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ΠΕΡΙΒΑΛΛΟΝΤΟΣ
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Biogeographical Process Network Event



anchors away!

Report on the Anchors Away Networking Event:
Mitigating direct anthropogenic impacts on Posidonia beds

Athens, 21-22 November 2019

Contents	1
Summary	2
1. Introduction	3
	4
2. Anchors Away Event	4
2.1 Venue and date	4
2.2 Conveners	4
2.3 Event description	5
2.3.1. Event content outline	5
2.3.2 Programme of the event	6
2.3.3. Presentations	8
2.3.4. Work groups	8
3. Results	10
3. 1. Outcomes of the work rounds	10
3.1.1. Work round I	10
3.1.2. Work round II	11
3.2. Forming recommendations	12
3.3. Immediate output	14
APPENDIX I – Abstracts	15
APPENDIX II - Detailed answers in work round discussions	23

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Summary

To help meet the target of significantly improving the conservation status of species and habitats protected under the EU Birds and Habitats Directives by 2020, as called for in the EU Biodiversity Strategy, the European Commission launched in 2012 the “Natura 2000 biogeographical process”. It is a multi-stakeholders' co-operation process at the biogeographical level which includes seminars, workshops and cooperation activities to enhance effective implementation, management, monitoring, financing and reporting of the Natura 2000 network¹.

As part of this process, and in view of the widespread impacts of uncontrolled anchoring on *Posidonia oceanica* seagrass beds² across the Mediterranean Sea, the “Anchors Away” Networking Event was organised by the Hellenic Centre for Marine Research (Institute of Oceanography) in collaboration with the Greek Ministry of Environment & Energy (General Directorate of Environmental Policy, Directorate of Biodiversity and Natural Environment Management, Department of Protected Areas) and supported by the European Commission. The event was held in Athens (Green Fund, Villa Kazouli, Kifissia), 21-22 November 2019.

The Anchors Away event brought together experts, managers and other key stakeholders to explore: i) the extent of pressure from anchoring on *P. oceanica* meadows, ii) methods and tools in assessing, managing and controlling anchoring impacts on seagrass beds in Natura 2000 sites, iii) existing best practices across the Mediterranean special areas of conservation (SACs), and iv) knowledge transfer and funding opportunities for the implementation of concrete conservation and restoration actions to mitigate direct pressures on *Posidonia* meadows at local and regional scales.

Based on the workshop's presentations and discussions, a series of recommendations regarding several scientific, technical, legislative and financial issues toward the effective protection of *Posidonia* beds from anchoring have been formed and put forward in the present document.

¹ https://ec.europa.eu/environment/nature/natura2000/seminars_en.htm

² Priority habitat type protected under the Habitats Directive, for which Natura 2000 sites (SAC-special areas of conservation) need to be designated and effectively managed to contribute to reaching the favourable conservation status of this habitat type in the European Union

1. Introduction

Within the last 50 years a regression of 34% has been estimated for *Posidonia* seagrass beds across the Mediterranean Sea (Telesca et al. 2015), with trawling and anchoring being the most acute anthropogenic threats on these priority (sensu the Habitats Directive 92/43/EEC) and sensitive habitats (sensu the Mediterranean Fisheries Regulation 1967/2006). While indeed several measures have been taken to address the former, anchoring remains largely unmanaged both within and beyond Mediterranean marine Natura 2000 sites. This pressure is therefore contributing to the further decline of this habitat and preventing its recovery which, due to the slow growth of *Posidonia* and other factors such as climate change, is very uncertain and could take several human generations to achieve.

Recent surveys across 30 Greek marine Natura 2000 sites showed that over 66% of *Posidonia* meadows examined presented signs of deterioration due to mechanical impacts, as was particularly evident in popular coastal tourist destinations. Similar impact of anchoring was noted across all Mediterranean countries. The need to immediately eliminate existing pressures, especially those widely known to compromise the extent, structure and functions of priority habitat types, ranked high among participants of the second marine Natura 2000 seminar in Spain (13-15 November 2018) and the Marine Expert Group meeting in Brussels (28 February 2019). Preventing deterioration of habitats for which Natura 2000 sites were designated and implementing the necessary conservation measures are two priority legal obligations for Natura 2000 sites under the Habitats Directive.

In the light of these facts, as part of the Natura 2000 Biogeographical Process seeking improvements in the conservation status of species and habitats protected under the EU Birds and Habitats Directives, the Anchors Away Networking Event was organized by the Hellenic Centre for Marine Research (Institute of Oceanography) in collaboration with the Greek Ministry of the Environment & Energy (General Directorate of Environmental Policy, Directorate of Biodiversity and Natural Environment Management, Department of Protected Areas), and supported by the European Commission and its contractor.

The Anchors Away event aimed to bring together experts, managers and other key stakeholders to explore:

- i) The extent of pressure from anchoring on *Posidonia* meadows,
- ii) Methods and tools in assessing, managing and controlling anchoring impacts on seagrass beds in Natura 2000 sites,
- iii) Existing best practices across the Mediterranean SACs or beyond, and
- iv) Knowledge transfer and funding opportunities for the implementation of concrete conservation and restoration actions.

The event sessions included presentations, short documentary film screenings and work rounds to engage participants in lively discussions focused on the workshop's intended outcomes:

- (i) Knowledge transfer among concerned scientists and managers,
- (ii) Ensuring that anchoring impacts are better reflected in Natura 2000 site management objectives and related instruments (e.g. management measures and plans, legal acts), and
- (iii) Exploring and building regional collaborations to mitigate direct pressures on *Posidonia* meadows at local and regional scales, whilst enhancing all conservation objectives set for *Posidonia* meadows (e.g. maintaining or increasing habitat cover, density, conservation index, associated biodiversity etc).

2. Anchors Away Event

2.1 Venue and date

Date: 21-22 November 2019

Workshop sessions and workgroups were held at the Green Fund premises, Villa Kazouli, Kifissias Avenue 241, Athens, Greece (52 participants).

A field visit to the Naval Base of Salamina island, hosted by the Hellenic Navy, took place on the morning of Friday the 22nd November 2019 (35 participants).



2.2 Conveners

- Maria Salomidi, Hellenic Centre for Marine Research, Institute of Oceanography (Researcher, Marine Ecologist, PhD)
- Ioannis Mitsopoulos (Greek Ministry of Environment & Energy, General Directorate of Environmental Policy, Directorate of Biodiversity and Natural Environment Management, Department of Protected Areas (Forest Ecologist, PhD))

- Vedran Nikolić, European Commission (Marine Ecologist, PhD)
- Fotios Papoulias, European Commission

HCMR staff supported the event with arranging the venue, providing logistics and helping with registration processes and facilitation, as detailed below:

- Hara Kyriakidou (organisation and logistics support)
- Evridiki Kopanou (organisation, secretary and registration support)
- Yiannis Issaris (organisation, logistics, poster design, facilitation, rapporteur)
- Vassilis Gerakaris (facilitation, rapporteur)
- Eleni Kytinou (facilitation, rapporteur)
- Polytimi Lardi (facilitation, rapporteur)

NatureBureau designed the facilitation plan and organized the workgroups. More specifically:

- Paul Goriup (programme support, facilitation, logistic support)
- Kristina Wood (logistic support, photographic coverage)

The **Green Fund** staff also provided valuable help with arranging the venue and part of the event's logistics. More specifically:

- Kellie Kallogiorga (organisation and logistics support)
- Katerina Koutsovoulou (organisation support)

Plastic-free catering supplies were provided throughout the full extent of the workshop.

2.3 Event description

2.3.1. Event content outline:

- 4 welcome speeches
- 13 invited presentations of 12-15 minutes each
- 3 short documentary film screenings
- 2 work rounds of discussions on: i) legal, enforcement and competence issues and ii) mitigation measures, technical solutions and financial sustainability issues (all participants)
- A field trip to the Naval Base of Salamina island (presentations by Commanders Panagiotis Tripontikas and Dimitrios Lambiris, followed by a guided tour at the submarine «HS KATSONIS» kindly hosted by her captain and crew)

The full agenda of the event is given in detail in Par. 2.3.2.

2.3.2 Programme of the event

Date / Time	Session	Speakers and topics
Thursday 21st November 2019		
09.00 – 09.30	Registration	
09.30 – 09.50	Welcome speeches	<ul style="list-style-type: none"> • Anastasios A. Drakos (Green Fund) • Maria Salomidi (Institute of Oceanography, HCMR) • Ioannis Mitsopoulos (Ministry of Environment & Energy) • Fotios Papoulias (European Commission)
09:50-10:00	Introduction to the workshop	Paul Goriup (NatureBureau)
10.00 – 10.45	Session 1: Assessing the impact of anchoring on <i>Posidonia</i> beds: available scientific methodologies, schemes and tools to assess anchoring impacts across regions and seabed types, overview of the sources and scale of impact	Monica Montefalcone (University of Genova) Anchoring on <i>Posidonia oceanica</i> meadows: impacts, monitoring and possible solutions Vedran Nikolić (European Commission) Protection of <i>Posidonia oceanica</i> under the Habitats Directive and requirements for the management of Natura 2000 sites
Coffee break		
11.15 – 12.30	Session 1 (cont.): Assessing the impact of anchoring on <i>Posidonia</i> beds: available scientific methodologies, schemes and tools to assess anchoring impacts across regions and seabed types, overview of the sources and scale of impact	Paraskevi Drakopoulou (HCMR), Ioannis Galiatsatos , Maria Salomidi Preliminary assessment of anchoring pressure in Greek Natura 2000 sites using satellite observations Vasilis Gerakaris (HCMR), Yiannis Issaris , Maria Salomidi Structural and functioning effects of anchoring on <i>Posidonia</i> : a case study in the Aegean Sea, Greece Dimitris Poursanidis (National Marine Park of Alonissos), Vasiliki Vasilopoulou , Spiros Iosifidis Effects of leisure boat anchoring on seagrass meadows in the National Marine Park of Alonissos and Northern Sporades (Greece): outcomes from field surveys under the Interreg MED project AMAre
Lunch		
13.30 – 15.00	Session 2: Addressing the impact of anchoring: best practices across the Mediterranean Natura 2000 sites - case studies of anchoring management from different perspectives – legal, technical-mitigation,	Alain Pibot (Agence française pour la biodiversité) Anchoring issues and marine habitats: contribution of the LIFE Marha Marcial Bardolet (Ministry of Environment and Territory, Govern Illes Balears) Balearic Islands: <i>Posidonia</i> legislation, surveillance, communication and use of moorings Frédéric Villers (Agence française pour la biodiversité) Moorings on <i>Posidonia</i> meadows: examples of management measures in the French Mediterranean Sea

	communication, enforcement, monitoring	<p>Julie Deter, Florian Holon (Andromede) Donia, a smartphone application based on seabed maps and AIS data to avoid and manage anchoring on seagrass beds</p> <p>Christos Papadas (WWF Greece), Anneza Georgopoulou, Amalia Alberini, Panagiota Maragou, Spyros Kotomatas Threats to the Posidonia meadows and recommendations for management of anchorage in Mediterranean MPAs - The case study of Gyaros MPA</p>
15.30 – 16.00	Work round I on legal, enforcement, competence issues	<p>Stephane Peron (Préfecture maritime de Méditerranée) <i>Moorings on Posidonia meadows: role of the French authorities in environmental protection</i></p> <p>Spyros Kotomatas (WWF Greece), Christos Papadas, Anneza Georgopoulou <i>Protecting Posidonia meadows in the Gyaros MPA, Greece: getting stuck in the mud of red tape</i></p>
16.00 – 17.30	Work round I on legal, enforcement, competence issues (cont.)	<i>Discussion of 4 key issues in small groups</i>
Friday 22nd November 2019		
08.00 – 13.00	Field visit to Salamina island (Hellenic naval base)	Panagiotis Tripontikas (Hellenic Navy Commander) Environmental policy of the Hellenic Ministry of National Defence and the environmental campaign of the Hellenic Fleet Command: Protecting the environment, enhancing operational effectiveness
14.00 – 14.20	Work round II on mitigation measures, technical solutions, financial sustainability	Valentina Cappanera (Portofino Marine Protected Area) <i>The management of recreational boating activity in Portofino marine protected area (Ligurian Sea) and the measures to mitigate anchoring</i>
14.20 – 16.00	Work round II on mitigation measures, technical solutions, financial sustainability (cont.)	<i>Discussion of 4 key issues in small groups</i>
Coffee break		
16.30 – 17.30	Reports from the working groups/Discussion	
17.30 – 18.00	Workshop recommendations and closing	
Departures		

2.3.3. Presentations

With consent of the authors, pdf files for all presentations given within the 2-day workshop are uploaded and openly available for viewing at: https://ec.europa.eu/environment/nature/natura2000/platform/events/anchors_away_posidonia.htm

Abstracts outlining these presentations are given in Appendix I.

2.3.4. Work groups

In advance of the workshop, presenters and conveners were asked via e-mail to suggest topics that they consider of most importance for the workshop participants to discuss during the work rounds.

All suggestions were then compiled into four main questions (and relevant sub-questions) per work round to be discussed among participants, namely:

Work Round 1: Legal, enforcement and competence issues.

- How can relevant authorities be empowered, coordinated and engaged to protect *Posidonia* beds in Natura 2000 sites and beyond?
 - What is the role of the management bodies and management plans of Natura 2000 sites?
 - How can the different competencies of various bodies involved be best coordinated to ensure effective and timely preventive measures?
 - Is there specific national legislation to protect *Posidonia* and how does it compare to requirements under nature protection legislation?
- What methods can be used to locate, identify, collect evidence and prosecute offenders, including across borders?
 - What kind of technology is being used (e.g. AIS, drones)?
 - How effective are inspections and controls (e.g. by MPA management bodies, coastguards, harbour masters) and judicial proceedings, and how can they be improved?
 - What type of sanctions could be considered adequate?
- How can the (good) legislative/enforcement solutions be transferred from one country to another?
- What role can civil society play in improving the legal provisions for, and enforcement of, protection for *Posidonia*?

Work Round 2: Mitigation measures, technical solutions and financial sustainability.

- What are the main gaps in knowledge on *Posidonia* distribution and management and how can existing knowledge be better shared?
- How can mooring infrastructure be effectively planned, funded and installed for various vessels?

- What kind of expertise is required for implementing technical solutions? How can successful technical solutions be disseminated at national/cross-country level?
 - What is the advantage of closing off areas for anchoring and how can one address the displacement of the impact on other locations?
- How can local communities and other stakeholders be mobilised to protect and restore *Posidonia* beds?
 - What avenues are available to assemble financial and technical resources to implement projects to protect *Posidonia* beds and how can these be organised?

During work round I, attendees were split into four groups, by randomly selecting numbered paper tokens that were circulated during lunch break. Four rapporteurs were stationed at the corners of the room with a whiteboard on which one of the four questions were written, and people that belonged to the group with the same number were asked to think about the question posed and freely give their suggestions for about seven minutes. Rapporteurs helped with forming the answers and wrote them down on the flipchart below each question. After seven minutes, the groups moved around to the next corner of the room and were asked to read the previous answers to the question presented and provide further suggestions, if they had any. The whole process continued for another two rounds, until all groups had visited all rapporteurs and had given their suggestions to all questions posed. In the end, the whiteboards were photographed, the answers were written down, and the rapporteurs gave a small presentation regarding the flow of work and the main answers to the question that they were assigned to, thus closing the meeting for day one.

During work round II, attendees were asked to go around the flipcharts with the four new questions as they did in the previous day. After completion of four full rounds, the answers to questions of both rounds were displayed upon the walls of the room and everyone was given a sticker with which to vote for their personal favourite answer to each question, in terms of significance. In the end, stickers were counted and the most important answer/suggestion to each question was presented by the rapporteurs to the whole room, thus closing the session and the workshop.



3. Results

3.1. Outcomes of the work rounds

Most voted answers/suggestions are presented below (three or four per work round and question).

A full account of all answers/suggestions offered by participants, are listed in the Appendix II.

3.1.1. Work round I

How can relevant authorities be empowered, coordinated and engaged to protect *Posidonia* beds in Natura 2000 sites and beyond?

- a) Raise awareness of both the authorities and the public by communicating the importance of *Posidonia* and by sharing inspiring/successful stories. [7 votes]
- b) Co-management/promoting networking/communication and better connectivity/clear responsibilities. [6 votes]
- c) Enhance technical capacity and empower management bodies to enforce regulations. [3 votes]
- d) Simplify procedures. [3 votes]

What methods can be used to locate, identify, collect evidence and prosecute offenders, including across borders?

- a) There is a need for more specialised and educated staff with actual authority to prosecute offenders. [12 votes]
- b) The use of the Automatic Identification System (AIS) and/or Vessel Monitoring System (VMS) for all kinds of boats regardless of size. [7 votes]
- c) The use of DONIA application. [4 votes]

How can the (good) legislative/enforcement solutions be transferred from one country to another?

- a) Make/pass a common “*Posidonia* Law” across all Mediterranean countries to protect *Posidonia*. [15 votes]
- b) Launch a Mediterranean campaign against anchoring on *Posidonia*, explaining impacts and promoting best practices. [3 votes]
- c) Make better use of existing relevant networks (RAC/SPA, MedPan, AdriaPan, etc.). [2 votes]
- d) Collect and make publicly available all relevant legislation that is currently in effect across countries (also applicable beyond the Mediterranean and for other sensitive habitat types). [2 votes]

What role can civil society play in improving the legal provisions for, and enforcement of, protection for *Posidonia*?

- a) By engaging in raising awareness, e.g. through education, social media, *Posidonia* festivals, public figure recruitment, citizen science projects, etc). **[18 votes]**
- b) Cooperation of civil society with local authorities for surveillance, management and protection; public consultation on the creation of the legal framework. **[5 votes]**
- c) Highlight Bad *Posidonia* Practices (through social media, FISH-watch). **[2 votes]**

3.1.2. Work round II

What are the main gaps in knowledge on *Posidonia* distribution and management and how can existing knowledge be better shared?

- a) *Posidonia* (incl. dead matte) has not been fully mapped in all countries, either within or beyond protected areas. **[11 votes]**
- b) Existing *Posidonia* maps are yet to be incorporated in national hydrographic charts. **[7 votes]**
- c) Continuous update of maps to include new information on *Posidonia* (live or dead matte) distribution (prioritising highly impacted areas), while also designating suitable anchorage zones to safely divert pressures. **[3 votes]**

How can mooring infrastructure be effectively planned, funded and installed for various vessels?

- a) The planning should be done at the level of Marine Spatial Planning with input from all relevant stakeholders (port and local authorities, MPA managers, boating associations, concerned citizens, etc.). **[7 votes]**
- b) There is a need for wider monitoring of boating activity and not only for the areas adjacent to installed moorings. **[5 votes]**
- c) Funding should be based on anchoring penalties (fines), boat taxation and mooring fees. **[3 votes]**
- d) There is a need for concise guidelines for the certification of ecologically (and technically) sound mooring design and installation practices. **[3 votes]**

What kind of expertise is required for implementing technical solutions? How can successful solutions be disseminated at national and cross-country level?

- a) Creation of a guideline (clear, simple & easy to implement). **[11 votes]**
- b) Expertise required: Seamanship, Lobbyists, Maritime authorities, Geotechnical, Physical, Financial, Engineers, Administrative, Business plan, Environmental Impact Assessments. **[5 votes]**
- c) Organisation of a 2nd Anchors Away workshop in the Balears, where exemplary practices are already in force. **[4 votes]**
- d) Creation of a collaborative platform across the Mediterranean. **[4 vote]**

What is the advantage of closing off areas for anchoring and how can the displacement of activities be addressed?

- a) Protection and conservation of *Posidonia oceanica*, fishing nursery, whole natural habitat, birds, clear water, connectivity of meadows, ecosystem services, climate change, ideal areas

for studies and monitoring, restoration areas, sites with good status regarding anchoring - useful for controls, better landscape without boats, minimisation of other activities like fishing, added value of the area, prevention of pollution. [16 votes]

- b) Socioeconomic benefits and motivation of local communities (e.g. allow other activities like swimming, snorkelling, underwater trails, diving, green tourism, distribution of money from the closure to nearby ports/marinas where boats can be diverted to, awareness of fishermen and other stakeholders about the advantages they will have-more fish etc, touristic development of the new anchoring place). [7 votes]
- c) Good study and good plan for the displacement (e.g. sandy areas should be chosen, habitat mapping needed, less windy areas, marinas). [1 vote]

What avenues are available to assemble financial and technical resources to implement projects to protect *Posidonia* beds and how can these be organised? (answers via email, most relevant selected here);

- a) Make use of appropriate European Funds (i.e. LIFE Projects, European Maritime and Fisheries Fund, INTERREG, etc.)
- b) Engage the private sector, management bodies and/or port authorities in charging "green" mooring and marina fees
- c) Create social contribute/sponsor projects like "Save Posidonia Project" (<https://www.saveposidoniaproject.org/en/la-posidonia/>).

3.2.1. Forming recommendations

During discussions, critical lack of education and awareness about *Posidonia* among both decision-makers and the general public has been identified as a core barrier to effective protection. However, several other scientific, legislative and technical issues and gaps have been raised.

Primarily based on the highest-voted input of the assembly, but also taking into account all relevant feedback from participants of the Anchors Away event, the following recommendations were formed:

Recommendations for managers/authorities:

- Enhance awareness, communication and networking among relevant authorities by sharing existing knowledge and best practices (e.g. establish a Mediterranean *Posidonia* network)
- Publish a guide for managers and decision-makers addressing all aspects of effective *Posidonia* protection
- Enhance technical capacity of the relevant authorities to implement and enforce the protection requirements of the Habitats Directive in Natura 2000 sites

Recommendations for civil society:

- Educate citizens through booklets, public and social media, *Posidonia* festivals, public figure recruitment, labelling *Posidonia*-friendly practices, citizen science projects, etc. Introduce *Posidonia* (and other important marine features) in national primary school curriculum

- Identify and promote smart ways to engage civil society in surveillance, management and protection
- Ensure awareness of captains and skippers, i.e. by including information on *Posidonia* and environmentally safe anchoring in tutorials and certification exams.

Recommendations on legislative issues:

- Compile all existing regulations (and create new ones where needed), under a new umbrella law (“*Posidonia* Law”) for the actual and effective protection of *Posidonia* beds
- Launch a Mediterranean campaign against anchoring on *Posidonia*, explaining necessary legislative measures through highlighting *Posidonia* ecosystem services jeopardised by anchoring
- Recruit specialised and educated staff and simplify procedures to prosecute offenders

Recommendations on scientific and technical issues:

- Engage state-of-the-art technology in monitoring (e.g. AIS, satellite remote sensing) and regulating boat anchoring (e.g. Donia App, Google Earth Maps)
- Promote and support complete underwater mapping of *Posidonia* beds (including dead matte) and other coastal habitats to effectively designate both anchor-free and anchor-friendly zones
- Incorporate/update all existing *Posidonia* maps in national hydrographic charts across the Mediterranean
- Promote designation and installation of mooring infrastructures through Marine Spatial Planning with input from all relevant stakeholders
- Develop streamlined and concise guidelines for the certification of ecologically (and technically) sound mooring designs and installation practices in areas with *Posidonia* beds and other sensitive habitats and species

Recommendations on allocating funding:

- Make use of appropriate European Funds (i.e. LIFE Projects, European Maritime and Fisheries Fund, INTERREG, etc.)
- At local scale, engage the private sector, management bodies and/or port authorities in charging “green” mooring and marina fees and issuing penalties for improper anchoring
- At larger scales, consider the introduction of a sustainable tourism tax
- Create social contribute/sponsor projects like "Save Posidonia Project" (<https://www.saveposidoniaproject.org/en/la-posidonia/>)

3.2.2. Immediate output

To date, the Anchors Away event has already inspired and precipitated a series of actions which directly respond to the aforementioned recommendations, namely:

- Collaboration between the Hydrographic Service of the Hellenic Navy and the Institute of Oceanography of the Hellenic Centre for Marine Research to compile and incorporate all existing *Posidonia* maps into the national Hydrographic Charts of Greece;
- Collaboration between Andromède Océanologie and the Institute of Oceanography of the Hellenic Centre for Marine Research to incorporate existing Greek data on the distribution of *Posidonia* beds and other coastal habitat types into the DONIA app;
- Collaboration between Andromède Océanologie and the Ministry of Environment and Territory, Govern Illes Balears to incorporate the new Balearic Islands data on the distribution of *Posidonia* beds and other coastal habitat types into the DONIA app and to translate the app into spanish and catalan (planned for April 2020);
- Initiative to establish a first Mediterranean *Posidonia*/Anchoring network: initiative taken by Frédéric Villers from Agence Française pour la Biodiversité on 05/02/20, a first web meeting is being scheduled for late March to early April 2020;
- Approval for the organization of the first “*Posidonia* Festival” in Greece (<http://www.posidoniefestival.net>) by the Municipality of Rafina-Pikermi (Greece) in September 2020, initiated by Mrs. Valerie Vassilicou (Rafina Town Councillor and attendant of the Anchors Away Event).

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APPENDIX I

Abstracts

Session 1: Assessing the impact of anchoring on *Posidonia* beds. Available scientific methodologies, schemes and tools to assess anchoring impacts across regions and seabed types, overview of the sources and scale of impact

[Anchoring on *Posidonia oceanica* meadows: impacts, monitoring and possible solutions](#)

Monica Montefalcone

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Mechanical direct damages caused by leisure boats anchoring and mooring activities are responsible for localized regressions of *Posidonia oceanica* meadows in shallow coastal waters, creating bare patches that are not easily recolonised by the plant. The literature reporting negative effects of these activities on seagrass meadows is here reviewed to define at which levels anchoring impacts are mainly recorded: the individual level (phenology), the population level (cover and density), or the seascape level (structure of the meadow). Although individual anchoring often impacts at small scale, its cumulative effects can be much greater causing significant fragmentation of the seagrass seascape. In the last decades, different strategies have been proposed to reduce such impacts on seagrasses and enforce anchorage regulations and 'seagrass-friendly' moorings. Thematic mapping, together with application of ecological indices, may provide relevant information for management strategies to conserve *P. oceanica* meadows from mechanical disturbances.

[Protection of *Posidonia oceanica* under the Habitats Directive and requirements for the management of Natura 2000 sites](#)

Vedran Nikolić

European Commission, DG Environment

Posidonia beds are a priority habitat type protected under the EU Habitats Directive. Special areas of conservation (Natura 2000 sites) must be designated, protected and effectively managed, which together with the measures established outside the sites, should contribute to the achievement and maintenance of the favourable conservation status of this habitat type as required by the Directive. Currently, there are 488 Natura 2000 sites protecting *Posidonia* beds with a total surface of 37 714 km². However, Member States have indicated that they have established some form of management only for 30% of these sites and for 15% of their total area. The Habitats Directive requires Member States to take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats for which the areas have been designated. In addition to such preventive measures, proactive measures such as restoration are also required if needed to reach the site's conservation objectives. Deterioration of *Posidonia* beds in Natura 2000 sites by damaging activities such as anchoring is therefore a violation of the Habitats Directive. Since the conservation status of *Posidonia* beds remains unfavourable in most Mediterranean EU Member States, it is important to establish robust and effective measures preventing the negative effects of anchoring and their deterioration. This is even more important considering the essential role of *Posidonia* beds for the Mediterranean marine biodiversity and for climate change mitigation and adaptation. The new ambitions for biodiversity and climate

stated in the European Green Deal and the upcoming EU Biodiversity strategy for 2030 should provide further incentive for immediate action.

[Preliminary assessment of anchoring pressure in Greek N2K sites using satellite observations](#)

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High resolution Google Earth Images were analysed for a preliminary assessment of recreational boat anchoring pressure within the Greek coastal marine NATURA 2000 network. Out of a total of 118 Greek marine sites, 21 SCI or SCI/SPA known to comprise extensive *Posidonia oceanica* beds were selectively assessed for variable time periods spanning from June to October 2002-2019. Within a total of 92 images analysed, 3493 anchored boats were recorded, of which 776 <5m length (i.e. small inflatable and polyester boats) and 2717 of >5m length (motor and sailing yachts, mostly <24m). Although the analysed dataset was unevenly distributed due to restricted availability of historical imagery in the sites of interest, recreational boat anchoring in ecologically sensitive areas and indeed over seagrass beds was clearly revealed to be an extensive and seasonally intensive pressure, still pending sound management across the Greek Natura 2000 Network.

[Structural and functioning effects of anchoring on *Posidonia*: a case study in the Aegean Sea, Greece](#)

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Recent studies along the Greek coastal areas highlight the anchoring activities of leisure boats and yachts as one of the main anthropogenic pressures on *Posidonia oceanica* meadows. Not unexpectedly, several sites of the NATURA 2000 network are among the areas with the higher intensity of anchoring pressure. The Marine Protected Area of Gyaros Island (an uninhabited small island in the northern Cyclades) was selected as a case study for examining the effects of anchoring on the structural and functional traits of *P. oceanica* meadows. The ecological status and population dynamics of *Posidonia* meadows were assessed following an ecosystem-based approach, where a series of metrics from various levels of biological organization (ranging from biochemical to community levels), and ecological indices were applied. Furthermore, using a disturbance/recovery experiment, several factors (i.e. different levels of disturbance intensity) and environmental characteristics (i.e. nutrients, sediment grain size, and organic content) that mediate the resilience and recovery potential of *Posidonia* meadows to small-scale disturbances (e.g., anchoring) were investigated. Our preliminary results on meadow cover (<40%), shoot density (<270 shoots/m²), and meadow patchiness (small-sized heterogeneous patches) clearly reflected a low conservation state (CI <0.6), which together with the significant level of substitution by other species (SI >0.25) and the associated community phase shift (PSI: 0.25-0.50) reveal dramatic alterations in the structure and functioning of the *Posidonia* ecosystem at the east coast of Gyaros Island, where the hot-spot of anchoring activities is observed. Further

monitoring of the recorded parameters after the foreseen deployment of eco-moorings in this area will allow assessing the recovery potential of the degraded meadow and will offer valuable insights in designing large-scale restoration actions for *Posidonia* meadows across the Natura2000 marine network.

Effects of leisure boat anchoring on sea grass meadows in the National Marine Park of Alonissos and Northern Sporades (Greece): outcomes from field surveys under the Interreg MED project AMAre

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The Sporades archipelago extends along the east coast of the Greek mainland in the North Aegean Sea, and constitutes an attractive destination for recreational boating, mainly during the summer period. This popular leisure activity offers an opportunity for people to experience nature and contributes to several local and regional economies. However, the effect of the disturbance caused can be pronounced particularly for specific benthic ecosystem components (e.g. vegetation) in areas with fine sediments due to spatio-temporal cumulative impacts and their slow recovery. In the frame of the INTERREG MED AMAre project (<https://amare.interreg-med.eu/>), three diving surveys, applying a specific monitoring protocol, were conducted in the National Marine Park of Alonissos and Northern Sporades (NMPANS); the selected locations included sites where recreational boats were common (i.e. in zone B of the MPA), as well as sites in the highly protected region (zone A) of the MPA where most anthropogenic stressors, including anchoring, are forbidden. Outcomes showed that recreational boating was clearly associated with the decreasing status of the meadows within the MPA. The importance of permanent mooring systems in disturbance tolerant environments and the adoption of effective surveillance practices were then discussed in the frame of stakeholder meetings, foreseen within the project, and revealed the failure of similar initiatives proposed also in the past, mainly due to bureaucratic and political barriers and the complete lack of integration between policy and science. Hence, although the incorporation of direct census of seagrass meadows to monitoring programs such as those under the MSFD, the WFD and the Natura 2000 are crucial in terms of providing the necessary evidence on the status of these priority conservation habitats, the subsequent adoption of management measures and then the evaluation of their effectiveness will truly contribute to meeting conservation objectives and having any kind of sustainable economy in EU marine waters, either protected or not.

Session 2: Addressing the impact of anchoring: best practices across the Mediterranean Natura 2000 sites - case studies of anchoring management from different perspectives – legal, technical-mitigation, communication, enforcement, monitoring

[Anchoring issues and marine habitats: contribution of the Life Marha](#)

Alain Pibot

Agence française pour la biodiversité

The 8-year program integrated project aims to achieve favourable conservation status on marine natural habitats listed in the Habitats Directive. *Posidonia* beds are considered as a priority habitat. The *Posidonia* seagrass has multiple ecological functions, such as nursery, shelter and feeding areas for marine fauna, protection against erosion, oxygen producer and carbon sink. These flowering marine plants are found in shallow water and up to a depth of 40 meters. They only grow a few centimetres per year and once destroyed they cannot be restored (given the current state of knowledge). In this context, anchoring issues have been clearly identified and several actions are planned in the life program. Financial aid is available to set up ecological mooring systems in threatened areas. Awareness campaign tools are also provided to local and national stakeholders. Finally, the project is working on all malfunctions in the technical and administrative procedures hindering the *Posidonia* meadows protection.

[Posidonia legislation, surveillance, communication and moorings: A case study from the Balearic Islands.](#)

Marcial Bardolet

Institut Balear de la Natura (IBANAT)

The Balearic Islands have approximately 650km² of *Posidonia* seagrass beds, even so for the last few years the number of big vessels has been increasing and therefore the impacts of anchorages in the sea. *Posidonia* is key for the balance of the marine environment and many other ecosystemic benefits. It is therefore absolutely necessary to reduce the impacts of anchoring so we can protect this invaluable habitat. From the Government of the Balearic Islands we have focused on developing mechanisms to reduce impacts. First, through existing regulations (Habitats Directive 92/43/EEC or Law 42/2007 on Natural Heritage and Biodiversity), we have incorporated our own regulations in our autonomous community called Decree 25/2018 of July 27, on the conservation of the *Posidonia oceanica* in the Balearic Islands. There has also been progress in raising awareness and improving communication, collecting data on impacts and *Posidonia* monitoring. One of the most important actions with great results that we have accomplished is the *Posidonia* surveillance team, an operation that includes 15 vessels and coordination with all sea agents. This surveillance operation plans to improve year by year to be more effective in the close observation of anchors, chains and reduce their negative impact.

[Moorings on *Posidonia* meadows: examples of management measures in the French Mediterranean Sea](#)

[Frédéric Villers](#)

Agence française pour la biodiversité

The French biodiversity agency gives technical and financial help to the French authorities and to the marine protected areas (MPAs) in order to implement the mooring strategy. Cartography expertise is provided to define prohibited areas in future local decrees. To speed up the set-up of ecological mooring, the agency completed a practical guide for a better understanding of technical, economic, environmental and legal issues. Administrative procedures, controls and sanctions are detailed; the different types of anchoring systems are described. Environmental and landscape guidelines are given for a better sizing and geometry of an anchoring project. Cost/benefit analysis are also analysed. The French biodiversity agency also provides technical and financial aid to implement ecological mooring, especially in MPAs. Last but not least, different awareness campaigns are regularly held to prevent leisure boater and yacht captains to moor in the fragile *Posidonia* seagrass beds.

[Donia, a smartphone application based on seabed maps and AIS data to avoid and manage anchoring on seagrass beds](#)

[Julie Deter](#)^{1,2} and Florian Holon²

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In France, about 30% of the coastal habitats (0 to -80 m) are subject to mooring pressure by vessels equipped with Automatic Identification Equipment (AIS). *Posidonia oceanica* seagrass beds, the very ones that provide the most important ecosystem services, are the most impacted in terms of duration. Four areas account for 80% of the moorings. Donia, is a free tablet and smartphone application that we created in 2013. It helps captains and boaters to anchor outside seagrass beds and managers to control their territory in real time by detecting ships equipped with AIS anchored in sensitive habitats. This application is available for the entire French Mediterranean and some marine protected areas in Tunisia and Italy. It can be extended elsewhere provided that fine-scale maps of underwater habitats can be collected or carried out.

[Protecting *Posidonia* beds in the Gyros MPA, Greece: successfully designing an anchoring network](#)

[Christos Papadas](#), Anneza Georgopoulou, Amalia Alberini, Panagiota Maragou, Spyros Kotomatas
WWF Greece

The Pharos4MPAs project examined the impacts of various human activities on the marine environment within MPAs and compiled lessons learned and best practices from case studies for throughout the region. The impacts of specific human activities (i.e. maritime transport, cruisers, professional and recreational fisheries, recreational boating, and aquacultures) on *Posidonia* meadows were presented and a number of recommendations to MPA managers and policy

makers were identified on how to best manage and mitigate these impacts. The case study of the Gyaros Natura 2000 site in the central Cyclades, which just recently has been designated as a marine protected area, was presented as such a successful case study. The Gyaros MPA hosts a variety of priority marine species and habitats in need of protection. During the last 7 years a comprehensive program has been developed and is being implemented by a consortium of partners (WWF Greece, Ministry of Environment and Energy, Decentralized Administrative Authority of Aegean, Development Company of Cyclades, MOm/Hellenic Society for the Study and Protection of the Monk Seal, Harokopio University of Athens, and Tethys Research Institute) to study in detail the marine and terrestrial environment of the site, to develop concrete conservations proposals, and to actively implement, in collaboration with local stakeholders, an ecosystem management plan that will secure the conservation of the environment and in parallel support the sustainable development of the neighbouring local societies. In the context of the management of the area and in view of the extended *Posidonia* beds that have been recorded and mapped in the Gyaros site, a network of 15 *Posidonia* friendly anchors was designed to prevent anchoring damage. The details on the design, the criteria and the selection process of the anchors and the anchoring locations and their construction were presented.

Work round I on legal, enforcement, competence issues

[Moorings on *Posidonia* meadows: role of the French authorities in environmental protection](#)

Stephane Peron

Préfecture maritime de Méditerranée

In the French Mediterranean Sea, the maritime prefect is the representative of the French State for safety, security and environmental issues. *Posidonia* seagrass is threatened by the anchoring of vessels and in particular units > 24 m. It has been identified as a priority in the marine strategy framework directive and its 2016 -2021 French Mediterranean action plan. To face mooring issues, the maritime prefect has updated the 2009 mooring management strategy with a focus on yachting practices. Environmental guidelines are defined, and priority actions areas have been identified for leisure boating (< 24 m) and yachting (> 24 m). National and local authorities as well as state agencies have agreed on financial subsidies to encourage ecological mooring. Environmental regulations needed to be reinforced. In June 2019, the maritime prefect established a framework decree to prohibit mooring for vessels > 24 m in French marine protected habitats. The decree gives also safety and security instructions in French waters. Local adaptations of the decree are under construction.

[Protecting *Posidonia* beds in the Gyaros MPA, Greece: getting stuck in the mud of red tape](#)

[Spyros Kotomatas](#), Christos Papadas, Anneza Georgopoulou

WWF Greece

The Gyaros Natura 2000 site in the central Cyclades, which just recently has been designated as a Marine Protected Area, hosts a variety of priority marine species and habitats in need of protection. During the last 7 years a comprehensive program has been developed and is being implemented by a consortium of partners to actively implement, in collaboration with local stakeholders, an ecosystem management plan that will secure the conservation of the environment and in parallel support the sustainable development of the neighboring local societies. In the context of the management of the area and in view of the extended *Posidonia* beds that have been recorded and mapped in the Gyaros site, a network of 15 *Posidonia* friendly anchors was designed to prevent anchoring damage. However, despite the fact that all equipment has been constructed and are ready to be installed since 2017, for the last 4 years, their on-site installation has been hampered by a maze of vague and conflicting administrative licensing procedures that involve a number of different state authorities, making such a project non-feasible to complete within a reasonable timeframe. We presented key legislative and administrative obstacles encountered in this process and pitfalls to be avoided in such efforts on the future. Furthermore, we identified a number of key issues that need reform and provided concrete proposals that can simplify the current legislation and licensing procedure so as to promote the wider installation of *Posidonia* friendly anchors throughout the country and the region.

Work round II on mitigation measures, technical solutions, financial sustainability

[The management of recreational boating activity in Portofino Marine Protected Area \(MPA\) \(Ligurian Sea\) and the measures to mitigate anchoring.](#)

[Valentina Cappanera](#)

Portofino Marine Protected Area, Italy

The Marine Protected Area of Portofino is the third smallest in Italy (346 ha) but has a high environmental value (it is a SPAMI and L-TER site) as well as a high touristic frequentation. In addition to a great boating activity, a strong diving one as well as artisanal and recreational fishery are present. As consequence, a monitoring activity is useful and necessary in the area where a Natura 2000 site is included. Since 2006, Portofino MPA has been carrying on specific monitoring campaigns in order to know the full extent of recreational boating problem, identifying the high-risk area of the MPA and optimizing management strategies. Then some management measures have been adopted since 2009 in order to mitigate anchoring actions as well as guarantee a continuation of the user frequentation. An improvement of conservation actions is forecasted for the future even if a long rezoning process of the MPA is expected.

APPENDIX II

Detailed answers in Work Round discussions

Work Round I

How can relevant authorities be empowered, coordinated and engaged to protect *Posidonia* beds in Natura 2000 sites and beyond?

- e) Raise awareness of both the authorities and the public by communicating the importance of *Posidonia* and by sharing inspiring/successful stories. [7 votes]
- f) Co-management / promoting networking / communication and better connectivity / clear responsibilities. [6 votes]
- g) Enhance technical capacity and empower Management Bodies to enforce regulations. [3 votes]
- h) Simplify procedures. [3 votes]
- i) Definite and clear laws. [2 votes]
- j) Update nautical charts with existing information on *Posidonia* and other habitat types distribution. [1 vote]
- k) By getting the locals on board. [1 vote]
- l) Establish an ad hoc working group (*Posidonia* and anchoring) including all relevant stakeholders. [1 vote]
- m) Ensure funding on the purpose [1 vote]

What methods can be used to locate, identify, collect evidence and prosecute offenders, including across borders?

- d) There is a need for more specialised and educated staff with actual authority to prosecute offenders. [12 votes]
- e) The use of the Automatic Identification System (AIS) and/or Vessel Monitoring System (VMS) for all kinds of boats regardless of size. [7 votes]
- f) The use of DONIA application. [4 votes]
- g) The use of aerial and surface drones to monitor and identify offenders. [1 vote]
- h) Legal tracking of cell phones position with an optional SMS alert service informing the boat owners when entering a specific protected area. [1 vote]
- i) The use of RADAR system and Thermal Automatic Cameras. [0 votes]
- j) The use of real time satellite imagery of high resolution. [0 votes]
- k) Establish a citizens' network to voluntarily report offences through social media or the international "112" civil protection line. [0 votes]
- l) Establish a standardised protocol for prosecuting offenders across borders. [1 vote].
- m) Ensure funding in inspection and control actions (e.g. patrol boats, surveillance systems). [0 votes]
- n) The foreseen reform of the Maritime Control Regulation should include more specific legislation regarding enforcement issues. [0 votes]
- o) The imposition of not only financial but also administrative penalties (e.g. withdrawal of authorisation/licences). [1 vote]
- p) Establish sufficiently deterrent fines. [0 votes]

How can the (good) legislative/enforcement solutions be transferred from one country to another?

- e) Make/pass a common "Posidonia Law" across all Mediterranean countries to protect *Posidonia*. [15 votes]

- f) Launch a Mediterranean campaign against anchoring on *Posidonia*, explaining impacts and promoting best practices. **[3 votes]**
- g) Make better use of existing relevant networks (RAC/SPA, MedPan, AdriaPan, etc.). **[2 votes]**
- h) Collect and make publicly available all relevant legislation that is currently in effect across countries (also applicable beyond the Mediterranean and for other sensitive habitat types). **[2 votes]**
- i) Map good legal practices across the Mediterranean and promote their adoption through international organisations and/or treaties (e.g. EU Commission, Barcelona Convention). **[1 vote]**
- j) Identify good practises already in force, share competences among countries and support common training of relevant authorities. **[1 vote]**
- k) New calls for collaborative projects specifically on *Posidonia* (e.g. LIFE) to help transfer good management practices among countries. **[1 vote]**
- l) Establish specialised environmental courts to handle and resolve environmental violations more efficiently. **[0 votes]**
- m) Issue a new Mediterranean Action Plan for the protection of *Posidonia* from anchoring and other direct anthropogenic impacts. **[0 votes]**
- n) Create a Mediterranean Forum (scientists, stakeholders and administrators) to help with harmonisation across countries and track progress towards the protection of *Posidonia*. **[0 votes]**

What role can civil society play in improving the legal provisions for, and enforcement of, protection for *Posidonia*?

- d) Raise awareness (in education, sharing photos and videos, of the stakeholders, celebrations, festivals, public figure, Posidonia Day, sharing responsibility, citizen science, social media). **[18 votes]**
- e) Cooperation of civil society with local authorities for surveillance and protection. Public consultation on the creation of the legal framework. **[5 votes]**
- f) Highlight Bad *Posidonia* Practices (through social media, FISH-watch). **[2 votes]**
- g) Effective use of platforms for communication and sharing information (social media, ad hoc networks, etc.). **[1 vote]**
- h) Labelling *Posidonia*-friendly practices (on fishermen, yacht companies, etc.). **[1 vote]**
- i) Individual awareness and participation in public hearings. **[1 vote]**
- j) Raise funding, also from the private sector (e.g. shipping companies). **[0 votes]**
- k) Organise public protests for the protection of *Posidonia*. **[0 votes]**

Work Round II

What are the main gaps in knowledge on *Posidonia* distribution and management and how can existing knowledge be better shared?

- d) *Posidonia* (incl. dead matte) has not been fully mapped in all countries, either within or beyond protected areas. [11 votes]
- e) Existing distribution knowledge is yet to be incorporated in national hydrographic charts. [7 votes]
- f) Continuous update of maps to include new information on *Posidonia* (live or dead matte) distribution (prioritizing highly impacted areas) and designate suitable anchorage zones to safely divert pressures. [3 votes]
- g) Awareness campaigns using most up-to-date social network tools. [1 vote]
- h) Gaps of knowledge regarding existing regulations in different countries. [1 vote]
- i) Upload to public domain and give public access to data regarding *Posidonia* distribution. [1 vote]
- j) Organize “*Posidonia* festivals” across Mediterranean. [1 vote]
- k) Better understand the impact of small boats (< 15 m in length) anchoring on *Posidonia* beds. [1 vote]
- l) Knowledge gap regarding *Posidonia* recovery. [1 vote]
- m) Ensure awareness of captains, skippers, etc., by including information on *Posidonia* and environmentally safe anchoring in courses and certification exams. [1 vote]
- n) Improve/encourage closer collaboration and exchange of info between managers and the scientific community. [0 votes]
- o) Create a guideline to help managers make better-informed decisions regarding the conservation of *Posidonia*. [0 votes]
- p) Gaps in systematic and continuous monitoring of *Posidonia* beds. [0 votes]
- q) More research in better understanding dead-matte dynamics and reversibility of the impacts of anchoring. [0 votes]
- r) More research on *Posidonia* cultivation and transplanting. [0 votes]
- s) Knowledge gap on the effect of climate change on *Posidonia*. [0 votes]
- t) Knowledge gap on *Posidonia* genetics across the Mediterranean. [0 votes]
- u) Gaps of knowledge of the general public on *Posidonia*'s importance. [0 votes]
- v) Distribution of best practices in management regarding anchoring/moorings, etc. [0 votes]

How can mooring infrastructure be effectively planned, funded and installed for various vessels?

- e) The planning should be done at the level of Marine Spatial Planning with input of MPA managers. [7 votes]
- f) There is a need for a wider monitoring of boating activity and not only for the areas adjacent to the mooring. [5 votes]
- g) Funding should be based on anchoring penalties (fines), boat taxation and parking fees. [3 votes]
- h) Establishment of certification for proper mooring installation for companies. [3 votes]
- i) A long-term monitoring and high-resolution mapping for *Posidonia* beds are considered key requirements. [1 vote]
- j) Engagement of local inhabitants and boat owners. [1 vote]
- k) Private funds (hotels/yachts/business) either through subsidies by state and/or bank credits. [1 vote]

- l) There should be control and prohibition of free anchorage in the adjacent areas of the eco-moorings. [1 vote]
- m) Engagement of all the relevant competent authorities (port authorities included). [0 votes]
- n) Prior legalisation of the area's legal boundaries is necessary. [0 votes]
- o) Mooring designs assessment is needed. [0 votes]
- p) European funds. [0 votes]
- q) Funding from local authorities and port authorities. [0 votes]
- r) Subcontracting for managing the anchoring activity. [0 votes]
- s) Engagement of marine scientists, engineers, shipbuilders, as well as members of diving organisations in identifying best practices. [0 votes]
- t) Moorings should be installed by the relevant government department. [0 votes]

Sub-question A. What kind of expertise is required for implementing technical solutions? How can successful solutions be disseminated at national and cross-country level?

- e) Creation of a Guideline (clear, simple & easy to implement). [11 votes]
- f) Expertise required: Seamanship, Lobbyists, Maritime authorities, Geotechnical, Physical, Financial, Engineers, Administrative, Business plan, Environmental Impact Assessments. [5 votes]
- g) 2nd Anchors Away workshop in Formentera. [4 votes]
- h) Creation of a collaborative platform. [4 vote]
- i) Regular brainstorming meetings involving all relative stakeholders. [1 vote]
- j) Recruit *Posidonia* Ambassador/s (e.g. Leonardo Di Caprio, Monica Bellucci). [1 vote]
- k) Creation of a beautiful book about *Posidonia*. [0 votes]

Sub-question B. What is the advantage of closing off areas for anchoring and how can the displacement of activities be addressed?

- d) Protection and Conservation (*Posidonia oceanica*, fishing nursery, whole natural habitat, birds, clear water, connectivity of meadows, ecosystem services, climate change, ideal areas for studies and monitoring, restoration areas, sites with good status regarding anchoring - useful for controls, better landscape without boats, minimization of other activities like fishing, added value of the area, prevention of pollution). [16 votes]
- e) Socioeconomic benefits and motivation of local communities (e.g. allow other activities like swimming, snorkelling, underwater trails, diving, green tourism, distribution of money from the closure to close ports where the boats will go, awareness of fishermen and other stakeholders about the advantages they will have-more fish etc, touristic development of the new anchoring place). [7 votes]
- f) Good study and good plan for the displacement (e.g. sandy areas should be chosen, habitat mapping needed, less windy areas, marinas). [1 vote]
- g) Provides safety while swimming. [0 votes]
- h) Must define the perimeter and zoning. [0 votes]
- i) Official and legal areas should be included in updated nautical charts (in AIS or printed). [0 votes]
- j) Installation of mooring systems. [0 votes]
- k) Extra services should be provided inside areas of anchoring (good maintenance of the mooring system, security, food supplies, internet access, prevention of anchor losing events). [0 votes]
- l) Clarity of the legal framework and what is allowed. [0 votes]
- m) Implementation: control units and fines. [0 votes]
- n) Communication tools for the implementation (e.g. VHF). [0 votes]
- o) Communication, consultation and inclusion of stakeholders in decisions. [0 votes]

- p) Education and information about the rules, before each boat enters the areas (e.g. ballast water). [0 votes]

How can local communities and other stakeholders be mobilized to protect and restore *Posidonia* beds? (answers via email³)

- a) Provide information on the habitat (importance, valuation in monetary and non-monetary services) at the local communities using daily tools and approaches such as TV, radio, newspapers, magazines and environmental education.
- b) Include *Posidonia* beds on all hydrographic charts.
- c) Raise awareness among common people and administration using a simple language and with the aim to build a common vision among scientists, managers, and politicians.
- d) Help NGOs, Foundations, sailing associations, etc, to spread the importance of *Posidonia*.
- e) Establish a *Posidonia* Festival and organise *Posidonia* Events at different scales (technical groups, consultation groups, financial groups) in order to create a *Posidonia* joint community.
- f) Environmental education activities and through in situ field trips where the value and function of *Posidonia* can be presented, together with the devastating effects of anchoring.

What avenues are available to assemble financial and technical resources to implement projects to protect *Posidonia* beds and how can these be organised? (answers via email⁴)

- a) Local funding coming from the business sector of tourism, and the end users of the ecosystem services can become one avenue for funding of local scale activities.
- b) On the technical side, research centres or private companies that have develop or adapt already available methods for *Posidonia* protection and restoration can provide the first training to citizens that have the willing to become volunteer defenders of the meadows.
- c) In Greece, at least, there are various sources of funds willing to assist environmental projects, from private / public philanthropic foundations, to The Green Fund (where the event was hosted).
- d) Technical resources appear to be less available, though some were mentioned in the presentations (e.g. open source satellite images, existing port police). The suggestion of detailed mapping of all seagrass beds across national scale does not seem realistic nor sustainable.
- e) Training and workshop addressed to specific topics could be a good way to assemble technical resources to submit project under specific financial tools.
- f) Sustainable tourism tax.
- g) Creating a social contribute/sponsor like "Save *Posidonia* Project" (<https://www.saveposidoniaproject.org/en/la-posidonia/>).
- h) Revenues from anchoring fees using eco-moorings (after the original expenses have been covered). This can be done very effectively in MPAs, by the competent MPA management bodies.
- i) European Funds such as LIFE *Posidonia*, European Maritime and Fisheries Fund (EMFF), INTERREG, etc.
- j) Through eco-friendly anchoring adoption programs that run locally.

³ Due to a mistake during transcription of the text on the flipcharts, the two sub-questions of 2.2 were treated as proper questions during the second session, while the omitted questions 2.3 and 2.4 were omitted at the time. To address this issue, these questions were later circulated among the attendees via email, requiring their further input. Unfortunately, this process did not allow for these answers/suggestions to be rank-voted from the assembly.

⁴ As before