



# RESEARCH PHASE REPORT

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## 1. SUMMARY

Project partners of the EnviroNaut project agreed in undertaking a set of face-to-face interviews and an online survey to discover through the project target groups (marinas, sea schools and water sports clubs, skipper and charter services, and maintenance services) the current environmental skills and training gaps in the nautical industry. A sample of 37 persons from Spain, Germany, Croatia and Greece participated in the face-to-face interviews and 69 users, from various EU countries completed the online survey. Data were collected through the use of a structured questionnaire, a copy of which is provided in the appendix. The length of each survey was about 10 minutes, while the duration of face-to-face interviews had an average of approximately 30 minutes.

## 2. BACKGROUND AND OBJECTIVES

The aim of this research phase is to discover through the nautical sector professionals experience, which are the current environmental skills and training gaps of the sector. For that reason, and in order to design an effective set of questions, partners assessed the relevant EU regulations regarding the nautical sector main activities and also the national legislative frameworks of the participating countries in the consortium.

## 3. METHODOLOGY

The research phase of the EnviroNaut project was based on 3 stages:

- **Stage 1:** Document the International, National and EU legal aspects that need to be taken into account when developing the Environmental Officer curricula.
- **Stage 2:** Understand the current environmental practices of the sector by carrying out a series of interviews with professionals from projects target groups in all participant countries.
- **Stage 3:** Identify the environmental skills gaps of the professionals by comparing the answers of the target groups with the current legislation.

Having documented and analysed the current maritime regulations and laws regarding environmental sustainability, project partners proceeded with the development of a set of questions that will be implemented in form of interviews to better understand the day-to-day practices of the nautical sector labour and later identify skill gaps.

In order to design and develop effective interviews, three scenarios were initiated.

**Scenario number 1:** A multiple choice questionnaire to test the user with content in line with EU regulations. This option was not selected as environmental issues is a hot topic and the user



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might feel uncomfortable when answering certain questions. Also, the answers would be different in every country as each participant country has its own rules and laws.

**Scenario number 2:** A “yes/no...if so how” questionnaire. This option was not selected either as users might answer with environmentally friendly practices in regards to their day to day work although they don’t really practice them.

**Scenario number 3:** Interview with open questions. This was the selected method, as partners will let the interviewee speak without outside influence. This approach will allow the identification of possible skills gaps in a next step. The idea is to hear from the user/company and understand what sort of systems or measures they take to act environmentally friendly or prevent environmental damages.

*The interview was divided into 2 sections:*

- 1. General Questions:** *these are to understand the participant profile and the company type.*
- 2. Specific Questions.** *4 groups of questions have been designed according to the 4 groups within target group A: Marinas, Sea Schools and Water Sports Clubs, Skipper and Charter Services and Maintenance Services. When conducting the interviews, you will ask the interviewee about which subgroup they belonged to, and you will only ask a specific group of questions.*

**In order to add quantitative added value, project partners decided to design an online survey** with a set of questions aimed at finding environmental skills and training gaps in the nautical sector. A copy of the full list of questions can be found in the Appendix.

## 4. RESULTS OF THE FACE-TO-FACE INTERVIEWS

### 4.1. RESULTS OF TG-A: MARINAS AND PORTS

**a) Summary:** project partners conducted a total number of 10 face-to-face interviews in this target group. Six of them were from Germany, 3 from Spain and 1 from Greece. 40% of the answers came from medium-size companies (from 50 to 250 employees), 40% from small companies (10-50 employees) and 20% from micro companies (form 0 to 10 employees). The positions of the interviewees included: Owner, Harbour Master, Managing Director, Marketing and Communication manager, Production Manager and Quality, Environmental & Safety Manager.

#### **b) Environmental challenges in the organization.**

The answers of the environmental challenges show similarities depending on the country they are located. 3 German marinas answered that the biggest challenge for them is to meet with the regulations from the government, natural park or the lessor (see answers in Green on figure 1), although they try to save resources in packaging and substitute certain goods with ecological and regional alternatives. Other answers demand sustainable development from the industry or external support to expand their electrical systems.

The answers in red (figure 1) see environmental challenges in saving resources (e.g. use of paper or water), but also they are demanding better recycling procedures, more use of sustainable sources and most importantly in the “repair waste” in case of big marinas where the waste management can be very complicated depending on the needs of certain boats.



FIGURE 1. ANSWERS OF ENVIRONMENTAL CHALLENGES IN YOUR ORGANISATION.

c) Measures to be taken:

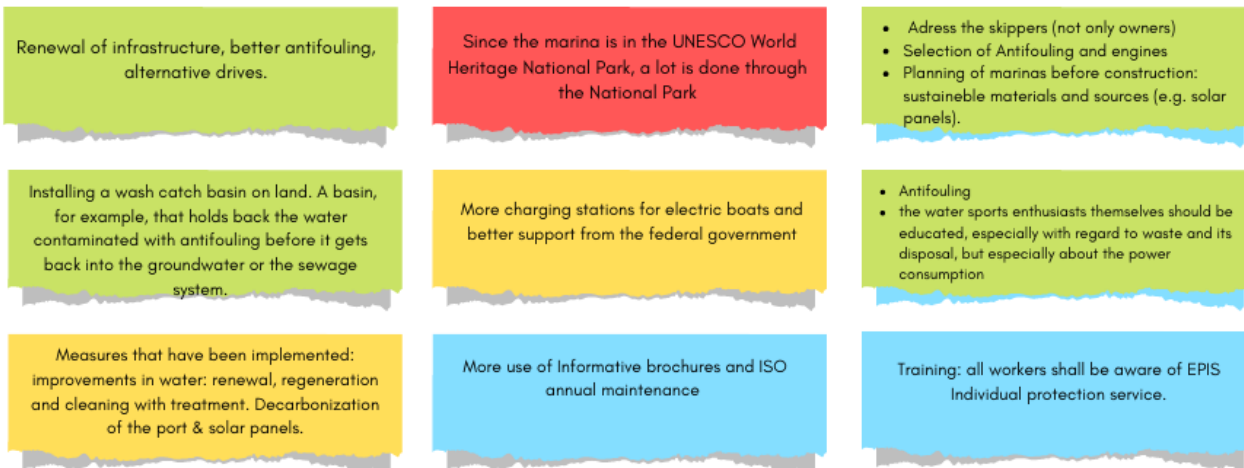


FIGURE 2. ANSWERS OF MEASURES TO BE TAKEN IN THE ORGANISATION/ENVIRONMENT

Participants were asked to specify which measures should be taken to improve the environmental situation of their companies and their surroundings. Most of the answers coincided in one topic: there is a need of better antifouling (answers in green). Companies also demand for better training, addressing not only boat owners but also the skippers, and more awareness about ISO14000 and EPIS. Last but not least, companies demand better infrastructures that use sustainable energy sources and a better planning when constructing or reforming marinas.



FIGURE 3. THE SPANISH TEAM DURING THE INTERVIEW AT CLUB NAUTICO PORTO PETRO



#### d) Skills gaps in employees and skills needed.

When asking the question “Do you think there are skills gaps for employees? If so, which skills are needed?” 5 out of 10 interviewees answered “no” due to a shortage of staff or simply “we don’t pay attention to that”. On the other hand, the positive answers were:

- Yes! training for the sustainable operation of a marina in today's world and further technical training.
- Yes, Environmental workshops are held every year, we have organizations such as SAVE THE MED and maritime rescue that give training talks to our employees. Internal Communication is key for an effective training.
- Yes, there is an age gap, and people who are over 60 years are less responsible.
- Yes, We have an open dock where we have more than 900 registered companies with many services that depend on the needs of the client. The ISO 14000 law is known for the port census. It is important to recycle and continue training. The companies that have more risks are the painting companies since they can have between 250 to 1000 employees depending on the time of year.

#### e) System for measuring water consumption and consumption pattern.

Only 2 out of 10 companies has a metered and individual consumption system established (in Spain). The consumption may vary from 100 to 1000L depending on the boat. 5 of respondents answered “no” or “no idea” and 3 respondents answered with “we have a general system that calculates the joint consumption”.



FIGURE 4. MALEN LLOMPART (ALCODIA MAR) DURING THE F2F INTERVIEW

**f) Waste disposal policy/procedure/system for general waste**

When asking about the waste disposal procedure, 6 respondents were cautious and only answered “complete waste separation and professional disposal” or “collect different types of recyclable waste”. Others were more specific and answered “we have garbage cans for residual waste, recyclable waste, glass containers and stations for waste oil and varnish” or “we manage the waste on each pantalan and there is a recycling point on the harbor. We also have a point for collecting oils and plastics from the sea”. Two respondents went one step further and were more critic with target groups “there is the possibility to separate waste but this is not often done by skippers or customers”.



**FIGURE 5. ANSWERS OF WASTE DISPOSAL POLICY (A)**

**g) Waste disposal policy/procedure/system for human waste**

When asking about the human waste treatment system, only 1 out of 10 answered “each mooring has its own individual pumping system”. 4 respondents stated “we have sanitary facilities only” or “it is disposed as required in the region”. The other 5 respondents stated that there are pumping stations available for their use under cost, but the requests are nonexistent or very limited (see figure 6).





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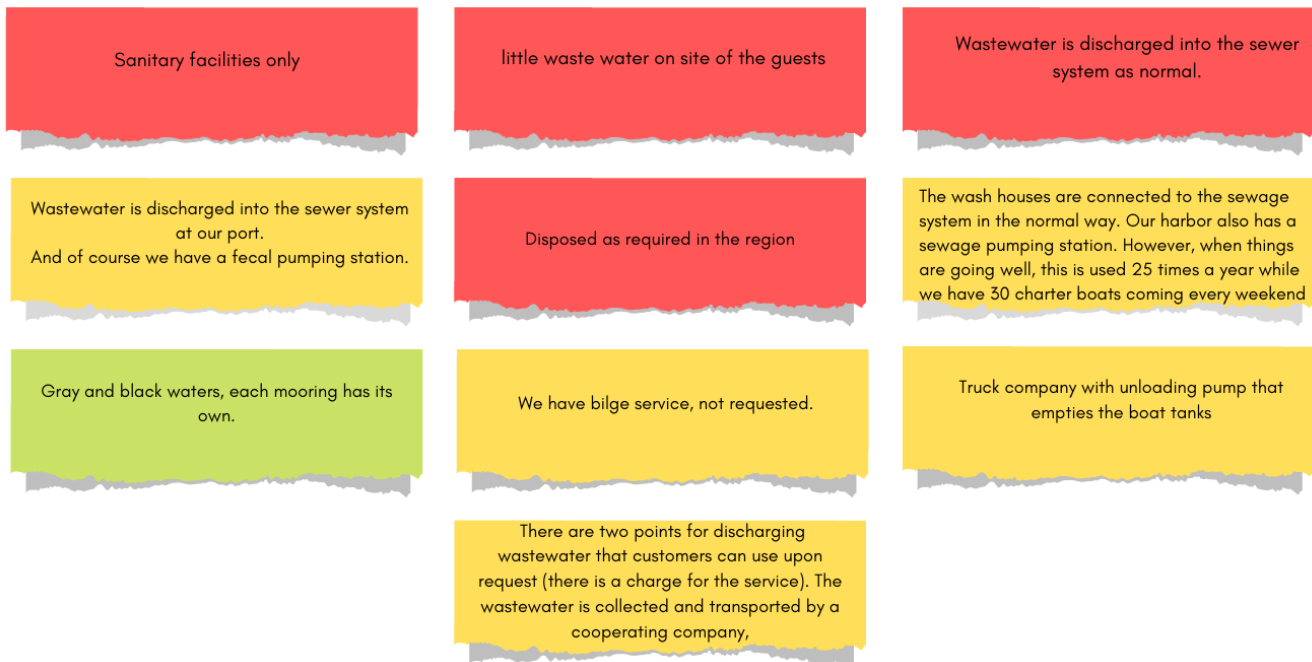


FIGURE 6. ANSWERS OF PROCEDURE TO TREAT HUMAN WASTE

### h) System for fuel provision

3 of the respondents stated that the fuel provision is "non existing". On the other hand, 2 of the companies answered "We have a diesel fuel station with a capacity of 10,000 liters" and "We have a diesel fuel station with a capacity of 100,000 liters". 2 other companies provide delivery by truck or fuel carts and 1 marina follow a very exhaustive procedure: "During the bunkering, the representative is responsible for: (1) ensuring that there are no leaks in the joints and flexible transfer pipes and asking for placing absorbent towels under these points, (2) not closing the receiving nozzles without prior consultation with the person in charge of the fuel delivery company, (3) ensure no usage of mobile phones by operators of mining equipment and infrastructure and (4) forbidding smoking. After the bunkering, the person in charge of the lorry must check that: (1) the receiving mouthpieces are closed, (2) blind flanges are to be installed on the ends of the receiving mouthpieces immediately after the flexible piping is removed, (3) in case of leakage in the land area of the marina, the Cleaning Officer should be informed immediately so that the area is cleaned, and (4) in case of leakage in the sea area of the marina, the appropriate pollution control measures should be determined immediately.

### i) Procedure in case of fuel spills

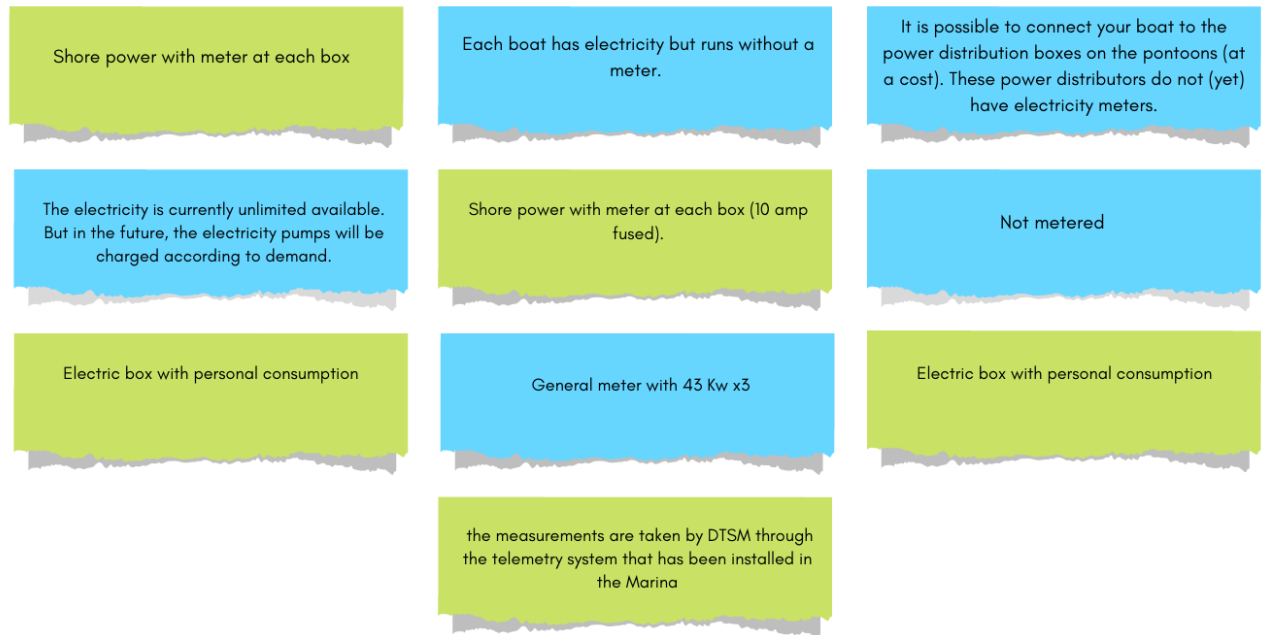
Participants were also asked to specify the procedure they follow in case of fuel spills. In this case, the majority of them seem to agree on a same procedure: oil spill barriers. (7 out of 10). Three respondents stated that they follow a contingency plan where they have to inform the authorities, and one of the marinas stated “we have absorbent materials for major mishaps. Otherwise, the boat owners do it themselves”.



FIGURE 7. ANSWERS OF PROCEDURE IN CASE OF OIL SPILLS

### j) System for providing electricity to boats

This question had a 50-50% agreement by the interviewed marinas: 4 of the marinas have an individual box with metered consumption and 1 of the marinas has implemented its own system to calculate the individual consumption to later send the customer the invoices. The rest of the marinas don't have a metered system implemented yet but they have plans to do so (see figure 8).



**FIGURE 8. ANSWERS OF SYSTEM TO PROVIDE ELECTRICITY**

**k) Actions to protect the environment in dry storage.**

When asking participants about the actions they carry out to protect the environment in their dry storage, 3 of the respondents answered “none, as we don’t have a dry storage”. Other answers were:

- “There are catch basins so that the water does not flow one to one into the sewage system”
- “Collection of liquids in case of loss in shore storage with tarpaulins”
- “We have a three-chamber system there for purifying the water. This means that it is cleaned and then disposed of”.
- “We collect oil and fuel in tubs”
- “We have a wharf of 12.000m2. We have a hazardous waste center for paint, pollutants, and oils” “Filters are collected when boats are docked, waste collection points with daily service. Gray water in a container that is discharged with the city system”
- “In a fenced area of the premises, there is a container where the hazardous waste is placed The waste is separated according to its type (LoW Code) and packaged in approved BIG BAGS & barrels which are supplied to us by a licensed company with which we maintain a contract for its transport and final disposal”.



### **l) Use of e-transport.**

When asking about the use of electric means of transport, 8 out of 10 marinas stated that they have e-bikes or e-cars for their personnel but also available for customers. The other 2 marinas have regular bikes available or combustion cars.

### **m) Environmental information provided to customers**

When interviewers asked the question “What sort of environmental information do you provide to your customers?” the responses were as follows:

- 3 answered “none”.
- We have a cooperation with the WWF and the BUND. There are certain rules of conduct that should be adhered to. But otherwise we have no posters, information flyers or other, which we provide.
- We send out our annual letter through our newsletter every year.
- 4 marinas make use of brochures and leaflets.
- 2 marinas make use of social media.
- 1 marina make use of QR codes placed on the individual light boxes where customers can scan it and find environmental information.

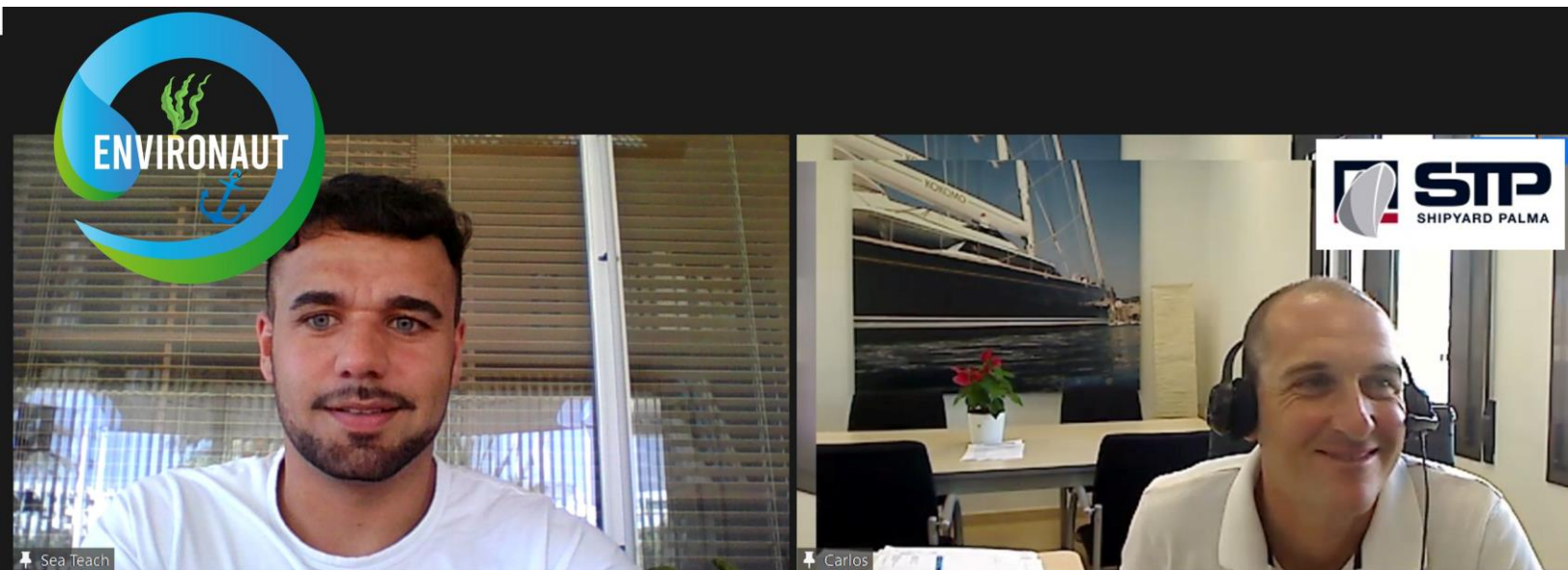


FIGURE 9. CARLOS ARBONS – STP DURING THE F2F INTERVIEWS.



## 4.2. RESULTS OF TG-B: SEA SCHOOLS AND WATERSPORT CLUBS

**a) Summary:** project partners conducted a total number of 10 face-to-face interviews in this target group. Four of them were from Germany, another 4 from Spain, 2 from Greece and 1 from Croatia. 50% of the answers came from small companies (10-50 employees), another 50% from micro companies (form 0 to 10 employees) and 10% from medium-size companies. The positions of the interviewees included: Managing directors, owners, chief instructor, sailing instructor and CEO.

### **b) Environmental challenges in the organisation:**

The answers of the environmental challenges show similarities between respondents (*figure 10*). Only 2 companies from Spain were autocratical and answered “we should use less water and make use of biodegradable products” or “every time a piece breaks, I have to change the whole part of the sailing boat and that implies more waste and consumption”. Other companies were worried about the future and climate change: “We are worried about flood hazards ” or “fluctuating water levels are particularly a challenge”. Some companies see challenges in their customers actions/behaviors “customers collect natural materials from their dives” or “people are overloading river ecosystems”. Finally 2 companies do not see any environmental challenge in their organizations.



FIGURE 10. ANSWERS OF ENVIRONMENTAL CHALLENGES IN THE ORGANISATION

### c) Measures to be taken

When asking participants about which environmental measures should be taken, 3 respondents referred to the use of eco/bio products, green sources of energy and more information/training about chemical products used day to day as a Sea School that could endanger the marine environment. 2 companies referred to reducing traffic and better connections with public transport, while 3 other companies referred to establishing better systems to collect trash and plastic, both on land and at sea. One company highlighted to “work on the customers, actively decide which customers are wanted and which are not”.



FIGURE 11. ENVIRONMENTAL MEASURES TO BE TAKEN



FIGURE 12. DAVID HERNANDEZ (MALLORCA ON JETSKI) DURING THE F2F INTERVIEW

**d) Skills gaps in employees and skills needed.**

When asking the question “Do you think there are skills gaps for employees? If so, which skills are needed?” 6 respondents answered “no”, one respondent answered “language” and more elaborated answers were:

- Trainers are very aware of the environmental problems, but the environmental issue is overlooked. Littering should be penalized.
- Employees do not take it seriously - there is no responsibility. Bio products prices are very expensive and they are not effective.
- There is a lack of initiative
- Employees are firstly trained and afterwards, they are assigned their duties. The lifeguard team is made up of specialized personnel. The personnel consists of people who either are athletes with relevant background and skills or are familiar with water activities. In general, the standard training lasts 45 days but I have noticed that the essential training could be 2 years in some cases.

**e) Information to customers regarding noise pollution, actions on natural areas, knowledge of protected species, wildlife attraction with food and the effects on nature.**



FIGURE 13. ANSWERS OF ACTIONS THAT AFFECT WILDLIFE



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In order to find out which actions do company take to protect the surrounding wildlife and natural and protected areas, the question “One big problem for the environment and its wildlife is the human noise pollution produced by customers. Do you inform your customers regarding this issue, and if so, what do you tell them?” was sometimes reformulated in order to be more specific with certain companies. Therefore, in this section the following questions were also included: “Do you attract fish or other marine life with food?”, “Do you know if there are any creatures worth protecting in your diving area and if they are protected?” and “Your area also includes parts of nature reserves, what challenges does this pose?”

Regarding the information of noise pollution, 5 companies do inform their customers about the rules beforehand, while 3 of them don't do so as “they are sailing schools”. The company that was asked about wildlife attraction with food and knowledge about protected species, the answers show that they act positively towards the environment and the wildlife living in it.

### f) Waste disposal policy/procedure/system for general and human waste

Regarding the waste disposal policies, 6 of the companies just meet with the rules Established by the government or by ISO 14.000. Others, are halfway through and recycle only materials like “paper or commercial waste only”, “glass and plastic only” or they just meet with the rules on water but not on land. There is one company that goes one step forward and is trying to educate students about the importance of using “reusable bottles” or meeting with the “12 mile offshore limit” to discharge black waters on sea.

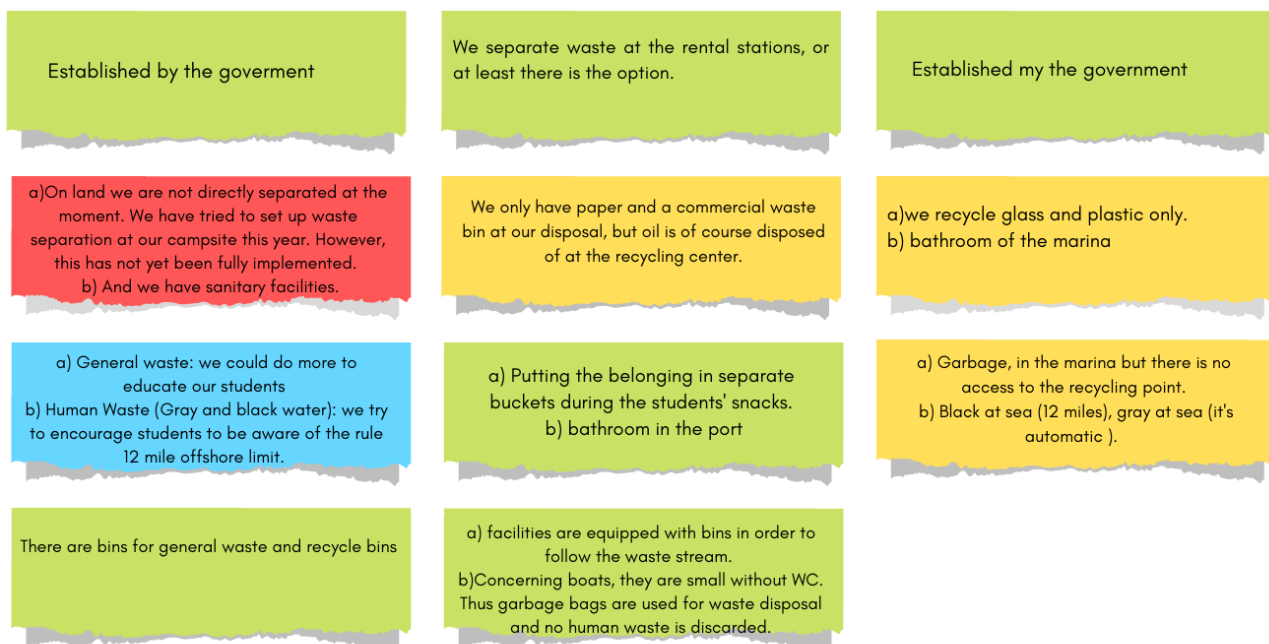


FIGURE 14. ANSWERS OF WASTE DISPOSAL POLICIES



### g) Materials used to make and maintain vessel

When asking the question “What materials are your canoes made of” or “what procedures/materials do you use to maintain your vessels”, 6 out of 11 respondents answered “Not applicable”. The relevant answers were:

- For “What materials are your canoes made of?":
  1. The materials from which our canoes are made also have their impact, of course. We have had canoes made of fiberglass-reinforced plastics. Now we have switched to boats made of PE (polyethylene). We do not buy the boats from germany, but of course we pay attention to the import prices. "
  2. PE, we can repair the boats ourselves with a welding rod made of the same material, and then boats last about 15 years."
- For “What procedure/materials do you use to maintain your vessels?":
  1. We don't do sailing.
  2. We make use of Mercautic: ecologic shampoo.
  3. Fairy



FIGURE 15. MATIAS (MALLORCA NAUTIC) DURING THE F2F INTERVIEWS

### h) Procedure to change engine oils/spare parts

When asking about the procedure to change engine oils, materials or spare parts, 5 respondents answered “not applicable”, while the others stated that the job is outsourced by a service company. One specific company stated “There is a special place to collect oil but they charge money and people generally throw it away.”

### i) Information given to customers

6 of respondents answered with negative comments to the question “What sort of environmental information do you provide to your customers?” The other 5 respondents answered:

- We always advice them of the Posidonia law regarding anchoring, we always inform them of the human waste disposal law, but we could do more to ensure that pleasure boaters



are more responsible with regards to their single use plastic and how they are disposed of.

- We inform students about plastics and microplastics and the problems they have on animals. We rescue animals and even turtles that we then contact the foundation of Palma Aquarium to take care of them.
- It is recommended to dispose the waste in the bins.
- We always point our customers to public transport.

### **j) Toilett facilities**

When asking participants about “Do you inform your customers about toilet facilities?” 7 respondents answered “no” or “not applicable” while the Spanish companies answered “yes” and more precisely “We do, and particularly with regard to sanitary materials (i.e. wipes) which are often flushed into the sea that must not put into the toilet”

### **k) Extra questions**

The following extra questions were asked to some German companies (each question is followed by the answer).

***The so-called 10 golden rules for water sports enthusiasts are also mentioned in connection with the German driver's license for boats in inland waters and sea waters. What is your opinion on this?*** Driving licenses such as SBF Binnen and SBF See only go through the sustainability aspects in an alibi-like manner. Since the theory lessons for these licenses naturally prepare for the exam, sustainability is not discussed further in this context. Perhaps this can be expanded.

***When you take the boats out for diving, what is your (anchoring) routine like? Are there mooring buoys?***

Exactly we go out diving with our boat and no there are no morings buoys, we always anchor. I know that anchoring is always kind of bad and it damages the substrate. I would also be in favor of fixed mooring buoys being provided in the areas. But the Croatian government is not so with tendering nature reserves. If there were these buoys I could also save the material to anchor.

### **l) Additional Comments**

Additional comments from respondents included plans for future in the organisation, those including: digitalization to save resources, choosing the right clientele, more awareness about the products used and current facts in Croatia (there is a need to increase awareness of the problem of marine litter) and Greece (customers and local kids are well educated).

### 4.3. RESULTS OF TG-C: SKIPPERS

**a) Summary:** project partners conducted a total number of 9 face-to-face interviews in this target group, 2 of the skippers were from Spain, 3 from Greece and 4 from Germany. The mobility of this target group between different countries enriched the responses as they have knowledge of the rules of more than 1 country. 4 out of 9 companies were micro (less than 10 employees) , 2 were medium-sized, 1 small and 2 freelancers. The positions of the interviewees included: Professional skippers, CEOs, Owners, Managers and freelancers.

#### **b) Environmental challenges in the organization.**

The following common challenges were mentioned by 6 of the respondents, being **the waste separation procedure** the most mentioned challenge:

- Waste separation system in ports and marinas not effective in many cases.
- Draining of fecal tanks is hardly ever done or systems are too old/poor to be used.
- Antifouling
- Not enough means to make the recycling process effective.

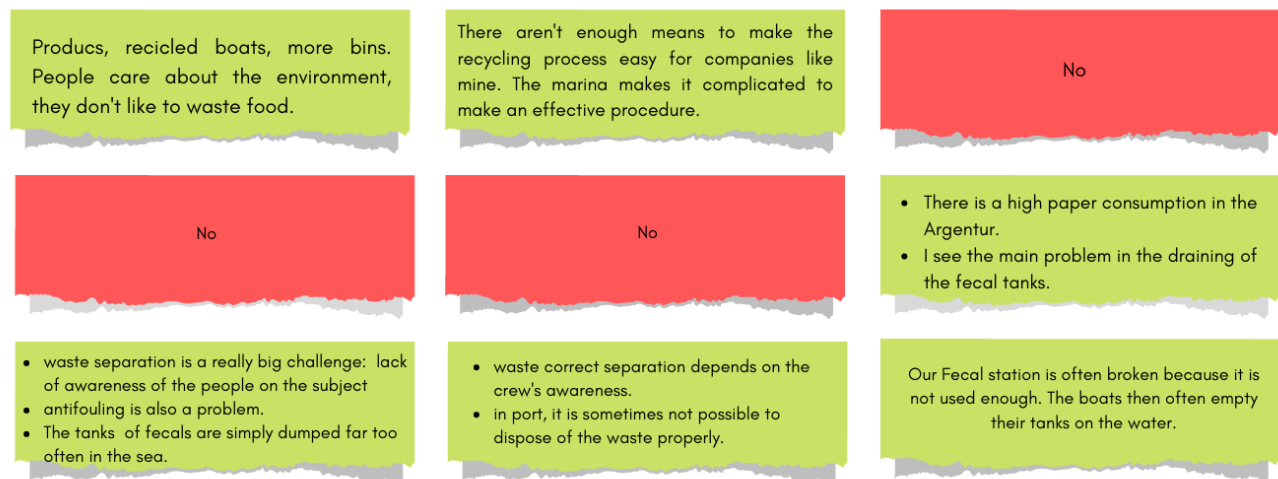


FIGURE 16. ANSWERS OF ENVIRONMENTAL CHALLENGES IN THE ORGANISATION

#### **c) Measures to be taken:**

When asking participants to mention which measures should be taken to improve the environmental situation of the sector, 5 of them coincided in the need of having better infrastructure in ports and marinas, being the fecal tanks for pumping out the gray and black

waters the main issue. Other measures included, to raise awareness in young sailors, crew and charter clubs and the more use of eco-friendly products.

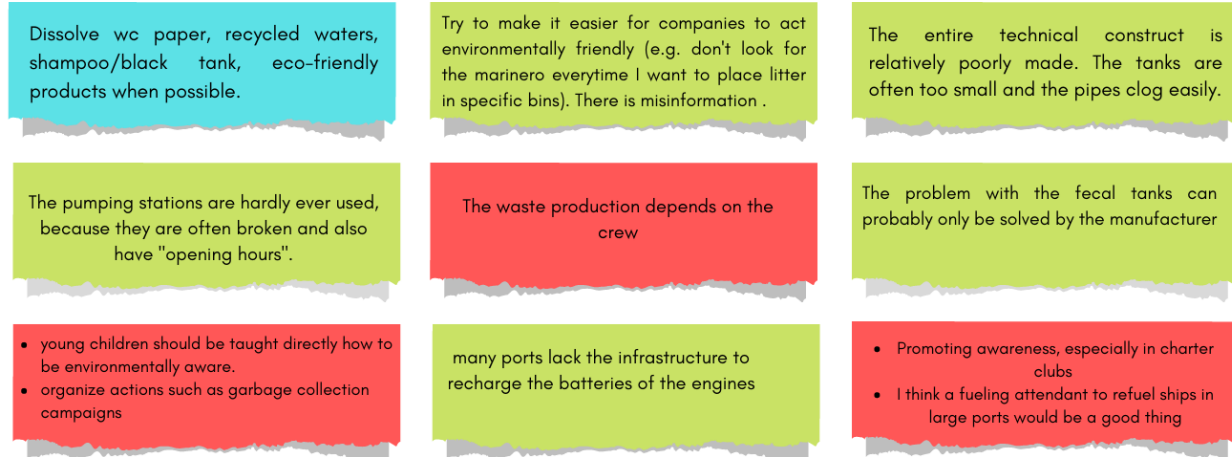


FIGURE 17. ANSWERS OF MEASURES TO BE TAKEN

#### d) Skills gaps in employees and skills needed.

When asking participants to mention which skills gaps do they see in their employees, 5 respondents answered “there are not skills gaps” while the most elaborated answers were:

- Owners and staff don’t understand what does eco-friendly mean.
- Employees do not take it seriously - there is no responsibility. Bio products prices are very expensive and they are not effective.
- Soft skills that are vital for ensuring safety. Environmental awareness is lacking and their communication skills are rated as marginally competent.
- It is difficult to get workers at the moment. In addition, further training is falling short.



FIGURE 18. THE TEAM OF SEA TEACH INTERVIEWING GEORGE, A GREEK SKIPPER LIVING IN SPAIN

### e) Measures taken to reduce the noise pollution problem

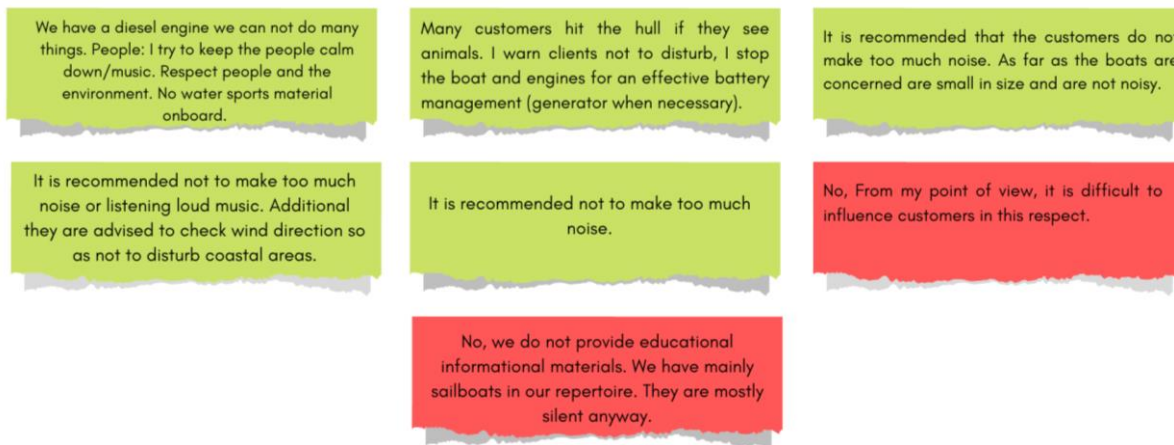


FIGURE 19. RESULTS OF MEASURES TAKEN TO REDUCE THE NOISE POLLUTION PROBLEM

When asking participants to mentioned which measures do they take to reduce the noise pollution problem, all professionals give recommendations but in all cases, it is not a rule, there are two companies that don't tell the customers anything about it and 2 other companies did not answer the question.

### f) Waste disposal procedure

The answers of one of the most controversial questions, "what is your waste disposal procedure?", showed different answers and opinions: three of the respondents answered "directly into the sea", others answered "customers use port and marina facilities", two of respondents answered "waste separation is halfway correctly done" while the rest mentioned "there is not enough infrastructure on ports".



FIGURE 20. RESULTS OF WASTE DISPOSAL PROCEDURE

### g) Awareness of the norms and restrictions regarding anchoring in Posidonia and MPA (Marine Protected Areas)

Only 1 respondent answered “yes, I’m 100% aware of the rules and I respect them”, the rest answered negatively or did not give it much relevance.



FIGURE 22. ANSWERS OF AWARENESS OF THE NORMS REGARDING MPA'S

FIGURE 21. THE TEAM OF SEA TEACH INTERVIEWING RAFA, A SPANISH SKIPPER

### h) Use of generators for energy consumption

When asking participants about the use of generators for energy consumption, 2 of them answered “no”, 3 of them answered “yes” while other 2 answered:

- Roughly 10 out of our 2000 to 3000 boats have a generator on board. Occasionally, people ask for a generator.
- "I know there is. However, I have a solar panel on my own boat, because for compressor and the refrigerator the battery is simply not enough.

### i) energy consumption pattern

The answers to the question “what is your energy consumption pattern?” included:

- 2 respondents answered “intermittently”.
- During a sailing time of 6 hours, the pattern of consumption is 4kW. (The installed power is 728 kW.)
- AC generators are used when the boats are sitting in the dock. A typical operation is 8 hours mostly in the evening hours. During sailing time it is not possible operating the generators for technical reasons (i.e. wind).



- When in port the boats consume shore power to refill their batteries. Often customers leave the fridge powered during a sail. This leads to empty batteries even though we told them to switch it off.
- I was once on an Atlantic crossing on a 70-foot ship that even had a washing machine and hot water at all times. This was of course ensured by a running diesel generator.
- Most boats draw shore power as soon as they are in port. Otherwise, about 10% of our boats in the Mediterranean have a generator on board that runs the air-conditioning system.

## j) Additional Comments

Additional comments from respondents included the need of more environmental and general training, measures taken to reduce water consumption, no future for electric motors, lack of charging stations for electric boats in marinas and the need to use more bio products.

## 4.4. RESULTS OF TG-D: MAINTENANCE COMPANIES

### a) Summary

Project partners conducted a total number of 5 face-to-face interviews in this target group, 2 professionals were from Germany, 2 from Spain and 1 from the United Kingdom but also based in Spain. Two of the companies were small, two were micro and one was medium-sized. The positions of the interviewees included: Administrative staff, Production Manager, CEO, Member of the Executive Committee, and Managing director.

### b) Environmental challenge in the organisation

The answers for the question “what are the environmental challenges in your organisation” included waste management problems, the difficulties to obtain eco-friendly products, the barriers found in the ports and marinas to act more environmentally friendly or the cost of meeting the German regulations.

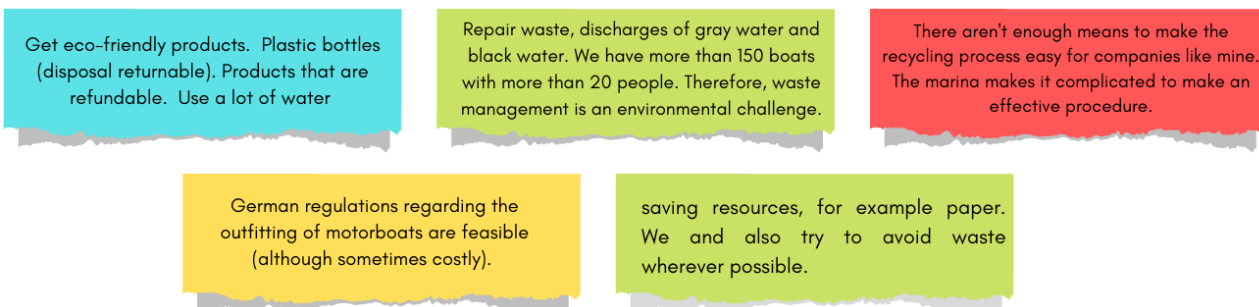


FIGURE 23. RESULTS BY ENVIRONMENTAL CHALLENGES IN THE ORGANISATION

### c) Measures to be taken

In regard to the measures to be taken, maintenance companies request more development in the provision of eco-friendly products, the implementation of an environmental action plan, to educate water sports enthusiasts and to provide more environmental information to companies.

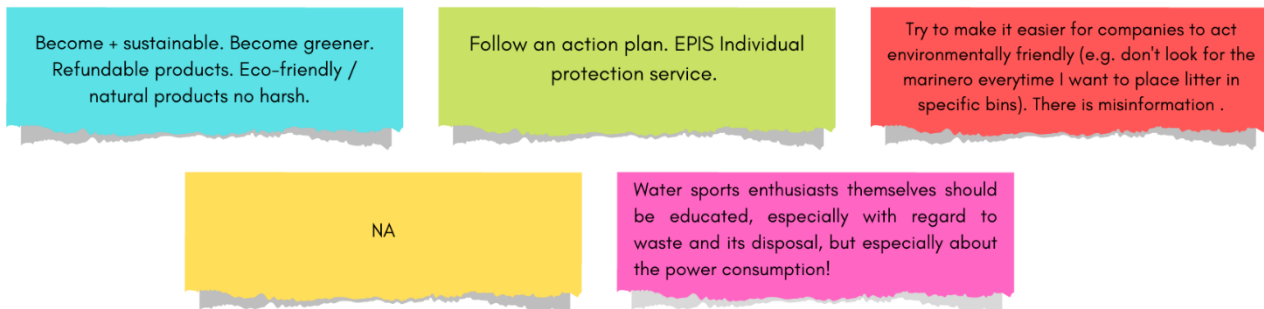


FIGURE 24. RESULTS BY MEASURES TO BE TAKEN

### d) Skills needed

Some companies were more self-critical when asking them "which skills do your staff need?" while others just blamed on the staff shortage and therefore sustainability is less important:

- *We are always learning, but we have to be more environmental aware. We waist a big quantity of the products we use and this cost us money.*
- *"We have an open dock where we have more than 900 registered companies with many services that depend on the needs of the client. The ISO 14000 law is known for the port census. It is important to recycle and continue training. The companies that have more risks are the painting companies since they can have between 250 to 1000 employees depending on the time of year."*
- *Employees do not take it seriously - there is no responsibility. Bio products prices are very expensive, and they are not effective.*
- *We are not asking ourselves this question at the moment. In general, we have a shortage of staff and do not primarily look at potential applicants to see how environmentally aware they are and what other knowledge and skills they have in this regard.*



**e) Products used**

3 out of 5 companies confirmed the use of non-bio products when carrying out their day-to-day activities, while the other 2 mentioned the use of eco-friendly components.

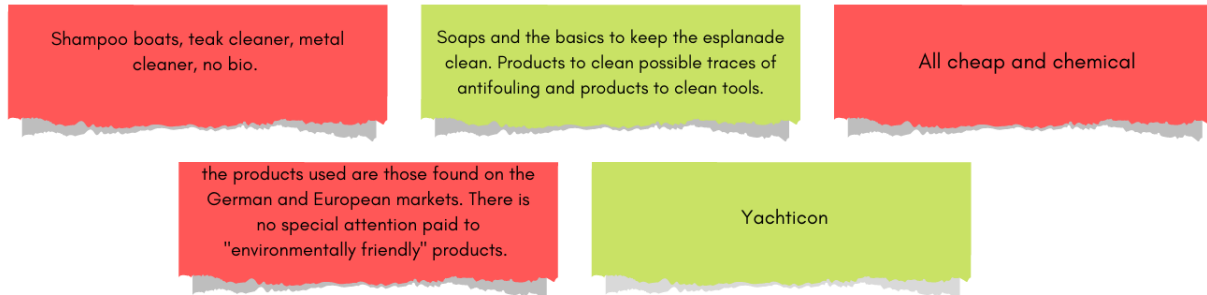


FIGURE 25. RESULTS BY PRODUCTS USED

**f) Company policy in case of a harmful cleaning product spillage**

The results of the companies procedures in case of a harmful cleaning product spillage show again different opinions: 2 companies are aware of the procedure to be followed and will later notify the marinas and the local authorities, 2 other companies would only make use of absorbent pads, and 1 of the companies assumes that the oil will be “mopped up”.

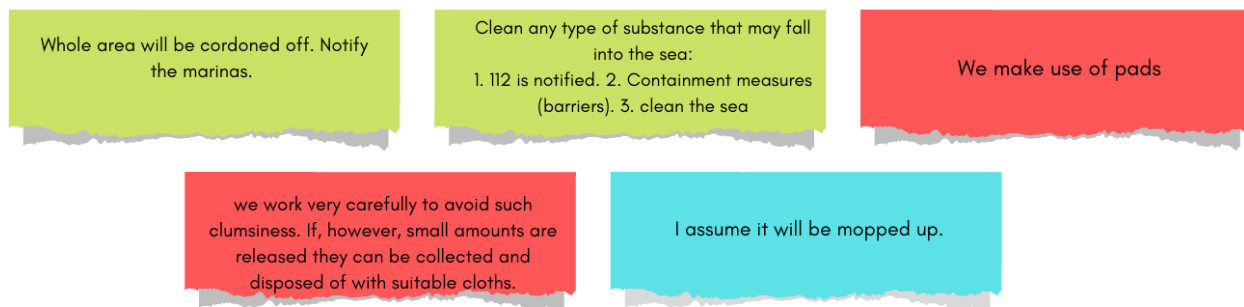


FIGURE 26. RESULTS BY PROCEDURES TO CLEAN A HARMFUL PRODUCT SPILLAGE

**g) Calculation on how much water is consumed when cleaning or repairing a boat**

4 out of 5 companies declared to not be aware of how much water is consumed then cleaning or repairing a boat while one of the companies stated “It depends on the length of the boat. For boats from 30 to 90 meters in length, 500 liters of water are consumed per day per project”.



FIGURE 27. THE TEAM OF SEA TEACH INTERVIEWING ALISON, ADMINISTRATOR OF A MAINTENANCE COMPANY

### **h) Antifouling application**

The answers of the question "How is antifouling applied?" show clearly that companies are aware of how harmful antifouling is for the environment, but all of them stated "we buy what is on the market".

### **i) Does your company offer hull cleaning in the sea? If so, what is the procedure?**

Only one company offers hull cleaning in the sea, and the procedure is as follows:

"We make use of karcher and sweepers. The material is collected and stored in our waste storage. The cleaning is done through a diving company. We don't have many requests, we just do it when regattas are held and these require polishing."

### **j) When repairing or replacing engines and filters, what is the company policy for the disposal of materials? And especially for the disposal of old oils?**

Two companies place the oil in oil drums and these are later disposed of properly in accordance with the regulations. Two other companies do not offer the service, and one of the companies stated "If you are a professional you are not informed about the marinas collecting oil"

### **k) What is the company procedure regarding gelcoat work, painting and polishing?**

4 of the companies do not offer this service and the company who does it stated "We do not have a system that absorbs the vapors. I think we just apply it and sand it down"



### l) What type of materials do you use for polishing?

The answers of the materials used when polishing included the use of a buffer pad and repair polish, non-sustainable polishing paste and wax and gelcoat polish polishing machine.

### m) Do you repair air condition units? What do you do with the gases?

4 of the companies do not repair air condition units, and the company which does it stated "the staff takes them to our recycling point"

### n) What process do you follow for cleaning teak decks? What do you do with the black silicon?

The companies which offer the service answered with the use of 2 products that are not bio but the disposal takes place in the simple residual waste. Another company stated: "some of the black silicone is simply painted over"

### o) Additional comments:

Additional comments included the need to do more to become more sustainable friendly and the need to install catalytic converters in the board machine to eliminate harmful chemical compounds in exhaust gases.

## 5. RESULTS OF THE ONLINE SURVEY

### 5.1. RESULTS BY COUNTRY

Respondents from Spain were the most numerous, as they represented 27% of the answers, followed by Cyprus with 19% of the answers, Germany with 15% of the answers and Greece with 11% of the answers. Respondents from France represented 9% of the answers, while other countries (Netherlands, Canada, Denmark, United Kingdom, Croatia, Belgium and Lithuania) represented all together the remaining 19% of the answers.

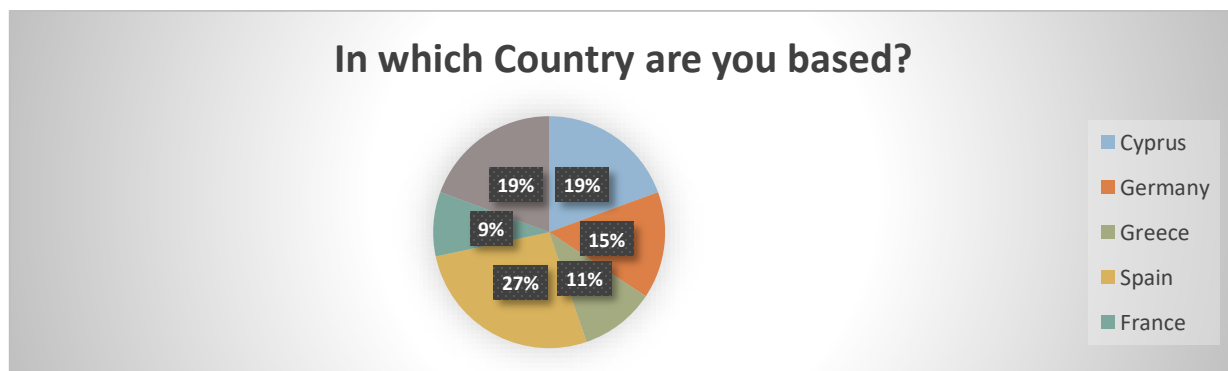


FIGURE 28. RESULTS BY COUNTRY



### 5.2. RESULTS BY TYPE OF EDUCATION

22 of out 69 respondents hold a bachelor degree, followed by 12 who hold a Master degree, and 6 of them who are engineers. Only 2 of respondents answered with “no education” and 4 of them completed high school, an interesting fact as 63 respondents are well educated.

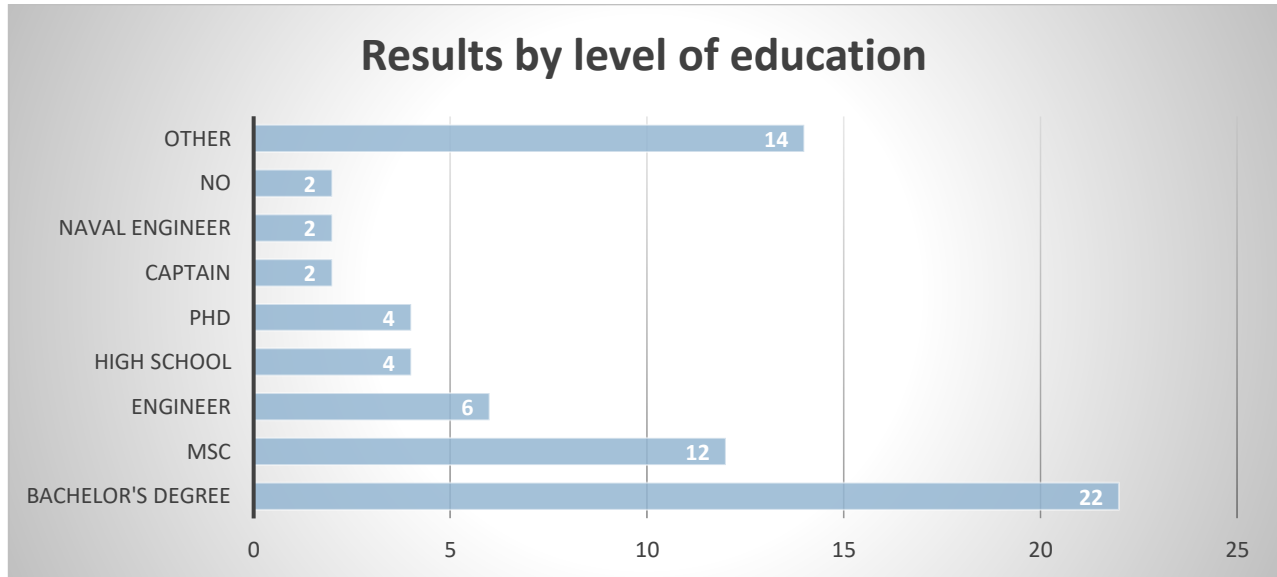


FIGURE 29. RESULTS BY LEVEL OF EDUCATION

### 5.3. RESULTS BY TYPE AND SIZE OF ORGANIZATION

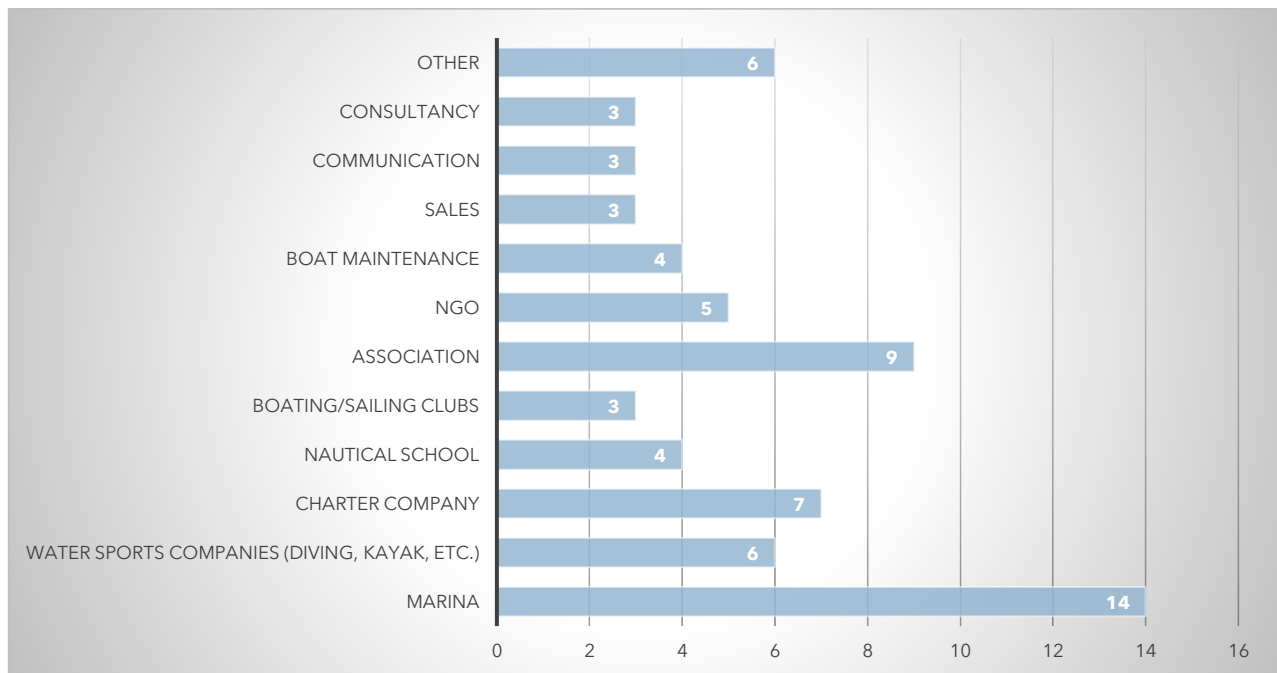


FIGURE 30. RESULTS BY TYPE OF ORGANIZATION

The results by type of the company show a clear winner: marinas with 14 answers, followed by associations with 9 answers, and charter companies with 7 answers. Water sports clubs and NGOs completed the top 5. When analyzing these companies by its size regarding the number of employees, it is clear that the majority of respondents belong to small and micro companies as both together accounted with 81% of the answers.

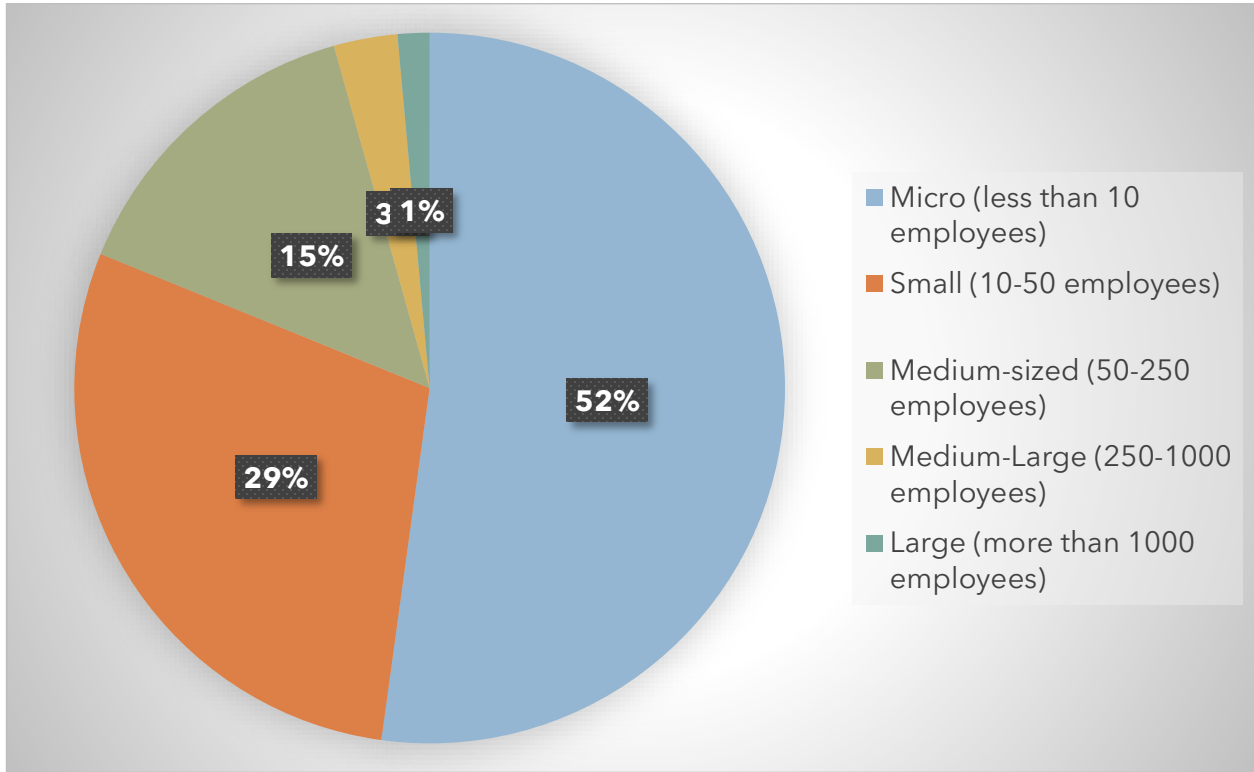


FIGURE 31. RESULTS BY SIZE OF THE ORGANIZATION

#### 5.4. RESULTS BY POSITION AND YEARS OF EXPERIENCE

An interesting fact about the results of this survey is that 29% of the respondents have 15 or more years of experience, 35% have between 5 and 15 years of experience and a 32% have between 1 and 5 years of experience. This fact means only 4% of the respondents have less than 1 year of experience and gives a clear profile of how experienced respondents are in the nautical sector.

On the other hand, the most repeated positions were: CEO, directors, managers, owners and admins. Only 2 respondents belonged to a sustainable position.



**- Research Phase Report**

|                                  |            |   |                                     |
|----------------------------------|------------|---|-------------------------------------|
| Technical Director / CEO         | 7 years    | harbormaster  | 5 years                             |
| Manager                          | 6 years    | deputy harbor master  | 1.5 years                           |
| Managing Director                | 22 years   | Owner's representative  | Not applicable - on a project basis |
| Researcher                       | 3 months   | Owner   | 15 years                            |
| Managing Director                | One year   | Quality assurance manager   | 8 years                             |
| Manager                          | 17 years   | Managing Director   | 10 years                            |
| Owner                            | 20         | Project Manager   | 1.5 yrs                             |
| Head of Internal Audit           | 4 years    | Chief powerboat instructor and senior sail instructor               | 1 year                              |
| Senior Instructor                | 6 months   | Director-General  | 22 YEARS                            |
| Senior Officer                   | 10 years   | Founder and Executive Producer                                      | SEVEN Years                         |
| Buisness development             | 2 years    | Head of Dept.   | 13y                                 |
| Owner                            | 13 yrs     | Owner   | since 2008                          |
| Shop Manager                     | 6 months   | President   | 6 months                            |
| GM                               | 10         | Ceo   | 5                                   |
| Director                         | 11 Years   | Sustainable Development Director                                    | 10 years                            |
| CEO                              | 30 years   | consultant  | 10 years                            |
| officer                          | 20 years   | Manager   | 12 years                            |
| CEO                              | 6 years    | GM  | 12 years                            |
| Director - Operations Manager    | 8years     | PROJECT MANAGER   | 12 years                            |
| International Blue Flag Director | One year   | ADMINISTRADOR   | 4 AÑOS                              |
| CEO                              | since 1990 | Cerente   | 6 años                              |
| Freelance                        | 2 years    | Ofical  | 2 years                             |
| Director of Communication        | 3 yrs      | Front desk  | 3 months                            |
| Outreach officer                 | One year   | Admin   | 2 years                             |
| Secretary General                | 2,5 years  | Head of Expansion and Corporate Development                         | 2 years                             |
| Chairman                         | 7 years    | Technical Director  | 15 years                            |
| Coach                            | 5 years    | Consultant  | 20 years                            |
| Managing Director                | 54 years   | Manager of mechanics  | 34 years                            |
| CEO_Owner                        | 40 years   | CEO   | 30 years                            |
| Managing Director                | 39 years   | Manager   | 3 years and a half                  |
| GF                               | 1.5 years  | Director  | 22 years                            |
| 1. Chairman                      | ten years  | Director of Quality and Innovation. Responsible for the environment | 18 years                            |
| project Manager                  | 10 months  | Secretary   | 10 years                            |
| harbor master                    | 5 years    | Director  | 4 years                             |
|                                  |            | Sustainability Manager  | 3 years                             |

FIGURE 32. RESULTS BY YEARS OF EXPERIENCE AND JOB POSITION

**5.5. RESULTS OF UNWTO SUSTAINABLE PRINCIPLES**

When asking participants about which of the UNWTO sustainable principles is more relevant, it is clear that “the optimal use of environmental resources. Maintaining essential ecological processes and helping to conserve natural heritage and biodiversity” was the winner as it obtained 74% of the answers as “most important” while in the other two principles, results are more balanced between the 3 answers.

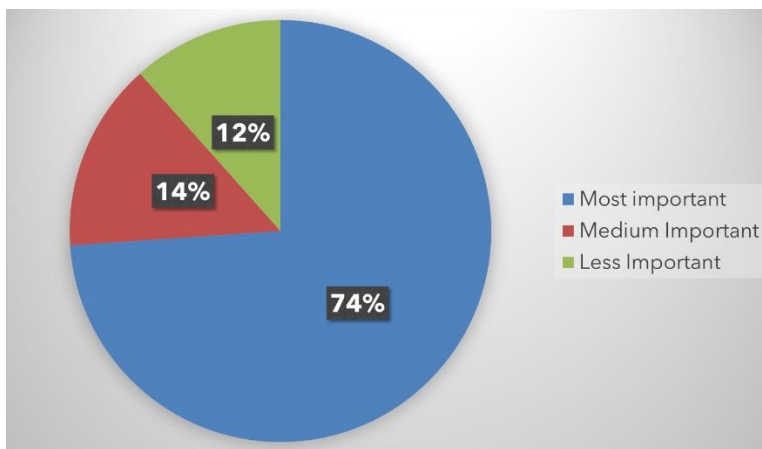


FIGURE 33. OPTIMAL USE OF ENVIRONMENTAL RESOURCES. MAINTAINING ESSENTIAL ECOLOGICAL PROCESSES AND HELPING TO CONSERVE NATURAL HERITAGE AND BIODIVERSITY.

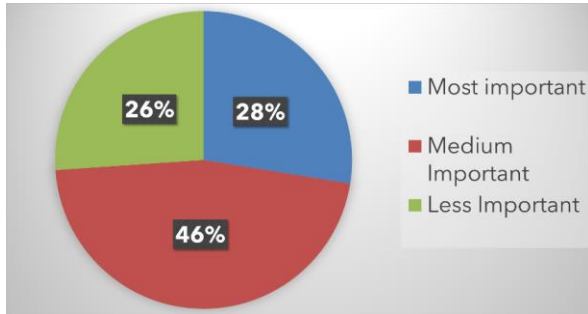


FIGURE 34. RESPECT THE SOCIO-CULTURAL AUTHENTICITY OF HOST COMMUNITIES.

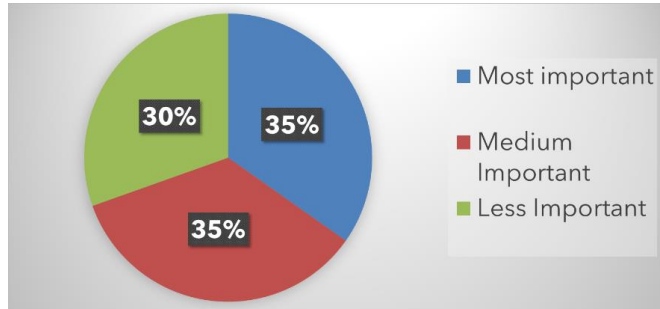


FIGURE 35. ENSURE VIABLE, LONG-TERM ECONOMIC OPERATIONS, INCLUDING STABLE EMPLOYMENT AND INCOME-EARNING OPPORTUNITIES.

### 5.6. RESULTS OF NAUTICAL SECTOR ENVIRONMENTAL GAPS

The results of the question “which are environmental gaps of the nautical sector?” show a common pattern: The most repeated answer was the need of improving the infrastructure in marinas, followed by the implementation and use of green fuels and recycled materials. The need to limit the consumption and reduce waste completed the top 3. Other answers included: governmental grants, e-mobility, and standardization of parts.

- State subsidies for electric motors as in the case of motor vehicles, equipment available at the ports.
- E-mobility, rethinking what do I actually need to keep my goods roadworthy, what is too much: maintenance, electric upgrades. Does it always have to be a new boat? Can also be a used boat.
- Options for green traveling, disposal stations for black water, garbage charging stations for electric engines, green supplements for fuels
- Low cost, high quality marinas and berths available for tourist boats
- Green fuels and infrastructure
- Sustainability and infrastructure. Also long term development plan without altering the authentic beauty and culture.
- Organize marinas and better promotion of this type of tourism in Greece
- Marinas and mooring facilities
- Green fuels for sure, as well as more companies dedicated to coastal clean up.
- Adequate infrastructures for the fuel transition
- Green /recyclable materials for boats building



Missing good marinas, fuel stations.

Standardization of parts,

Sustainable use and management of key sources to reduce impact on the environment..

Education and government support (not funds)

Green Fuels, subsidies to incentivise investment in sustainable fuels

Eboats

Mandatory satellite tracking, AIS type, green fuels, environmental sustainability and lifesaving issues in the curriculum for skippers, as well as marinas becoming greener and more efficient.

"'Green' engines and recycling of nautical materials

More sustainable boats analyzed from the life cycle. More sustainable fuels, recycled materials...

Environmentally friendly products

Conversion or transition to green energies or implementation of green fuels, by law, awareness of users about some practices in the care of their boats, for example biodegradable cleaning products

Stop generating so much waste

Social awareness in the user field. In most cases, the marinas are more aware than their clients, and for this reason the most sustainable methodologies are not used, both in the use of the marina itself and the rest of the complementary offer around it.

Technology to improve the sustainability of operations

"Calculation of load capacity and control. It cannot be that the nautical tourism sector is always growing, since it is detrimental to the sector itself. Limits are necessary. Also better fishing control. "

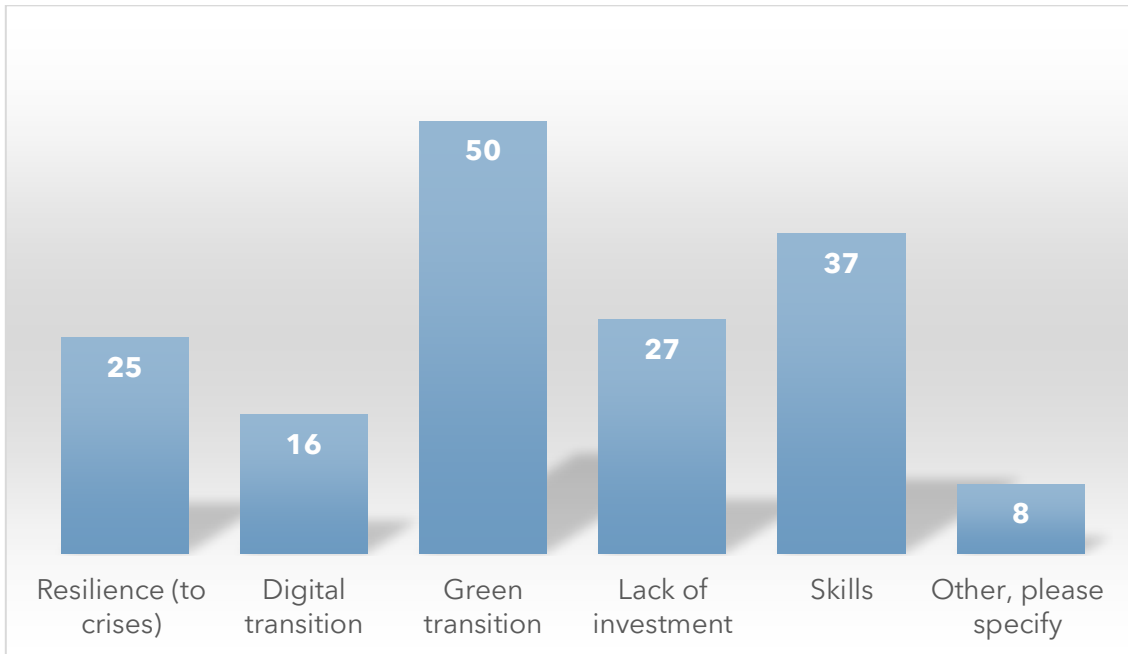
Reduction of units of great length (more than 12 mts)





### 5.7. RESULTS OF NAUTICAL SECTOR CHALLENGES

The results of the challenges of the nautical sector, showed a clear winner, the **green transition** with 50 answers, followed by **skills** with 37 answers and the **lack of investment** with 27 answers.



### 5.8. RESULTS OF CONTENT EXPECTED IN THE ENVIRONAUT COURSE

When asking participants about their expectations regarding the EnviroNaut course content, the results were as follows: **Tips and recommendations for professionals** and **information about environmental sustainability of the sector** obtained 50 votes each, followed by **practical examples from successful stories in the industry**, and **awareness about harmful practices**. **Tips and recommendations for users** was also a favourite.

