of suggestions, which led to the inclusion of a number of additional stakeholders, namely the *Federazzjoni Sajjieda Dilettanti Malta*, experts from the University of Malta's Department of Classics and Archaeology and Department of Physics, Faculty of Science. The UoM experts were highlighted as potential sources of data on the marine environment. A number of suggestions for data collection by divers were also made.

Second Seminar

During the seminar, views were shared on potential areas of interest for the 2016 surveys. Stakeholders asked various questions about the survey results and potential observations on the presence of seabirds, fish, and impacts from certain sectors. The stakeholders also provided feedback on potential sources/cause of the anthropogenic impacts observed and possible mitigation measures. In particular impacts from diving (in caves) and from discarded fishing gear (benthic habitats) were discussed.



Third Seminar

Several questions were posed by the different stakeholders present, including on potential extrapolation of offshore caves data, conservation of artificial reefs vs natural reefs, observations of fish during the survey, and more detail on marine litter observed especially discarded/lost fishing gear. Regarding the next steps, questions were asked on the timelines for development of any management measures required, and enforcement in the present MPAs.

Fourth Seminar

During the open discussion on future conservation measures, a number of concerns were raised by the different stakeholders, many concerning recreational fishing activities that were seen as unfair competition or potentially illegal, and contributing to non-sustainable fisheries. These included scheduled charters that allow spearfishing by divers and collection by divers of sea urchins for the restaurant sector. Additionally it was claimed that new vessel owners who are amateur recreational fishers with the latest technology and fishing gear but no knowledge, are having an environmental impact and sell their catches illegally. These all constitute competition for professional fishermen but are not subject to the same regulatory controls. Issues with enforcement of these activities were also highlighted.



A number of activities were also mentioned, that are of concern from an ecological point of view, such as spear fishing with SCUBA tanks at night, conflicts in caves that are important for birds breeding, ghost fishing, increased trawling activities and the repercussions on fish stocks and artisanal fishing. Potential causes/sources of some impacts, and potential mitigation measures for various impacts, were discussed; constraints and limitations in implementing certain measures were also discussed, as well as the need for a cooperative approach among the various users and regulators of the marine environment.

Conference

Aim and rationale

The aim of the conference was to enable the sharing of experiences between different actors of marine protected areas. The conference would introduce the project aims, partners and results achieved. It was foreseen that 10 foreign speakers would be invited to share their experience about the different stages of designation, management and monitoring of marine protected areas found in the Mediterranean basin.

The conference would increase the project's visibility, raise awareness about Malta's conservation efforts among key participants in marine conservation issues, specifically relevant Mediterranean countries, who would in turn share their experiences with Malta. Such experience sharing is the basis for effective and efficient conservation of the Mediterranean Sea as a whole.



Implementation and Participation

The conference – Marine Protected Areas in the Mediterranean – Sharing Expertise for Effective Conservation - was held between the 11 - 14th of September 2017.

The 3-day conference was attended by 95 participants, while the guided boat trip on the fourth day was attended by 45 persons. A summary of participation is given in the below table.

Date	Theme	Participating Stakeholders
11 th September	Science as a basis for designation - Introduction to Natura 2000, LIFE BaHAR for N2K Project and Results	<i>Project Partners</i> <ul style="list-style-type: none">• ERA (Biodiversity & Water, National Affairs, International Affairs, Information Resources, Environmental Permitting, Compliance)• Fundación Oceana• MESDC (LIFE Unit, Policy Development and Programme Implementation Directorate)• MESDC-DFA• UoM (Department of Biology) <i>Key Stakeholders</i> <ul style="list-style-type: none">• Birdlife Malta• Civil Protection Department• Continental Shelf Department• <i>Federazzjoni Sajjeda Dilettanti Malta</i>
12 th September	Marine Protected Areas in the Mediterranean – What are the issues and how to manage?	
13 th September	Monitoring Marine Protected Areas Breakout sessions on management and monitoring	

		<ul style="list-style-type: none"> • Federation of Underwater Activities Malta (FUAM) • Nature Trust • Physical Oceanography Research Group, University of Malta • Professional Diving Schools Association • Sharklab-Malta • Transport Malta (Ports and Yachting Directorate) • Department of Geosciences, University of Malta • Wild Birds Regulation Unit <p><i>Other Attendees</i></p> <p>Various members of the general public attended the conference including divers, students from the University of Malta, environmental consultants, teachers and a freelance journalist. Persons from various ministries/entities (Education, Environmental Health, Aquaculture) with an interest (divers, spearfishing, ramblers etc.) also attended, although not as official representatives of these entities.</p> <p>The National Audit Office attended in its official capacity.</p>
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Presentations on the project were given by project team members from UoM-DoB, Oceana, ERA and DFA. Presentations on Natura 2000 in Malta, ongoing work on management and monitoring, and synergies were given by ERA speakers and BirdLife Malta; while presentations on MPA policy, management and habitats monitoring given by ten foreign speakers from six Mediterranean countries, and the European Commission's DG Environment (Nature Protection Unit). Throughout the conference, either after the presentations or during the breaks, participants were given the opportunity to ask questions, exchange views and discuss the topics presented.

The first day focused on Marine Protected Areas in general with an introduction to the Natura 2000 network in Malta, an overview of the LIFE BaHAR for N2K project, and work done through the project, in particular the project surveys and results.

Furthermore, three international experts presented an insight in the designation and management of Natura 2000 sites, related and relevant projects for the Mediterranean region, and the status and need for reference conditions of important habitats.



Stakeholders present were interested in what legal protection some of the marine species have; how old the deep-water lithistid reef found might be, and what threats deep-water reefs in Malta are facing. In consideration of the data collected and observations made, UoM clarified that the age

remains to be determined based on the samples collected and the deep escarpments appear somewhat safe from trawling as no evidence of trawling damage was found, which was understandable considering that trawling on vertical escarpments would lead to gear damage and/or loss. A discussion also arose among the participants on the comparison between the Natura 2000 scheme and the RAC/SPA approach for Specially Protected Areas of Mediterranean Importance.

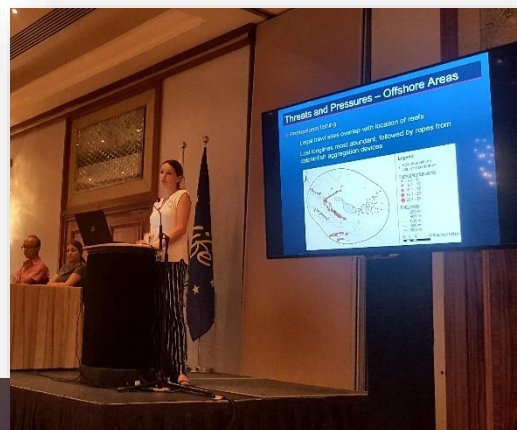


It was concluded that whilst there has been a lot of effort to designate MPAs in the

Mediterranean, sustainable financing mechanisms are required to enforce management measures and to monitor the status of marine habitats, and thus to achieve proper management of Mediterranean MPAs. Nevertheless, where public money is invested, it is important to utilise it in a responsible and accountable manner and provide good results without too much complication - which sounds easier than it is. However, most Mediterranean countries are changing their legal framework in order to be in line with all the regional and international commitments and be up-to-date with all new concepts and ideas that give more flexibility for the governance of MPAs.

The second day presented different aspects of management from a local to a regional scale, evaluating management measures, issues within MPAs, as well as synergies between the applicable policies. Case studies on applied management measures in the Northern Mediterranean and from the Southern region were presented, and similarities and differences in management approaches discussed.

Stakeholders fully engaged in discussions on threats and pressures observed within Maltese waters and asked questions on how management will address these. ERA explained the ongoing process for the management of existing MPAs, and how this will be linked with future management approaches.



Some measures, including no-anchoring zones or ecological moorings, and fishing-restricted zones, were proposed by stakeholders who felt the need to stress that timely action is required. ERA took note of this

and assured that these concerns and proposals will be taken into consideration.



It was highlighted by the experts to the stakeholders that although some actions might seem easy to be implemented and fairly obvious, effective conservation needs to take a holistic approach and therefore is more complicated than what is assumed.

On the third day of the conference, the focus was on monitoring – with presentations on the national marine monitoring plan to be implemented in Maltese waters, development and monitoring of conservation objectives, and expert advice on appropriate monitoring techniques for different habitats. The afternoon session was dedicated to breakout sessions, focusing on both management and monitoring.

On the monitoring aspects, stakeholders showed great interest in approaches presented from different countries and asked the project team how monitoring will be implemented after the end of the project.

A lively discussion between experts, the local authorities, project partners and stakeholders present ensued, focused on the common cooperation and approaches that might be useful and effective for the Maltese Islands. It was clarified that monitoring is an essential aspect of MPA management since it provides the scientific information necessary to design appropriate management measures, and to subsequently monitor the effectiveness of such measures.



Breakout sessions

For the breakout sessions, participants were divided into six groups of 8-12 people to discuss different aspects; the groups were selected based on their preferred topic (management/monitoring) and to ensure a good mix of foreign experts, local stakeholders, project team representatives, and general public members in each.



Each group was given focus topics and questions to discuss:

- On Management: lessons learnt from each of the two case studies presented on day two of the conference and discussions vis-a-vis the local context; stakeholder roles/responsibilities, and the benefits of MPAs and the use of different communication tools to inform the general public on management measures and such benefits;
- On Monitoring: One group on reefs and caves, another on *Posidonia oceanica*, and another on monitoring of pressures and threats.

Conclusions from the six groups were then presented and synthesised in a plenary session.

The focus for each discussion was based on information presented in the conference presentations and general aspects of the topic. The participants engaged in 1.5 hours of intensive discussions on the respective topics. A summary of the conclusions from the breakout sessions is provided below.



Management of Marine Protected Areas - Italy case study

A number of points from the Portofino case study were mentioned and discussed. These included which entities compose the managing body of the SPAMI (part of which is a Natura 2000 site) and how management measures are being enforced (by the Coastguard). Additionally, the implementation of certain measures such as ecological moorings (including their management, maintenance and use of funds collected by users of said moorings); a zoning plan for fisheries (professional and recreational fisheries; no spearfishing allowed within the MPA), and a small no-take zone, were discussed.

The below points were concluded from the ensuing discussions as relevant for MPAs in general and for Malta:

Any Management Plan should consider the biodiversity target for protection and set conservation objectives, which should be measurable. The management measures are there to implement conservation objectives, and it is important that stakeholders have a direction of where management measures would lead in order to identify any changes that may affect them.

Malta will be adopting a bottom-up approach during the drawing up of the management plans for MPAs.

Younger generation fishermen seem to be more open to collaborating, but older might have more experience particularly with past practices and state of the area.

Conflicting regulations/uses within MPAs require positions to be compromised and publicized, and present regulations should be made clearer. It is important to visualise the underwater state (e.g. through video) to create awareness among the public.

Enforcement is a key issue and should be given priority for management of MPAs; 24/7 enforcement using closed circuit television (CCTV) and ongoing patrols are essential. Park rangers can act as enforcers of MPAs, while licensing an activity can act as a control in itself. Swimming zones seem to be working and serving their function. Some form of similar practice may be adopted for zoning of activities including the placement of buoys. The placing of markers should facilitate to abide by zoning.

Preferably, a special enforcement body should be designated for the management of MPAs. Inter departmental cooperation is essential, and improvement needs to occur in this regard. When establishing new law, this should also identify the authority that will be competent and responsible to enforce the particular measure/task.

In relation to possible funding for MPA management, a number of suggestions were made:

- Visitor boat trips should be charged e.g. bird/turtle boat trips and pleasure cruises;
- Pay-per-use ecological moorings should be set up in different places around Malta to avoid pleasure craft anchoring within MPAs;
- Funds from eco-taxes charged to tourists should be used for Natura 2000 site management;
- Nature permits for activities within MPAs should be charged;
- Special licensing of hunting at sea in MPAs should be additionally charged.

Management of Marine Protected Areas – Lebanon case study

A number of aspects that are important for effective management were discussed, with the Tyre Coast Nature Reserve case study as a starting point/example and generalised for MPAs:

- Learning from others;
- Integrating stakeholders in the management process;

- Networking;
- Recognising the benefit of co-management, and benefitting the community;
- The need for a legal framework which should be in place at an early stage;
- Collective learning – task oriented opportunities – involving the stakeholders in the monitoring process;
- Involvement of fishermen.

In the case study, a platform with all stakeholders was created, and the different roles of the participants on the platform was assessed by an external consultant. In this regard it may be worth thinking outside the box regarding which stakeholders to involve, and how, as well as making it fruitful for them to be involved. Particularly, stakeholders need to understand that management outcomes will affect them, and also see visible results from their participation, preferably in the short term. All the entities that have a regulatory role should be involved, and nominate someone with a certain level of authority to take decisions to ensure that decisions could be taken by this platform. People were empowered through the platform to take decisions, which encouraged their participation.

Communication among the entities and stakeholders is essential, even if at first this can be confrontational. In the local context (of a small community), one to one meetings could work better in some cases since people can talk more freely. However, communication among all stakeholders is needed to discuss measures and their implementation and to solve problems that arise. This is particularly important in view of shared/overlapping regulatory responsibilities and potential legislative loopholes or conflicts. Stakeholders may also be unaware of the more general context within which management measures are being implemented, and how they can play their part.

Having effective management requires community based endorsement. People will be more accepting if the benefits (including monetary) can be shown and if local knowledge is given due consideration. In this regard, it was important to bring the discussion to the stakeholders and involve them in the solution; showing them why they should care and how it will benefit them (including how income may be generated in MPAs where economic interests and livelihoods are being impacted). Science also needs to be backed up by local knowledge and vice versa, hence the importance of involving the local community and users, particularly fishermen who have knowledge of local currents, fauna, etc.

When considering the management of MPAs, it was agreed that it was important to look at the big picture and all the ramifications, not to 'fixate' on a specific aspect of the MPA, but to take a holistic approach. This also applied when controlling and stopping an activity - one needs to understand the full picture. It is important to make all the stakeholders understand what the issues are and how it affects their interests.

Management is an iterative process, including monitoring of the outcome and evaluating what went wrong and why, and how this can be addressed.

Sustainable funding is important – bringing the private sector on board as a partnership could be an option. An example from Jordan was given in which the hospitality sector was brought on board to protect the reefs in the adjacent MPAs – by helping to fund their protection rather than relying only on funds generated through visitors. This can work from a Corporate Social Responsibility point of view, as well as marketing (added draw for visitors and tourists). Verified conservation areas² were also mentioned as a possible way to manage areas that are not official MPAs; however, one must be sure that such initiatives are real and not 'greenwashing'.

² The VCA approach focuses on conserving the areas where we live and work, i.e. areas owned and managed outside of legally protected areas

As an overall conclusion, the importance of a participatory approach and involving stakeholders can be considered a key element for successful management of an MPA.

Stakeholder roles & responsibilities, Benefits of MPAs and communication

The discussion was structured around three main items: the long and short term benefits of MPAs, the potential role of stakeholders in terms of MPA management, and what are important aspects in communication in regard to MPA management.

Long and short term benefits of MPAs

The long and short-term benefits of an MPA can be divided into three aspects: maintaining ecosystem services of the area, gaining economic benefits from activities with the area and, protecting biodiversity with the area. In terms of management of a site, managers need to harness adaptive management and utilise the information gathered to address knowledge gaps. Apart from protecting biodiversity, MPAs can be utilised to promote sustainable practices.

Conclusions on the benefits included:

- Short term economic benefits require good management to guarantee long term benefits;
- Both economic and environmental benefits have to be promoted;
- MPAs can promote sustainable practices;
- Adopt an incentive-based system to promote and maintain MPA benefits;
- Implement education programs for younger generations on the benefits of MPAs;
- For compliance purpose, involve stakeholders throughout the management process and keep them informed.

Potential role of stakeholders in terms of MPA management

To listen to and involve all stakeholders, including tourists, can be a challenging task for management. Nevertheless, it is an essential one, and stakeholders should be involved in the management of an MPA from Day One, and continuously throughout. The involvement of the fishing sector was brought up as an example. Fishermen need to be included in the initial phases of the management, otherwise certain enforcement aspects will not function. Including fishers in the management of an MPA may give them a sense of obligation to report data. However, this is easier said than done, and the fishermen's trust has to be gained and they need to be educated on the benefits that they will reap through data collection. Assessing fish stocks using data collected by fishers will ultimately aid them to fish sustainably without jeopardising their future catches.

Roles of stakeholders can change or be adapted. The example of Madeira was cited, where former whalers are no longer hunting whales, but are protecting them instead and work as whale watching guides. Thus, they can be viewed as "protectors of the sea".

Short term needs have to be taken into consideration. Showing interest and consideration of the stakeholders' financial needs will assist in the process of gaining their trust and ensure their support in future management. The potential regulation of an MPA by a private company was considered and discussed. It was concluded that success depends on the nature/motives of the company and requires a robust agreement. Furthermore, such an approach would face several challenges, including the required work force for enforcement and finding a balance between user activities, economic interests, and environmental protection.

Communication measures for MPA management

Several measures for communication were discussed, all of which came to one conclusion – communication in regard to education and awareness raising are essential for the successful management of an MPA, as they build the bridge between the management, stakeholders and compliance across everyone involved - older and future generations included. An important aspect in the communication with stakeholders and the general public is the language, which should be simplified in view of technical terms. A code-of-conduct approach for certain activities or within the MPA can be beneficial if communicated well. All information, rules and regulations must be easily accessible to all users; this might be achieved using information boards (using sketches/comics rather than text), mobile apps, websites or leaflets.

In conclusion, the following main points were presented in relation to Communication and Management:

- All users need to be aware of what is allowed and prohibited in MPAs. The public needs to be educated why there are restrictions - the public needs to be aware of the consequences and how this affects them directly.
- Through awareness raising, one needs to highlight the important features of protecting MPAs, such as the ecosystem services they provide, cultural uses, etc. However, given that all those aspects are long term, short term measures could focus on enforcement.
- When creating a management plan, stakeholders need to be included from the very start so they feel their input is being incorporated; there should also be consideration of the financial needs through devising financial incentives as necessary.
- In order to keep the public engaged, all data needs to be organised, stored, distributed and accessible. Also, in order to gain trust, the public needs to see increased political effort and commitment on MPAs.
- Plans need to be adaptive, in order to be flexible in terms of new changes. This is a learning process, trial and error. Ultimately one needs to continue focusing on educating and exposing all age groups from children to elderly, especially noting that children can influence the parents.

Monitoring of inshore reefs and caves

The problems for the local context were highlighted, primarily the lack of historical data to serve as baseline data, and the policy requirements for determining environmental status (Good/bad); the range, structure, and functions, and reference sites.

The use of EBQI (Ecosystem based quality index), which index was applied in the North-Western Mediterranean (Spain and France), was then discussed. The index is based on the ecosystem approach, and to apply it one has to know the area, pressures and which organisms are impacted. The same methodology could be applied for global and local changes, and reefs in Maltese MPAs can be compared with other reefs. For use in the local context, the following points were made:

- Adapting to the appropriate environment (e.g. adapt index to oligotrophic waters in MT);
- You would have confidence data on every index e.g. can have a high status with a low confidence index and vice versa;
- Based on biological data and physico-chemical parameters;
- The areas that are chosen need to include a representative of all MPAs and take into consideration the communities present;
- Sampling – can use permanent quadrats or random quadrats;
- Need to also adapt to changes e.g. investigative monitoring;

- Need to determine the monitoring frequency – have to include periodic sampling but also need to adapt depending on the pressures;
- It was suggested that correct timeframes should be chosen for monitoring specific habitats e.g. April-June for inshore rocky reefs.

The same index could be applied for cave monitoring, taking into consideration topographic data such as morphology and also information from scientific literature. During the discussion, it was indicated that the ceiling and seabed can be different, depending on the cave. Other methods were discussed, including the photography method (which however has high costs and involves many dives), the use of citizen science, and monitoring specific points of caves by permanent quadrats.

Monitoring of *Posidonia* beds

The presentation was started with a series of questions related to monitoring of *Posidonia oceanica*, such as the experience with monitoring of Posidonia beds, whether one method was found to work better than another, and the use of models. It was noted that Malta has a problem with historical data as well as reference sites, since Malta is very developed. Deficiencies of the 2000 survey on *P. oceanica* around the Maltese islands were also mentioned, particularly that the side scan sonar did not detect bedrock with this species as *P. oceanica*. The next steps could include the use of drones, chlorophyll, Copernicus data etc.

The importance of citizen science was discussed in detail, including a suggestion for an awareness and science week or day held by ERA in collaboration with e.g. UoM, Esplora, and the National Aquarium etc. It was suggested that divers should contribute too, for example by including an environmental part in standard diving courses.

Another point that was raised is the lack of sufficient enforcement, wardens etc., although it was acknowledged that some progress has been made, such as treatment of wastewater prior to discharge to sea. It was also acknowledged that the locals tend to expect everything from the Authorities, when in reality they could also do their part if they are empowered. This could entail for example, empowering NGOs and giving them scientific responsibility and empowering “green wardens” to give fines. Anchoring was highlighted as an important pressure that could negatively affect the roles of Posidonia beds as both a nursery and a carbon sink. Impacts from aquaculture were also mentioned. Desalination was mentioned as having a localised impact on Posidonia beds.

Suggestions and examples mentioned for tackling pressures on Posidonia beds included the DONIA App which shows where you are allowed to anchor and no anchoring zones on a map with GPS, and joint initiatives with the Federation of Underwater Activities (FUAM) in Malta e.g. to remove *Caulerpa* sp. from Posidonia beds (which has started to be done abroad, and is now being extended to other species).

It was concluded that:

- Malta already has data on *P. oceanica* and the next steps are just a question of refining the information and updating it to reflect the current situation. UoM also mentioned that should ERA have the aerial photos such as the 1967 or later photos, and that their students may be able to map the extent of Posidonia beds for ERA.
- The main pressures identified were desalination effluents, urban development, and anchoring. For anchoring, use of the DONIA app was suggested whereby you have no anchoring zones and a map with GPS that allows you to find a place to anchor. Another example from Bordeaux is that a certificate can be issued where you pay an eco-tax to anchor. Moreover, other ideas included increasing the PADI diving courses and boating licenses requirements to have an environmental module which briefly raises awareness.

- The need for more awareness was also highlighted; more educational/awareness campaigns were indicated as necessary, targeting children/young people e.g. a week of activities in collaboration with UoM, Esplora, and Aquarium etc. UoM indicated that they would be interested in helping out in such a campaign. It was suggested that for adults however, awareness raising was not sufficient and enforcement measures were required.

Monitoring of Pressures and Threats

Discussion focused on a strategic approach towards monitoring of pressures within MPAs rather than in relation to specific habitats, with a view to avoid overlaps with discussion in other groups.

Regarding the general requirements to establish monitoring regimes within MPAs it was agreed that:

- The objectives of MPAs need to be clear so that monitoring processes target achievement of such objectives;
- There is the need to look at an MPA as a whole, and not just habitats listed in the Habitats Directive;
- Spatial reference points/areas need to be established on the basis of the targets to be achieved (e.g. area where activity is restricted);
- Such areas are to be coupled with baseline information which would be used for comparison purposes to assess progress toward achievement of objectives;
- An inventory of the available data is required.

Key aspects of the management process are regular monitoring, education and public awareness, and enforcement (since monitoring without enforcement is futile). It was stressed that monitoring and management processes need to go hand in hand. Management processes need to involve scientists for interpretation of monitoring data, while stakeholders/society in general should be involved in monitoring activities as much as possible (for example through citizen science). In the case of stakeholders, there is the need to:

- Provide incentives for stakeholders to be involved;
- Explain the need for monitoring;
- Ensure results are presented.

Specific pressures were then discussed, including the data required for monitoring of said pressures and potential sources/data collection.

Anchoring – with a focus on recreational boating (currently not captured by official data collection)

Data required is the number and size of boats, and their location. The end result would be to map the locations subject to anchoring. Boat owners can be important source of information, and aerial photography and citizen science could also be used.

Diving

Divers can be easily approached, also to be involved in data collection process. The data to be collected would be the number of divers and certification and the dive sites; dive schools would need to be approached.

Fisheries – with a focus on small-scale fisheries and recreational fishermen (the latter currently not subject to official data collection process)

For registered fishermen, the data on catches is available from the fish market. However, a number of fishermen are not subject to official data collection processes; it was suggested to approach the

association of recreational fishers in order to get them on board and encourage them to volunteer the information. Regular photos by drones could also be a source of information on how many boats and what type of boats are present, regardless of registration. With respect to lost fishing gear, divers could help to collect information.



Annex 1 - Stakeholder List

Stakeholder ³	Relevance to the project / potential impacts on targeted habitats
Malta Tourism Authority	<p>Regulator of the tourism industry, with various roles including promotion of the sector, licensing, and advice to Government the planning and development of the tourism industry as well as on the infrastructure supporting the industry.</p> <p>Potential future role in management and awareness raising of marine protected areas, in view of impacts from tourism related activities.</p>
Transport Malta	<p>Regulator of merchant shipping, ports & yachting, marine transport and recreational boating (including issuing of Notice to Mariners).</p> <p>Potential impacts from vessel anchorage, litter and discharges.</p> <p>Potential future role in management of marine protected areas vis-à-vis measures on regulated sectors and related enforcement.</p>
Continental Shelf Department (Ministry for Transport and Infrastructure)	<p>Regulator of oil exploration and marine surveys.</p> <p>Potential impacts from the oil exploration sector.</p>
Ministry of Gozo	<p>Responsible for the Gozo Affairs portfolio. Potential impacts from tourism sector and marine-related activities taking place in Gozo and Comino (diving, anchoring, etc.).</p>
Armed Forces Malta	<p>Responsible for enforcement at sea.</p> <p>Input for eventual management since certain areas at sea may be reserved for military operations or are designated for other use by AFM.</p>
Civil Protection Department	<p>Role in pollution contingency response and safety (salvage operations).</p> <p>Potential future role in management of marine protected areas.</p>
Malta Police Force - Administrative Law Enforcement Section	<p>Supports the operations of district police officers in their fight against environmental crime. Responsibilities also include the enforcement of maritime regulations in the inner coastal areas.</p> <p>Potential future role in management of marine protected areas.</p>
Superintendence for Cultural Heritage	<p>Responsible for ensuring the protection and accessibility of Malta's cultural heritage, both terrestrial and underwater.</p> <p>Regulatory role for marine scientific survey. Potential future role in management of marine protected areas, e.g. vis-à-vis historical wrecks (as applicable).</p>

³ Excluding project partners

Planning Authority	<p>Responsible for development planning regulation and policy, including at sea – the Authority is responsible for Marine Spatial Planning in Maltese waters.</p> <p>Potential future role in management of marine protected areas in relation to marine spatial planning measures.</p>
Wild Birds Regulation Unit	<p>Responsible for overseeing and driving the implementation of Government policy in relation to sustainable hunting governance and wild bird conservation.</p> <p>Potential future role in management of marine protected areas in relation to regulatory measures for seabird conservation.</p>
<p>University of Malta</p> <ul style="list-style-type: none"> • Department of Classics and Archaeology, Faculty of Arts (Dr Timmy Gambin) • Department of Geosciences, Faculty of Science (Prof. Aaron Micallef) • Department of Geography, Faculty of Arts (Mr Avertano Role) • Institute of Sustainable Development and Climate Change (Dr Maria Attard) 	<p>Departments whose research was relevant to the project, in particular data collection. The research areas of these departments include maritime archaeology, operational oceanography, marine geology, coastal geomorphology, coastal management, climate change adaptation and mitigation.</p> <p>Consulted in view of data collection and contribution to research.</p>
<i>Għaqda Koperattiva tas-Sajd Ltd</i>	<p>Co-operative representing various commercial fishers.</p> <p>Potential impacts from discarded fishing gear, fishing methods that impact benthic habitats.</p> <p>Potential involvement in the management of marine protected areas through changes to their activities.</p>
<i>Koperattiva Nazzjonali tas-Sajd</i>	<p>Co-operative representing various commercial fishers.</p> <p>Potential impacts from discarded fishing gear, fishing methods that impact benthic habitats.</p> <p>Potential involvement in the management of marine protected areas through changes to their activities.</p>
<i>Federazzjoni ta l-Għaqdiet tas-Sajjeda Dilettanti Malta</i>	<p>The Federation, representing amateur fishermen, has various objectives including that every member association should protect the environment where its members carries out fishing practices.</p> <p>Potential impacts from discarded fishing gear, fishing methods that impact benthic habitats.</p> <p>Potential involvement in the management of protected areas through changes to their activities.</p>
Fish Trawlers Owners Association	<p>Potential impacts in benthic habitats from trawling.</p>

	Potential involvement in the management of protected areas through changes to their activities.
Marsaxlokk Artisanal Fishers	<p>NGO representing the artisanal fishing community of the fishing village of Marsaxlokk.</p> <p>Potential impacts from discarded fishing gear, fishing methods that impact benthic habitats.</p> <p>Potential involvement in the management of protected areas through changes to their activities.</p>
Professional Diving Schools Association (PDSA)	<p>Represent the interests of the diving community in Malta; includes approx. 35 member dive centres.</p> <p>Potential impacts on targeted habitats (physical damage) by divers and vessel anchoring.</p> <p>Data collection and potential involvement in future monitoring.</p>
Atlantia Subaqua Club	<p>Major diving club, with over 100 members.</p> <p>Potential impacts on targeted habitats (physical damage) by divers and vessel anchoring.</p> <p>Data collection and potential involvement in monitoring.</p>
Calypso Sub Aqua	<p>Major diving club.</p> <p>Potential impacts on targeted habitats (physical damage) by divers and vessel anchoring.</p> <p>Data collection and potential involvement in monitoring.</p>
Malta Hotels and Restaurant Association (MHRA)	<p>Major association in the tourism sector; represents the interests of its members on several national policy making bodies, including the board of the Malta Tourism Authority and the Malta Council for Economic and Social Development.</p> <p>Various hotels and restaurants are located on the coast, bordering MPAs, and can have an impact in view of noise, light, discharges and litter; furthermore, various hotels include water sports centres and scuba diving schools, which activities can have an impact on target habitats.</p> <p>Potential future role of specific members/the Association in relation to sustainable tourism management measures, awareness raising, and private sector involvement in the management of MPAs.</p>
Federation of Underwater Activities Malta (FUAM)	<p>Association whose charter is to encourage, promote and facilitate the national development of sporting, intellectual, educational and conservative aspects related to the underwater environment. Also organizes international underwater photographic competitions, specialized courses and scientific research.</p> <p>Data collection and potential involvement in monitoring/awareness-raising.</p>

International Ocean Institute	<p>Non-profit organization devoted to the sustainable development as well as the management and conservation of the world's oceans.</p> <p>Can contribute through data collection and research. Potential involvement in awareness-raising</p>
Biological Conservation Research Foundation (BICREF)	<p>NGO with interest in the marine environment - assists in various long-term projects which include the cetacean (dolphin and whale) and turtle field research, coastal marine and terrestrial biodiversity research.</p> <p>Can contribute through awareness raising, data collection and research.</p>
Sharklab-Malta	<p>NGO with interest in the marine environment - dedicated to research, education and raising greater awareness about all elasmobranchs (sharks, rays, skates and chimaera) around Malta and within the Mediterranean Sea.</p> <p>Can contribute through awareness raising, data collection and research.</p>
Gaia foundation	<p>NGO managing various coastal SACs</p> <p>Can contribute through awareness raising, data collection and research.</p>
Nature Trust Malta	<p>NGO committed to the conservation of Maltese nature by promoting environmental awareness, managing areas of natural and scientific interest, and lobbying for effective environmental legislation. Nature Trust manages various coastal SACs. NTM's Wildlife Rescue Team is dedicated to the rescue and rehabilitation of protected wildlife.</p> <p>Can contribute through awareness raising, data collection and research.</p>
Birdlife Malta	<p>Coordinating Beneficiary of LIFE+ Malta Seabird project; NGO managing various SPAs.</p> <p>Can contribute through awareness raising, data collection and research.</p>
Din l-Art Helwa	<p>National Trust of Malta, is a non-governmental, not-for-profit, voluntary organisation founded to safeguard the historic, artistic and natural heritage of Malta. Din l-Art Helwa also co-manages a national park bordering an MPAs).</p> <p>Can contribute through awareness raising and possibly through other specific actions.</p>
Friends of the Earth Malta	<p>NGO working on a range of projects and advocacy campaigns for environmental and social justice.</p> <p>Can contribute through awareness raising</p>
<i>Flimkien Għal Ambjent Aħjar (FAA)</i>	<p>Non-profit NGO committed to preserving the heritage of Malta and Gozo. Lobbies for better planning and land-use policies,</p>

	<p>and carries out eco-projects that aim to instigate social change and raise public awareness.</p> <p>Can contribute through awareness raising</p>
Fish4Tomorrow	<p>NGO dedicated to creating a culture of sustainable seafood consumption through effective campaigning and lobbying.</p> <p>Can contribute through awareness raising</p>
Majjistrat Nature and History Park	<p>National natural park which includes a Natura 2000 SAC and borders an MPA; managed by the Heritage Parks Federation consisting of 3 NGOs involved in coastal management, cultural restoration and environmental protection.</p> <p>Can contribute through awareness raising and possibly through other specific actions.</p>