Safeguarding the Marine Environment Together - Bridging Conservation and Stakeholder Uses in the NE Marine Protected Area

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Event organized by the Physical Oceanography Research Group, University of Malta
Co-ordinator: Prof. Aldo Drago

REPORT

More than 80 people attended the workshop organized on the 4th of June by the Physical Oceanography Research Group (Dept. of Geosciences, University of Malta) in collaboration with Malta Marittima Agency, Malta Council for Science & Technology and AquaBioTech Group as part of the of the European Maritime Day 2019 (annual two-day event during which Europe's maritime community meet to network, discuss and forge joint action) and supported with funds provided by the AMAre project.

Under the theme “Safeguarding the Marine Environment Together - Bridging Conservation and Stakeholder Uses in the NE Marine Protected Area”, the workshop, organized by the MED Program project 'Actions for Marine Protected Areas’ (AMAre), demonstrated the importance to design a network of stakeholders and to build dialogue and awareness on common issues.

Finally, the workshop is the first of its kind to take place at a national level with a core focus on the supportive role that civil society (stakeholders) can play in implementing the new MSP legislation, by analyzing conflicts and finding possible solutions.

Figure 1: Snapshot of the workshop audience being addressed by the Minister for the Environment, Sustainable Development and Climate Change.

The workshop comprised two sessions. During the first session, eight different speakers presented results on good practices carried out in Malta and in other parts of the Mediterranean as part of the AMAre project activities. During the second session, a practical marine spatial planning exercise was held to investigate possible solutions to meet conservation objectives without disrupting essential economic activities. The analysis of conflicts and the possible solutions were focused on the North-East Marine Protected Area (MT0000105 - *Żona fil-Baħar bejn il-Ponta ta' San Dimitri (Għawdex) u Il-Qaliet*) designated in the Maltese Islands.

This report presents a summary of the presentations given by the speakers as well as feedback received from participants during the workshop activities.

FIRST SESSION

The workshop was opened by Prof. Aldo Drago (Local AMAre project responsible and Workshop Coordinator) who gave a brief introduction to the event, and placed a focus on evident impacts and deterioration that the marine environment has experienced in the last 40 years. This was followed by an address from Prof. Ing. Saviour Zammit, Pro-Rector for Research and Knowledge Transfer (*Univ. of Malta*), and the Hon. Jose' Herrera, Minister for the Environment, Sustainable Development and Climate Change.

The agenda was followed by a presentation about the results of the AMAre project. According to Prof. Simona Fraschetti**,** AMAre Project Leader ("Overview of the AMAre project – Targets and Results"), there are many marine protected areas in the Mediterranean Sea that need to be connected to each other by a network. The AMAre project addresses part of this need, by aiming to develop and share methodologies and geospatial tools to assess multiple stressors, coordinate environmental monitoring, and analyze multiple criteria among some of the Mediterranean marine protected areas in five countries (Italy, France, Spain, Malta and Greece).

To this end a marine geodatabase with different layers of biotic and abiotic data (e.g. currents, sea temperature, sea salinity, geological and biological data about coralligenous assemblages, *Posidonia* meadows, *Cystoseira* distributions, etc) with also human uses (as for example fisheries areas, tourism statistics, oil bunkering, AIS data) has been realized to help better analyze conflicts and establish appropriate management and protection plans.

Thanks to the AMAre geodatabase, it is possible to analyze the potential matching of tourism to the increase of marine litter and marine pollution, and also the negative impacts on the *Posidonia* meadows. Moreover, thanks to the network and the geodatabase, it is possible to analyze mass mortality events, by comparing the presence/absence of certain key species (eg *Pinna nobilis*, *Arca noe* or *Muraena helena*).

More detailed information on the AMAre geodatabase was presented by the second speaker ("The AMAre marine geodatabase for the North-East MPA") Dr. Adam Gauci from the Physical Oceanography Research Group, University of Malta. This showed how data has been collected and compiled in layers for different users, showing particular cases about the Maltese Islands and its NE MPA (North East Marine Protected Area). Fascinating ROV images, revealed dramatic negative impacts on *Posidonia* meadows due to anchoring activities. This type of pressure increases during the summer period, correlating with site usage.

Pollution and marine litter have been recurring themes. In fact, the third speaker Dr. Caterina Lanfredi, CONISMA ("The importance of land-sea interactions for the management of Marine Protected area"), also discussed marine litter, focusing on the interactions between land and coastal sea areas. These interactions come from different activities (e.g. tourism, agriculture, and other human activities) that can directly or indirectly affect the sea. Thanks to data collected and a network between different partners, it has been possible to analyze various socio-economic and environmental interactions, and attempt to find a balance between the use of resources and environmental sustainability.

After the general presentations, other speakers focused on Malta, with particular attention on the NE MPA. According to the speaker Mr. Brian Christie, Environment and Resources Authority ("The MPAs in Malta: Towards an improved Management Structure"), Malta has designated a total of eighteen marine protected areas. Eight of these are Specially Protected Areas (SPAs), seven are Sites of Community Importance (SCIs) and three are still at the proposed Site of Community Importance (pSCI) stage. Some overlaps between these areas exist both in terms of spatial coverage and designation. The speaker shared EU definitions of Conservation Objectives (COs), which aim to maintain or improve the Conservation Status (CS) of the protected features, while Conservation Measures (CMs) are concrete actions to be taken and shared to reach/ensure COs. An example of concreate actions is to mitigate the fisheries by-catch using LED lights that are proved to reduce the seabird mortality by 85%. Another possible action is mapping the Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) that poses a threat for marine life and habitats, as well as representing a safety hazard for diving and activities and vessel navigation.

According to Dr. Alicia Said, independent expert ("Conflict analysis and Cumulative Impact Assessment in the NE MPA"), it is possible to find potential management solutions by analyzing which activities have a real impact and relocating these activities elsewhere; when the relocation is not possible, it is important to identify what are the alternative options that could be implemented.

Another important point, underlined by Mr. J. Bongailas, Malta Marittima Agency ("Implementing the Integrated Maritime Policy in Malta) is the implementation of the National Integrated Maritime Policy (NIMP) that aims to provide a more coherent approach to maritime issues, with increased coordination between different areas. NIMP focuses on issues that do not fall under a single sectors-based policy, but an economic growth based on different cross-cutting maritime sectors. An example of a long-term strategy to support sustainable growth in the marine and maritime sectors is the blue growth that includes aquaculture, blue biotechnologies, coastal and marine tourism as well as ocean renewable energies. NIMP is also extremely involved in the integrated maritime surveillance by sharing data (e.g.: project CISE: Common Information Sharing Environment).

About examples of good practices and engagement of stakeholders, Ms. K. Likhacheva, Agence Française pour la Biodiversité, Brest, France ("Implementing Maritime Spatial Planning in Malta-compatibility with MPA management) showed the successful example of Iroise, an MPA located in the Ushant Sea (western Brittany, France) and created in October 2007, showing the sustainable use of the regional marine resources.

In fact, this MPA has 49 members in the management board from different sectors (local governments, sector organization (fishing, agriculture, aquaculture, etc.), users, organizations, NGO's and general public.

Finally, according to the last speaker Ms. Michelle Borg, Planning Authority ("Introduction to marine spatial planning: how it works and where it counts"), the resilience of the sea depends on the regulations of all the activities that are been conducted on it (e.g: fisheries, aquaculture, transport, water desalination , tourism). The combination of these activities creates user conflicts and environmental impacts that need to be regulated. According to the speaker, some actions have been already realized, as a planning system (e.g. regulation of project proposal with permits, consultation, etc.) and planning of local areas, but more work needs still to be done to create a strategic direction. In this sense, MSP can be implemented as a framework for consistent, transparent, sustainable and evidence-based decision making and serving as an instrument to promote cooperation among EU Member States and other countries.

In this scenario the designation of a protected area to preserve natural/cultural heritage is not within the scope of, but is complementary to MSP.

SECOND SESSION

The second part of the workshop was a practical session intended as a tailor-made exercise aimed to empower stakeholders in the appraisal of existing conflicts between different users within the MPA struggling for the use of same space and depending on common resources, as well as to highlight human impacts that clash with conservation objectives.

Thanks to a session of discussion and comparison, the participants were led to team up and investigate possible solutions to meet conservation objectives without disrupting essential economic activities.

By analysing conflicts and possible solutions, participants worked together finding new management measures useful to mitigate the impacts of human activities on coastal habitats, matching development with environmental conservation and re-assessing economic activities to reduce conflicts for the same space and resources, and developing common, coordinated and feasible actions to fulfil national and EU goals, directives and legislation.

To carry out the second part of the workshop, the participants were divided in two groups (A and B) and, in each group, the participants were assigned to stakeholder categories composed a priori in order to ensure an equal representation according to the participant's professions, activities or responsibilities.

The outcomes of Group B are first presented. Group A are presented separately. In Group B there were 23 participants divided in 9 stakeholder categories (9 instead 10 because there were no participants to represent the general public category):

1. Aquaculture: 1 person
2. Professional fishers: 3 people
3. Recreational fishers: 3 people
4. Divers: 2 people
5. Tourism: 3 people
6. Marine Transport: 3 people
7. NGOs: 3 people
8. Public officers: 3
9. Research and academia: 2 people
10. General public: 0

The discussion in Group B was supported by Brian Christie as lead facilitator, Lydia Kohler, Marta Curmi and Michelle Borg as facilitators, Robert Farrugia as rapporteur, Audrey Zammit as technical assistant and Ioanna Thoma as assistant to the participants.

	Marine Uses in NE MPA	1 ↓ Commercial Fisheries	2 ↓ Recreational Fisheries	3 ↓ Aquaculture & Tuna Farms	4 ↓ Shipping	5 ↓ Sailing & Yachting	6 ↓ Oil Bunkering	7 ↓ Ports, Harbours, Marinas	8 ↓ Coastal Infrastructure	9 ↓ Recreation & Sports	10 ↓ Diving Tourism	11 ↓ Renewable Energy	12 ↓ Oil And Gas Exploration	13 ↓ Ecosystem Health	14 ↓	15 ↓	16 ↓
1	Commercial Fisheries																
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Figure 2: Grid used to record results.

The exercise consisted in the engagement of the Group participants to map conflicts in the North East MPA. Two types of conflict were considered:

a. Conflict for Space;
b. Conflict for Resources

and each type of conflict was defined by filling in a dedicated matrix (Fig. 2). The two matrices are identical, but were used separately to prioritise (by consensus) the most pertinent conflicts. The enlarged printed versions of the two matrices were affixed to the meeting room wall, next to each other for easy comparison. An activity listed in a row heading on the matrix was assessed for any

potential conflicts against it resulting from any of the activities listed in the different columns. It is important to note the uni-directional conflict assessment represented by each grid cell, namely if activity A is in a row heading, the grid cells marked along that row are highlighting those conflicting issues that are impacting A and not vice versa.

Each stakeholder category had 6 sticky cards – 2 green, 2 orange and 2 red for each matrix (12 in all) which were used to highlight conflicts by ranking using the traffic lights system where:

Blank = no conflict; Green = low conflict; Orange = medium conflict; Red = High conflict.

Even though the stakeholder categories were composed of different numbers of participants, each carried the same weight, since each category had only six votes for each matrix irrespective of the number of participants in the category.

The voting was preceded by an hour of intense discussions and consultations between stakeholders in the Group. Participants in the same stakeholder category were first asked to consult one another about conflicts they wish to highlight, building consensus and justifications for their choices. A representative from each stakeholder category was asked to stand out and affix the sticky cards to the conflict grid cells chosen by consensus between the participants in the category. Each voting was justified by a brief verbal explanation which was noted on a flip chart for further cross reference with other stakeholder category votes. The overall conflict level was counted for each highlighted conflict by assigning a value of 3 to red, 2 to orange and 1 to green cards, and adding counts from all stakeholders. The highlighted conflicts are assigned a ranking to identify the top priority conflicts on each matrix. The results are presented in Figs. 3 and 4.

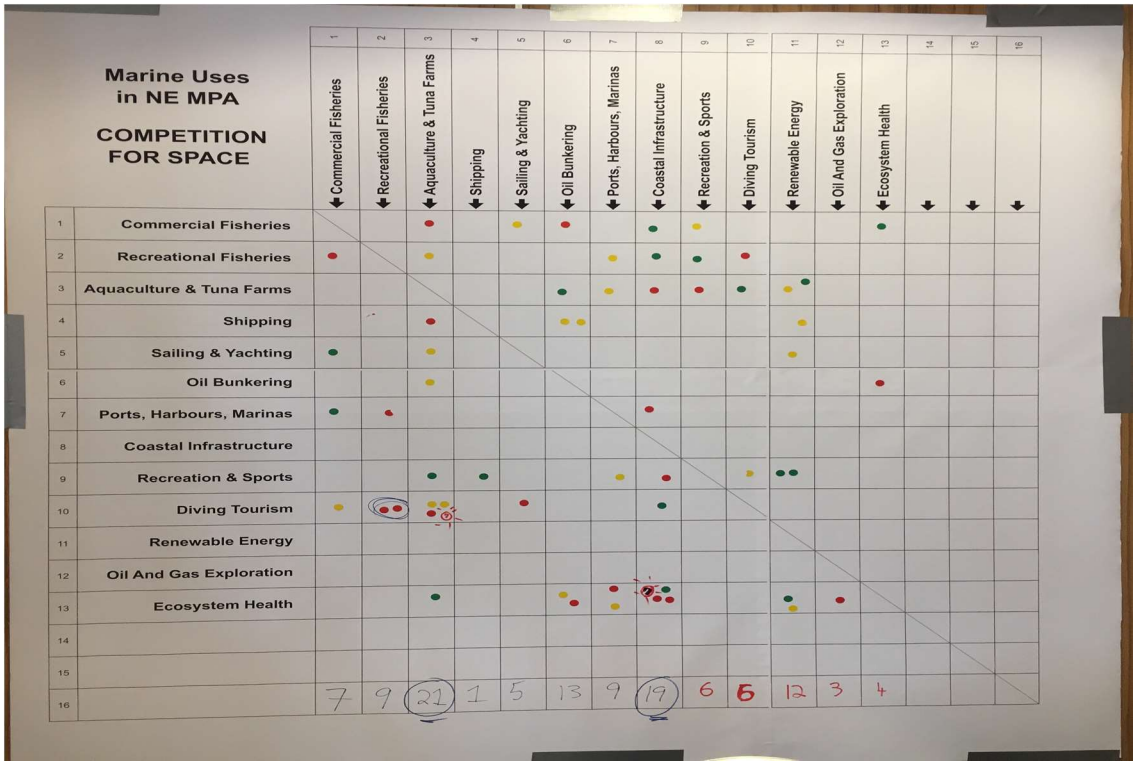

Figure 3: Matrix of activities to identify conflicts for space with results for Group B.

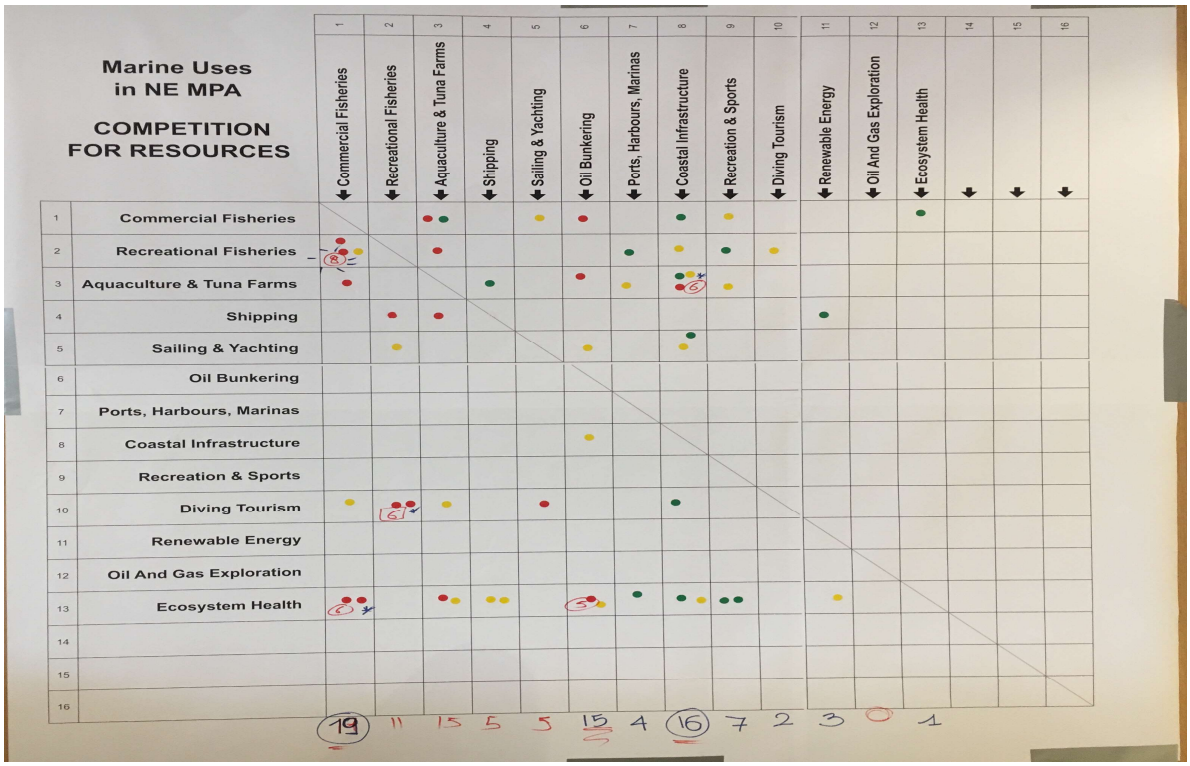

Figure 4: Matrix of activities to identify the conflicts for resources with the results for Group B.

The results showed that in the competition for space, the most conflict activities are **Aquaculture and Tuna Farms** (AQ) (with a highest total of 21 points) and **Coastal Infrastructures** (CI) (with a total of 19 points).

The biggest conflict (total 7: two yellow and one red cards) is among AF activities and diver tourism (that includes not only diving centre's members, but also every diver tourists). In fact, according to the diver stakeholders, AQ farms occupy space that could be dedicated to diving; they threaten the water quality by an over nutrient enrichment and consequently pollution, endangering the marine biodiversity. Finally, they produce noise and light pollution.

The other big conflict (total of 7 points: two red and one green cards) is among CI (understood as not only infrastructures, but also developments) and ecosystem health. Everyone agreed that CI have a high impact on the coasts, reducing marine habitats and biodiversity and increasing pollution, run off etc.

Really interesting was the result that showed conflicts between divers and recreational fisheries (total 6 points: two red cards). Diver stakeholders consider recreational fishery boats very dangerous because they never respect the safe distance from dive flags. In open water, a safe distance is at least 300 feet from the flag; in rivers, inlets or navigation channels, that distance should be at least 100 feet.

Also in the competition for resources, CI results one of the most conflict activities (scoring a total of 16 points) along with Commercial Fisheries (CF) (scoring a total of 19, the highest value for this matrix).

Figure 5: Each stakeholder category making their choice on the matrix of activities.

In particular, CF shows the biggest conflict with recreational fisheries (with a total of 6 points: one red, one yellow and one green cards) while CI has the biggest conflict with aquaculture and tuna farm activities (with a total of 8 points, the higher score of all: two red and one yellow cards).

Another important result is the conflict between CF and ecosystem health (with a total of 6 points: two red cards); in particular divers and NGO's indicated overfishing and illegal fishing as damaging activities for the environmental sustainability. Moreover, in the matrix about conflicts for resources, divers activities are in conflict with recreational fisheries (total 6 points: two red cards), showing clearly the need for regulation or more controls.

The subsequent step of the exercise consisted in a conflict prioritisation activity. The two matrix charts next to each other were compared to identify the conflict hotspots by looking at those particular grid categories carrying the highest marks. Due to time constraints the first two major conflicts only were assessed in detail. In this conflict prioritisation step some criteria were followed:

If A and B are in conflict, it is necessary to identify:
- if each conflict between A and B is one-way or two-way
- if each conflict is high on both matrices
- if each conflict is occurring with other activities besides B
- the geographical extent of the conflict
- the level of impact on the environment.

In a first instance the facilitators explained each of these criteria to the participants. The participants were then asked to highlight the two major conflicts and to quantify the criteria above for each conflict. The quantified criteria for each respective conflict were written on a flipchart for reference in the next steps. A separate flipchart was used for each of the two identified conflicts.

A map with GIS data layers was used in addition to the two matrices. The data layers considered were the following:

1. basemap with bathymetry and MPA outline;
2. AIS layer;

3. Anchored ships/ Bunkering;
4. Tuna farms and aquaculture;
5. Fishing activity;
6. Diving sites;
7. Swimming zones;
8. benthic habitats (*Posidonia*/coralligeneous formations);
9. Bird reserved areas.

These data layers served the participants to better visualise and identify conflicts as well as their spatial and the different levels of impact. They served to support discussions expected in this step of the exercise. At the end of this step the two major conflicts were chosen and quantified.

The major conflicts identified by Group B were those of (i) aquaculture & tuna farms, and (ii) coastal infrastructures. Thanks to the support of the facilitators, the stakeholders assessed each of the conflicts.

Figure 6: Results of the conflict assessment process.

This was followed by a Conflict assessment process. Participants from different stakeholder categories were asked to comment on the earmarked conflict hotspots**.** This was a free discussion period led by the participants. The facilitators kept the discussion on check and focussed, to promote healthy brainstorming, and to keep the participants actively involved.

Important comments were added on the flipcharts with the consensus of the participants. At the end of this step participants had the opportunity to air and assess the extent of all the aspects for each of the two identified conflicts. Major outcomes on this phase of the exercise for Group B was:

CI can be divided into essential (reverse osmosis, ports, fish landing, Gozo-Malta links and brace waters) and non-essential (hotels, wharfs/quay, land reclamation restaurants as coast “concreting”) activities; the following impacts were identifying: loss of marine habitats, pollution (in particular marine litter, increased run off, loath and noise pollutions), changes in hydrodynamics/ morphology.

AQ was assessed by identifying the following impacts: nutrient enrichment and slime production, use of space (physical structures preclude the use of space by other activities, risking vessel navigation and reducing safety at sea), light pollution, use of fish to feed farmed species.

The final stage of the exercise concerned Conflict resolution. In a first instance the facilitators introduced the various levels of interaction for conflict resolution leading to:

i. Relocation
ii. Resize, or
iii. Harmonization

Stakeholders were then asked to write resolutions and interventions (what would they do if they were the manager of the area) and place them on the interactive map. Each stakeholder category used a red sticky note for conflict 1 upon which the participants in each stakeholder category write their agreed resolution/intervention. The same is repeated for conflict 2 on a separate sticky note, yellow in colour. The sticky notes are placed on the interactive map.

In the final stage the facilitators read and combine these resolutions and interventions on the flip-charts for the respective conflicts.

The rapporteur combined and integrated the output to be presented on PowerPoint slides in plenary. The resolutions and interventions for Group B are presented in Table 1.

Analyzing the solutions proposed by participants from Group B, some of the main findings were:

- most conflicting activities are linked to the infrastructures on the coastal perimeter, comprising coastal development, an array of human activities including beachfront construction of homes, hotels, restaurants, and roads, often for tourism.

- According to the participants, the keys to reduce these conflicts are controls and restrictions; in particular, by controlling and limiting the number of licenses, allowing only essential infrastructures in coastal areas, better controlling pollution coming from restaurants and bars, managing better waste, but also reducing the light pollution with less intense lighting in streets.

- Aquaculture activities, instead, need to be reviewed by shifting towards a more sustainable and balanced aquaculture, using bioremediation remedies (e.g. organisms that can extract the excess of nutrients), innovative technologies and new farming systems (with a better management of feeding), and by moving offshore (in particular not over *Posidonia* beds or fairly close to protected habitats/species).

Table 1: Table with a list of stakeholders and the solution proposed for the resolution of the Conflict 1 (Coastal Infrastructure) and Conflict 2 (Aquaculture) by Group B.

Stakeholders categories	Solutions Conflict 1: CI	Solution Conflict 2: AF
Aquaculture	1) Limit the number of licenses only to essential coastal infrastructures	1) Use bioremediation with organisms that can extract excess of nutrients
Professional Fishers	1) Coastal debris should be treated before reaching the sea	1) To place the fish farms further out the 10 mile margin from the coast
Recreational Fishers	1) Avoid land reclamation as much as possible; 2) Control on pollution coming from restaurants, hotels and shipping.	1) Avoid increasing number of cages; 2) Relocation further out at sea.
Divers	1) Better waste management; 2) Non-essential infrastructures not encouraged	1) More control and enforcement real and proper
Tourism	1) Eco-certification for new infrastructures; 2) Strict implementation of mitigation measures (eg waste management, light pollution, etc).	1) Shift towards a more sustainable and balanced aquaculture (e.g. multi-trophic aquaculture); 2) Strict monitoring in order to decide on future goal: improve marine environmental health.
Marine Transport	1) Reduce pollution by using less intense lighting or directed downwards	1) Use food which creates less pollution and slime
NGOs	1) Only essential infrastructure allowed in coastal areas; 2) More controls and limitations (e.g. limit number of people in specific area at specific time)	1) Tuna ranching moved to alternative sites; 2) More sustainable aquaculture which does not impact the ecosystem and sea
Public Officers	1) Illegal boathouses removed from the foreshore; 2) Enforcement total clamp-down	1) Better management of this feed; 2) Respect the allocated quotas.
Research and Academia	1) Better planning of land/coastal infrastructures which are not essential. Hotels can be built further inland; restaurants, lidos, etc. can be limited, for example by avoiding developments on sandy beaches	1) Move offshore the farms and use more innovative technologies and new farming systems; 2) Do not place farms over Posidonia beds (or fairly close to protected habitats/species)

For Group A there were 30 participants who composed into 10 stakeholder categories:

1. Aquaculture: 1 person
2. Professional fishers: 4 people
3. Recreational fishers: 4 people
4. Divers: 2 people
5. Tourism: 1 people
6. Marine Transport: 2 people
7. NGOs: 4 people
8. Public officers: 6 people
9. Research and academia: 4 people
10. General public: 2 people

The discussion in Group A was supported by Alicia Said as lead facilitator, Kristina Likhacheva, Monica Previati and Felipe Nalin Abdala as facilitators, Carmen Mifsud as rapporteur, Adam Gauci as technical assistant and Ann-Lou Schaefer as assistant to the participants.

In the competition for resources, the most conflicting activities identified by Group A are **Aquaculture and Tuna Farms** (AQ) (with a highest total of 15 points) and **Oil Bunkering Zones** (OB) (with a total of 10 points). In both cases, stakeholders highlighted the issues related to high risk level of pollution due to affluent from bunkering, and nutrients from fish farms affecting both the water column, as well as the benthic habitats. Also, issues were raised regarding the situation of anchorage and the impact it creates on the integrity of ecosystems. Some stakeholder categories highlighted issues of the impact of tuna fish farms on the food chain due to the attraction of large pelagics around the farms. According to fishers, the large pelagics hunt/prey on the small pelagics and affect the local fisheries.

Conflict between Commercial Fishing (CF) and Recreational fishing (RF) is a two-way conflict, however, CF perceive RF as having higher conflict mainly due to the large number of RF practising leisure fishing, and also because this affects the CF livelihoods. Diving Tourism (DT) perceives both CF and RF as highly conflicting, primarily due to the extractive nature of the activity which has a direct effect on the number of fish available for DT. Stakeholders associating with ecosystem health, including NGOs and the General Public perceived Coastal Infrastructure (CI), yachting and sailing as well as aquaculture as the most problematic factors for ecosystem health. Specific reference was made to the impact resulting from both the development of the infrastructure (new buildings and the effects of sediments in the water column), as well as the operations of restaurants in the areas, e.g. litter washed at sea – predominantly plastic cups. The problems associated with yachting and shipping include anchoring, as well as bad practices such as dumping of waste while at sea, and the problems of ballast water and the concomitant introduction of alien species into the local natural systems. Commercial fisheries has been considered less problematic, with the main issues being ghost fishing such as nets and pots. It is interesting to note that most of the perspectives presented by the general public and indirect stakeholders are a result of their opinions, rather than direct experience or factual information which supports their arguments.

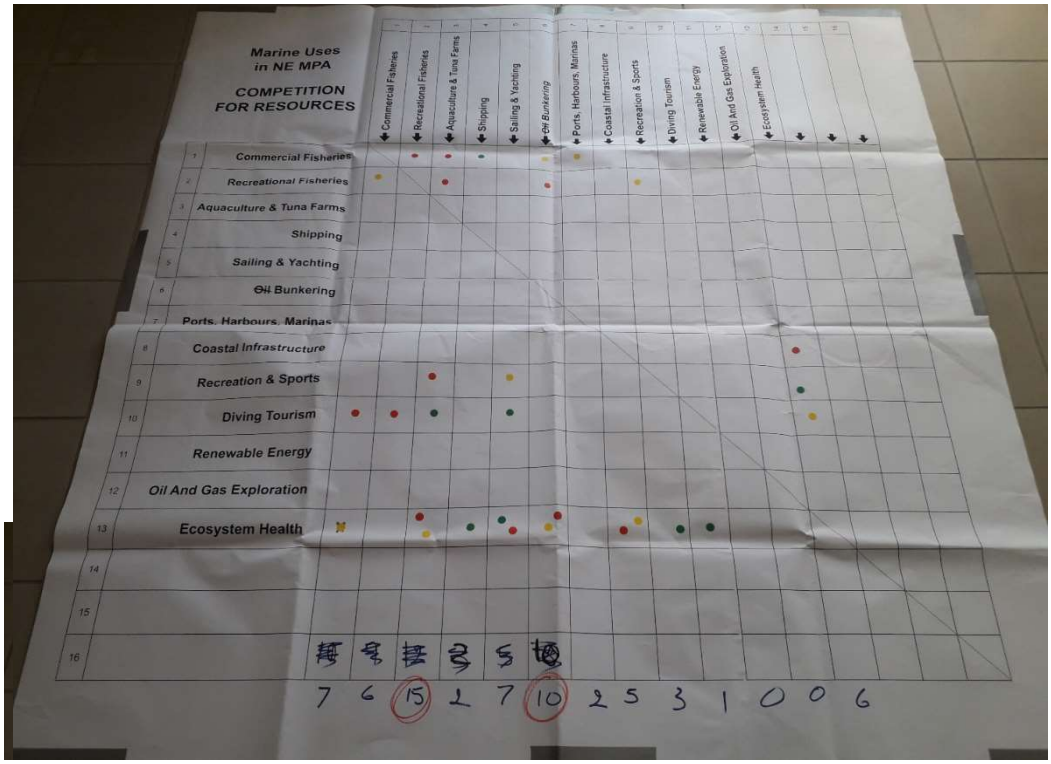

Figure 8: Matrix of activities to identify the conflicts for resources with the results for Group A.

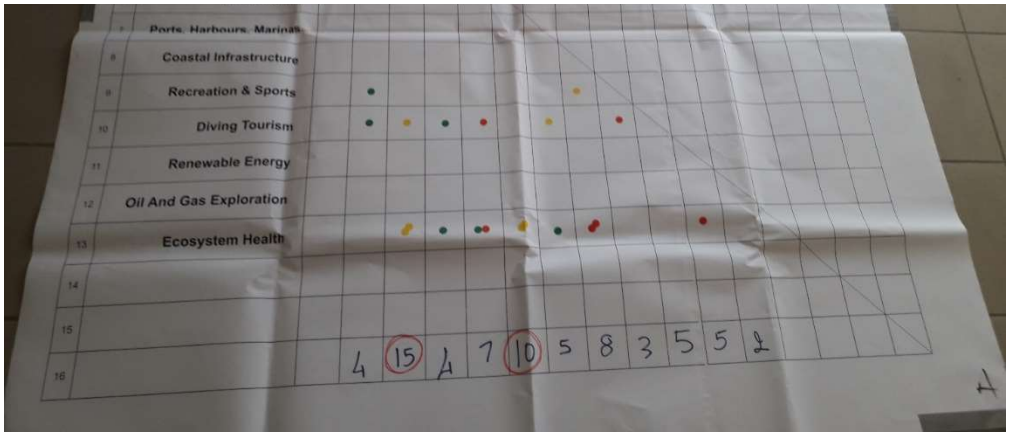

Figure 7: Matrix of activities to identify conflicts for space with results for Group A.

The intensity of competition for space is also highest in the case of **Aquaculture and Tuna Farms** (AQ) (with a highest total of 15 points) followed by **Oil Bunkering Zones** (OB) (with a total of 10 points). Coastal Infrastructure placed third (8 points) mainly due to the cropping of new development structures taking over new spaces within the coastal stretch. The Environment and Resources Authority personnel highlighted issues related to permanent impacts due to hydrodynamic changes resulting from coastal development, also leading to irreversible destruction of coastal habitats. The issues related to aquaculture and oil bunkering in terms of space mostly result from the fact that these are situated in relatively shallow areas which have a utility factor for various activities, predominantly fishing and diving tourism. This is because shallow areas are predominantly composed of reefs (especially Sikka l-Bajda) or *Posidonia* meadows which are important refuge areas for fisheries, making it central for both commercial and recreational fishing as well as potentially important

sites for the diving tourism. In the case of aquaculture, the concept of space has an additional importance, as the practices have an impact not on just the perimeters of the farms, but also the surrounding areas. This is especially the case for tuna farms and the concomitant transboundary slime which results from the feeding practices deployed in these areas, and which affects swimming and bathing zones, popular amongst locals and tourists.

Further space conflicts result from the high number of pleasure boats and yachts in summer, especially in Comino. This comes along with problems of marine litter impacts generated by beach goers in the famous beaches of the East coast including Ghadira, St. Paul's Bay and the Gozitan coast. Commercial Fishers noted the conflict for space with the Recreational Fisheries, given the limited stretch of fishing grounds which are congested by other uses including shipping, diving and other recreational activities. An interesting outcome of the space competition aspects encountered by the diving industry is the conflict with the 'sailing and yachting' and 'recreation and sports', and this probably results from the fact that the recreational activities and yacht anchoring happen close to the coast where divers are conducting the activity. This prompts conflict over space, mostly related to the dangers that such 'above-the-sea' activities could pose to the underwater recreation activities.

The final stage of the exercise concerning conflict resolution, the facilitators first introduced the various levels of interaction for conflict resolution leading to:

i. Relocation
ii. Resize, or
iii. Harmonization

Same as in Group B, stakeholders were then asked to write resolutions and interventions (what would they do if they were the manager of the area) and place them on the interactive map. Each stakeholder category used a red sticky note for conflict 1 upon which the participants in each stakeholder category write their agreed resolution/intervention. The same is repeated for conflict 2 on a separate sticky note, yellow in colour. The sticky notes are placed on the interactive map.

In the final stage the facilitators read and combine these resolutions and interventions on the flipcharts for the respective conflicts.
The rapporteur combined and integrated the output to be presented on PowerPoint slides in plenary. The resolutions and interventions for Group A are presented in Table 2.

Analyzing the solutions proposed by participants from Group A, some of the main findings were:

- For conflicts resulting from the aquaculture industry, predominantly the tuna ranching segment, due to the pollution created in the water column and the impact on the ecosystem in general, stakeholders agreed on various solutions. These included relocation of the fish farms further offshore, and new technologies to control the transboundary affluent from reaching coastal areas. More control on the number of tuna fattened in the farms has also been raised.
- For bunkering zones, the proposal for ecological mooring has been raised by various stakeholders, with some going as far as to propose a differentiated system for large and small ships. Officials working within the maritime transport industry explained that ecological mooring could work for small ships, but not larger ones. In this regard, stakeholders agreed that a compromise could be reached by relocating larger ships outside the MPA, in other sheltered areas. Smaller ships could be retained in MPAs with control on anchoring and a system of ecological mooring.

Table 2: Table with a list of stakeholders and the solution proposed for the resolution of the Conflict 1 (Aquaculture and Tuna Farms) and Conflict 2 (Oil Bunkering)

Stakeholders categories	Solutions Conflict 1: Aquaculture and Tuna Farms	Solutions Conflict 2: Oil Bunkering
Aquaculture	Density- relocation within other areas- and check the carrying capacity to check maximum amount of fish	Ecological mooring and relocation of bunkering outside the MPA
Professional Fishers	1) Reduce amount of quota which is fattened, so give chance for fishermen to have higher access to the fishing stock. 2) In terms of space, relocate to other waters which are not good (fertile). 3) Limit the size of the operations, they cannot keep growing onto the reefs	1) Ecological mooring and enforcing or controlling anchorage – restricting dragging of anchors 2) Relocation in other areas which are not good fishing grounds since area now is good fishing ground and relocating out of MPAs
Recreational Fishers	1) recommending regulation of species and quantity of species in view of distance from shoreline. The further out the more space they can be provided with, but the further in, the lesser the area. 2) Contain risks of sediment both laterally and vertically.	1) Bunkering – risk of pollution form spills- regulations – enforce and control. 2) Install ecological mooring and reduce the number of ships (density) for bunkering.
Divers	1) Aquaculture- relocation– away from important diving spots 2) No further expansion of aquaculture zone…	1) No issues
Tourism	1) Relocating further offshore form MPA 2) Containment measures for slime and other residues.	1) Bunkering- relocating and reducing area and have investment of share responsibility- and get a percentage of it to finance environmental projects.
Marine Transport	1) Ideally located in one big zone and contained in such an area to reduce impacts on various areas around the Maltese coast.	Relocation and ecological mooring could be an option, however, bunkering is very much weather dependent
NGOs	1) Tuna- political and social issue- corruption scandals and 2) They are overfed and biased and issue of quotas- so change policy and make sure that since it's such a big business include NGOS and pubic in the discussion 3) Measure- change policy and limit the number of quotas – there needs to be NGOs on board 4) Aquaculture an issue of financing to make it more sustainable and different designs of farms and feeding	1) Relocation should be considered without affecting the safety of ships 2) Set a limit on the number of ships that set anchor.
Public Officers	1) Limit quotas and limit feed, polluters pay principle- if there are environmental impacts- afforestation projects for Posidonia or rehabilitation of habitats	1) Test eco-moors & new spots where they mooring can be more sustainable. 2) Control the area of bunkering through inspections and enforcement.

		3) Create a differentiated anchoring systems for small ships (inshore and ecological mooring) and large ships with large anchors relocated offshore outside the MPA.
Research and Academia	1) relocate to areas to reduce the impacts on habitats, conducting monitoring and studies to ensure that these objectives are met	1) relocate to areas to reduce the impacts on habitats, conducting monitoring and studies to ensure that these objectives are met

Safeguarding the Marine Environment Together
- Bridging Conservation and Stakeholder Uses in the NE Marine Protected Area

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A European Maritime Day 2019 event

4th June, Dolmen Resort Hotel, St. Paul's Bay

A workshop organised by the
Physical Oceanography Research Group (Dept. of Geosciences, University of Malta)
in collaboration with
Malta Marittima Agency, Malta Council for Science & Technology and AquaBioTech Group

PROGRAM
(*Moderator: Dr. Anthony Galea*)

8:45-8:55 **Welcome and Intro**
(*Prof. Aldo Drago, Local AMAre Project leader and Workshop Coordinator*)

8:55-9:05 **Address by Prof. Ing. Saviour Zammit, Pro-Rector for Research and Knowledge Transfer** (*Univ. of Malta*)

9:05-9:20 **Address by the Hon. Jose' Herrera, Minister for the Environment, Sustainable Development and Climate Change**

9:20-9:35 **Overview of the AMAre project – Targets and Results**
(*Prof. Simona Fraschetti, AMAre Project Leader*)

9:35-9:50 **The AMAre marine geodatabase for the North-East MPA**
(*Dr. Adam Gauci, Physical Oceanography Research Group, Univ. of Malta*)

9:50-10:05 **The importance of Land-Sea Interactions for the management of Marine Protected Areas** (*Dr. Caterina Lanfredi, Consorzio Nazionale Interuniversitario per le Scienze del Mare, Milano, Italy*)

10:05-10:20 **MPAs in Malta: Towards a Coherent Management Structure**
(*Mr. Brian Christie, Environment and Resources Authority*)

10:20-10:35 **Conflict analysis and Cumulative Impact Assessment in the NE MPA**
(*Dr. Alicia Said, independent expert*)

10:35-11:05 **Networking Coffee Break**

11:05-11:20 **Implementing the Integrated Maritime Policy in Malta**
(*Mr. Jason Bongailas, Malta Marittima Agency*)

11:20-11:40 **Towards participatory governance of marine protected areas: a French case of the Iroise Marine Nature Park**
(*Ms. Kristina Likhacheva*, *Agence française pour la biodiversité, Brest, France*)

11:40-11.55 **Implementing Maritime Spatial Planning in Malta – compatibility with MPA management** (*Ms. Michelle Borg, Planning Authority*)
11:55-12.15 **Introducing the practical on spatial planning for the NE MPA** (*Prof. Aldo Drago, Local AMAre Project leader*)

12:15-13:30 **Lunch**

13:30-16:00 **Practical session on Conflict Mapping and Resolution for the NE MPA** *(Two parallel sessions)*

16:00-16:30 **Plenary Discussion**

16:30-16:45 **Closure**